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European Technical Assessment Body for construction products



European Technical Assessment

ETA-24/0781 of 11 April 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

Deutsches Institut für Bautechnik

Selkent SEL-V410+ for masonry

Metal Injection anchors for use in masonry

Selkent, Osprey House, New Mill Road BR5 3QJ Orpington, London GROSSBRITANNIEN

Werk Selkent

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

EAD 330076-01-0604-v01, Edition 03/2024

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European Technical Assessment ETA-24/0781

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Page 2 of 158 | 11 April 2025

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Page 3 of 158 | 11 April 2025

Specific Part

1 Technical description of the product

The injection system Selkent SEL-V+ for masonry is a bonded anchor (injection type) consisting of a mortar cartridge with injection mortar Selkent SEL-V+, a perforated sieve 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 B4 to B7, B21, B22, C1 to C123
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 Annex C124 to C127

3.3 Hygiene, health and the environment (BWR 3)

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

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-v01 the applicable European legal act is: [97/177/EC].

The system to be applied is: 1

European Technical Assessment ETA-24/0781

English translation prepared by DIBt



Page 4 of 158 | 11 April 2025

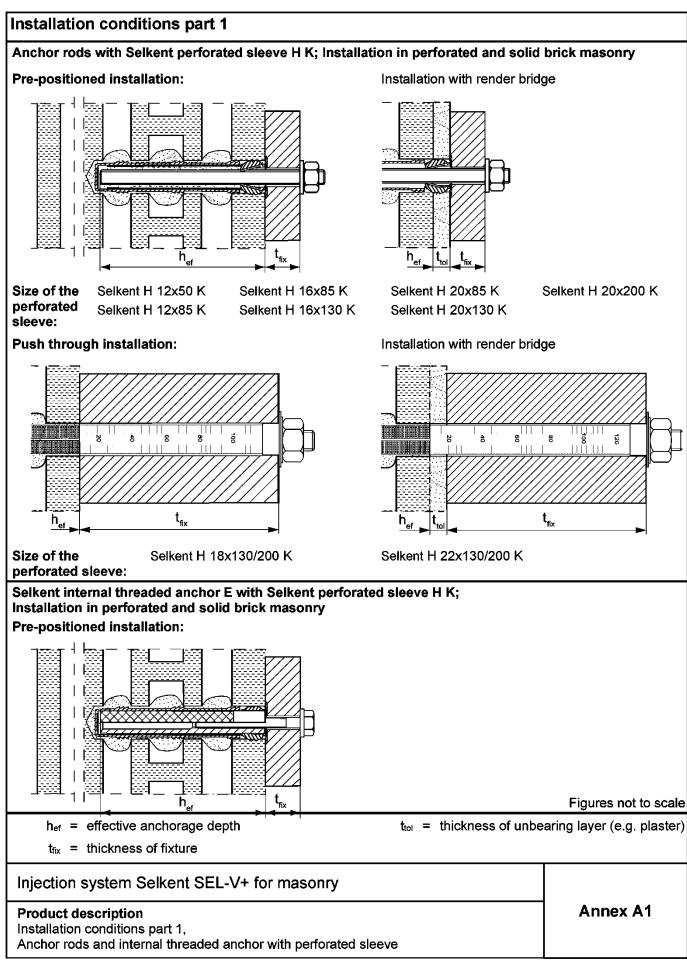
5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable European Assessment Document

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

Issued in Berlin on 11 April 2025 by Deutsches Institut für Bautechnik

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



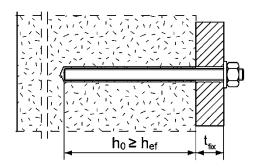




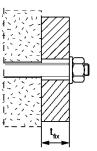
Installation conditions part 2

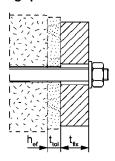
Anchor rods without Selkent perforated sleeve H K; installation in solid brick masonry and autoclaved aerated concrete

Pre-positioned installation:



Push through installation: Annular gap filled with mortar

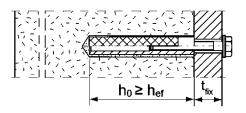




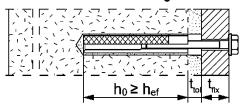
Installation with render bridge

Selkent internal threaded anchors E without Selkent perforated sleeve H K; installation in solid brick masonry and autoclaved aerated concrete

Pre-positioned installation:



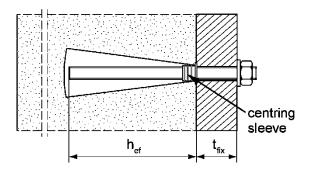
Installation with render bridge



Anchor rods and Selkent internal threaded anchors E without Selkent perforated sleeve H K; installation with centring sleeve in autoclaved aerated concrete with conical drill hole (installation with special conic drill bit PBB)

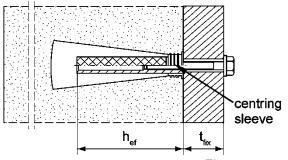
Pre-positioned installation:

anchor rods M8, M10, M12



Pre-positioned installation:

Selkent internal threaded anchor E 11x85 M6 / M8



Figures not to scale

 h_0 = depth of drill hole

ttol = thickness of unbearing layer (e.g. plaster)

hef = effective anchorage depth

t_{fix} = thickness of fixture

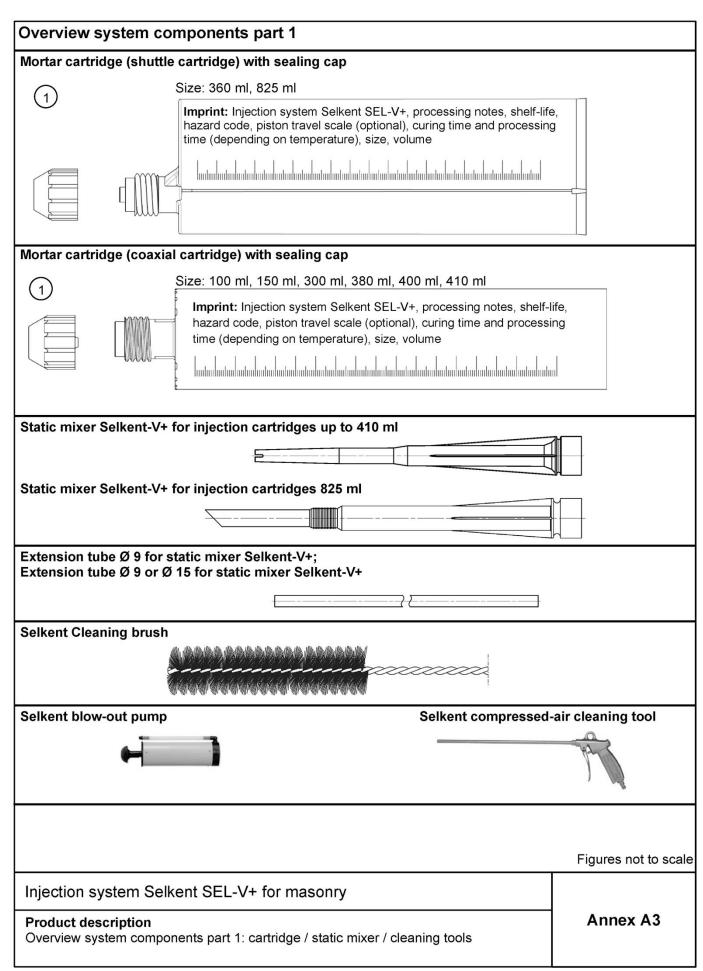
Injection system Selkent SEL-V+ for masonry

Product description

Installation conditions part 2, Anchor rods and internal threaded anchor without perforated sleeve / with centring sleeve

Annex A2







Overv	iew system components part 2	
Selken	anchor rod	
2	Size: M6, M8, M10, M12, M16	
Selken	internal threaded anchor E	
5	Size: 11x85 M6 / M8 15x85 M10 / M12	
Selken	perforated sleeve H K Size: Selkent H 12x50 K	
7	Size: Selkent H 12x50 K Selkent H 12x85 K Selkent H 16x85 K Selkent H 20x85 K	
7	Size: Selkent H 16x130 K Selkent H 20x130 K Selkent H 20x200 K	
Selken	perforated sleeve H K (push through installation)	
7	110000001000000000000000000000000000000	t H 18x130/200 K t H 22x130/200 K
Washe		
3		
Hexag	on nut	
4		
Injectio	n adapter centring sleeve PBZ	
Special	conic drill bit PBB	
		Figures not to scale
Inject	on system Selkent SEL-V+ for masonry	
Overv	ct description ew system components part 2: steel parts / perforated sleeve / conical drill bit / en adapter / centring sleeve	Annex A4



Part	Designation		Material	
1	Mortar cartridge			
		Steel	Stainless steel R	High corrosion resistant stee
		zinc plated	acc. to EN 10088-1:2023 Corrosion resistance class CRC III acc. to EN 1993-1-4:2006+A1:2015	acc. to EN 10088-1:2023 Corrosion resistance class CRC V acc. to EN 1993-1-4:2006+A1:201
2	Anchor rod	Property class 4.6; 4.8; 5.8 or 8.8; EN ISO 898-1: 2013 zinc plated ≥ 5µm, ISO 4042:2022 or hot-dip galvanised EN ISO 10684:2004+AC:2009 fuk ≤ 1000 N/mm² A ₅ > 8% fracture elongation	Property class 50, 70 or 80 EN ISO 3506-1:2020 1.4401; 1.4404; 1.4578; 1.4571; 1.4439; 1.4362; 1.4062; 1.4662; 1.4462; EN 10088-1:2023 f _{uk} ≤ 1000 N/mm ² A ₅ > 8% fracture elongation	Property class 50 or 80 EN ISO 3506-1:2020 or property class 70 with f _{yk} = 560 N/mm ² 1.4565; 1.4529 EN 10088-1:2023 f _{uk} ≤ 1000 N/mm ² A ₅ > 8% fracture elongation
3	Washer ISO 7089:2000	zinc plated ≥ 5µm, ISO 4042:2022 or hot-dip galvanised EN ISO 10684:2004+AC:2009	1.4401; 1.4404; 1.4578; 1.4571; 1.4439; 1.4362; EN 10088-1:2023	1.4565;1.4529 EN 10088-1:2023
4	Hexagon nut	Property class 5 or 8; EN ISO 898-2:2022 zinc plated ≥ 5µm, ISO 4042:2022 or hot-dip galvanised EN ISO 10684:2004+AC:2009	Property class 50, 70 or 80 EN ISO 3506-2:2020 1.4401; 1.4404; 1.4578; 1.4571; 1.4439; 1.4362; EN 10088-1:2023	Property class 50, 70 or 80 EN ISO 3506-2:2020 1.4565; 1.4529 EN 10088-1:2023
5	Selkent internal threaded anchor E	Property class 5.8; EN ISO 898-1:2013 zinc plated ≥ 5µm, ISO 4042:2022	Property class 70 EN ISO 3506-1:2020 1.4401; 1.4404; 1.4578; 1.4571; 1.4439; 1.4362; EN 10088-1:2023	Property class 70 EN ISO 3506-1:2020 1.4565; 1.4529 EN 10088-1:2023
6	Commercial standard screw or threaded rod for Selkent internal threaded anchor E	Property class 4.6, 5.8 or 8.8; EN ISO 898-1:2013 zinc plated ≥ 5µm, ISO 4042:2022	Property class 70 EN ISO 3506-1:2020 1.4401; 1.4404; 1.4578; 1.4571; 1.4439; 1.4362; EN 10088-1:2023	Property class 70 EN ISO 3506-1:2020 1.4565; 1.4529 EN 10088-1:2023
7	Perforated sleeve and centring sleeve		PP / PE	
	ction system Sel	lkent SEL-V+ for masonry	1	Annex A5



Specifications of intended use part 1

Table B1.1:	Overview use and	performance	categories
	0 10111011 000 0110	ponomiano	04.05000

Anchorages subje	ect to	Injection sys	stem Selke	nt SEL-V+ for	masonry	
Hole drilling with hammer drill mode		all bricks; without C32 to C51, C80 to C83				
_	th rotary drill mode	all bricks				
Hole drilling with	special conic drill bit	Only C118 to C122				
-	uasi static load, nasonry	all bricks				
	e under tension and r loading	C124 to C127 (App	olies only to	the conditions	of dry masonry)	
Installation	Pre-positioned installation	Anchor rod or internal threaded an (in solid brick masonr autoclaved aerated co	y and	or intern	sleeve with anchor rod al threaded anchor ated and solid brick masonry) Selkent H 12x50 K Selkent H 12x85 K Selkent H 16x85 K Selkent H 16x130 K Selkent H 20x85 K Selkent H 20x200 K	
	Push through installation	Anchor rod; use only in cylindrical d (in solid brick masonr autoclaved aerated co	y and	(in perfor Size: Selkent H	rforated sleeve with anchor rod (in perforated and solid brick masonry)	
Installation and use conditions	conditions d/d (dry/dry) conditions w/d (wet/dry) conditions w/w		all b	ricks		
Installation directi	(wet/wet)	D3 (down	ward and h	orizontal insta	llation)	
Installation tempe		· · · · · · · · · · · · · · · · · · ·		T _{i,max} = +40 °(
Temperature range Tb temperature Temperature Temperature range Tc		-40 °C to +80 °C (max. short term temperature +80 °C max. long term temperature +50 °C)		iture +80 °C		
		-40 °C to +120 °C (max. short term temperature +120 °C; max. long term temperature +72 °C)				
Injection systematics Intended Use Specifications p	em Selkent SEL-V	+ for masonry			Annex B1	



Specifications of intended use part 2

Anchorages subject to:

- Static and quasi-static loads
- · Exposure to fire

Base materials:

- Solid brick masonry (base material group b) and autoclaved aerated concrete (base material group d),
 acc. to Annex B13 / B14.
- Hollow brick masonry (base material group c), according to Annex B13 / B14.
- For minimum thickness of masonry member is hef+30mm.
- Mortar strength class of the masonry M2,5 at minimum according to EN 998-2:2016.
- For other bricks in solid masonry, hollow or perforated masonry and autoclaved aerated concrete, the characteristic resistance of the anchor may be determined by job site tests (not for bricks under fire exposure) according to EOTA Technical Report TR 053:2022-07 under consideration of the β-factor according to Annex C123, Table C123.1.

Note (only applies to solid bricks and autoclaved aerated concrete):

The characteristic resistance is also valid for larger brick sizes, higher compressive strength and higher raw density of the masonry unit.

Temperature Range:

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

Use conditions (Environmental conditions):

- Structures subject to dry internal conditions (zinc plated steel, stainless steel or high corrosion resistant steel)
- For all other conditions according to EN 1993-1-4:2006+A1:2015 corresponding to corrosion resistance classes to Annex A5, Table A5.1.

Injection system Selkent SEL-V+ for masonry	
Intended Use Specifications part 2	Annex B2



Specifications of intended use part 3 continued Design:

 The anchorages have to be designed in accordance with EOTA Technical Report TR 054:2023-12 (included the dimensioning for fire exposure), Design method A under the responsibility of a designer experienced in anchorages and masonry work.

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

$$N_{Rk} = N_{Rk,b} = N_{Rk,p,c} = N_{Rk,b,c} = N_{Rk,p,c}$$

$$V_{Rk} = V_{Rk,b} = V_{Rk,c,l} = V_{Rk,c,l}$$

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 054:2023-12.

N_{Rk,s}, V_{Rk,s} and M⁰_{Rk,s} see annexes C1-C3.

Factors for job site tests and displacements see annex C123.

 Verifiable calculation notes and drawings have to be prepared taking into 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 to be indicated on the design drawings.

Installation:

- · Conditions d/d: Installation and use in dry structures.
- Conditions w/w:- Installation and use in dry and wet structures.
- Conditions w/d: Installation in wet structures and use in dry structures.
- · Hole drilling see Annex C (drilling method).
- In case of aborted hole: The hole shall be filled with injection mortar Selkent SEL-V+.
- Bridging of unbearing layer (e.g., plaster) is permitted for masonry with solid bricks and cylindrical drill hole. At perforated brick masonry see Annex B6, Table B6.1.
- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.
- Fastening screws or anchor rods (including nut and washer) must comply with the appropriate material and property class of the Selkent internal threaded anchor E mentioned in Annex A5, Table A5.1.
- · Minimum curing time see Annex B8, Table B8.2.
- Commercial standard threaded rods, washers and hexagon nuts may also be used if the following requirements are fulfilled:

Material dimensions and mechanical properties of the metal parts according to the specifications are given in Annex A5, Table A5.1

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

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

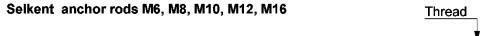
Injection system Selkent SEL-V+ for masonry	
Intended Use Specifications part 3 continued	Annex B3



Table B4.1:	Installation parameters for anchor rods in solid bricks and autoclaved
	aerated concrete without perforated sleeves

Anchor rod	Thread	М6	M8	M10	M12	M16	
Nominal drill hole diameter	d₀[mm]	8	10	12	14	18	
Effective anchorage depth hef1)	h _{0,min} ≥ h _{ef,min} [mm]			100			
in AAC cylindrical drill hole	h _{0,max} ≥h _{ef,max} [mm]	h-30, ≤200					
	h₀[mm]			h _{ef} + 5			
Effective anchorage depth her in AAC conical drill hole	h _{ef,1} [mm]	-		75		_	
minute comountain nele	h _{ef,2} [mm]			95			
Effective anchorage depth hef1)	h _{ef,min} [mm]			50			
in solid brick (depth of drill hole $h_0 \ge h_{ef}$)	h _{ef,max} [mm]			h-30, ≤200			
Diameter of clearance pre-p	ositioning d _f ≤[mm]	7	9	12	14	18	
hole in the fixture pus	sh through d₁≤[mm]	9	11	14	16	20	
Diameter of cleaning brush	d _b ≥[mm]		:	see Table B8.	1		
Maximum installation torque T _{inst} [Nm]			see	parameters of	f brick		

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







Steel zinc plated PC¹) 8.8	• or +	Steel hot-dip galvanised PC¹¹ 8.8	•
High corrosion resistant steel HCR PC1) 50	•	High corrosion resistant steel HCR PC1) 70	_
High corrosion resistant steel HCR PC1) 80	(Stainless steel R property class 50	~
Stainless steel R property class 80	*		

Alternatively: Colour coding according to DIN 976-1: 2016;

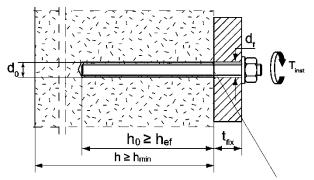
property class 4.6 marking according to EN ISO 898-1:2013

1) PC = property class

Marking

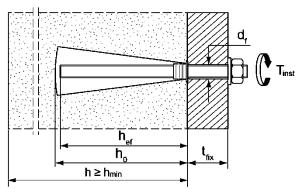
Installation conditions:

Anchor rod in cylindrical drill hole



Setting depth mark

Anchor rod in conical drill hole



Figures not to scale

Injection system Selkent SEL-V+ for masonry

Intended Use

Installation parameters for anchor rods without perforated sleeve

Annex B4



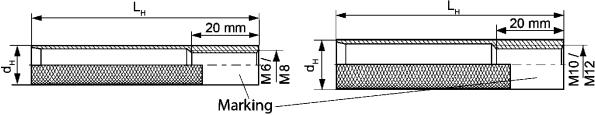
Table B5.1: Installation parameters for Selkent internal threaded anchors E in solid bricks and autoclaved aerated concrete without perforated sleeves

Selkent internal threaded anche	or E	11x85 M6	11x85 M8	15x85 M10	15x85 M12		
Diameter of anchor	d⊦[mm]	1	1	15			
Nominal drill hole diameter	d₀[mm]	14 18					
Length of anchor	L⊣[mm]		8	85			
Effective anchorage depth	h₀ ≥ h _{ef} [mm]	ef [mm] 85					
Effective anchorage depth hef	h₀[mm]	1	00				
in AAC (conical drill hole)	h _{ef} [mm]	8	35	_			
Diameter of cleaning brush	d _b ≥[mm]		see Ta	ble B8.1			
Maximum installation torque	T _{inst} [Nm]		see parame	eters of brick			
Diameter of clearance hole in the fixture	d _f [mm]	7	9	12	14		
Caray in donth	I _{E,min} [mm]	6	8	10	12		
Screw-in depth	I _{E,max} [mm]		ϵ	50			

Selkent internal threaded anchor E

Selkent E 11x85 M6, Selkent E 11x85 M8

Selkent E 15x85 M10, Selkent E 15x85 M12



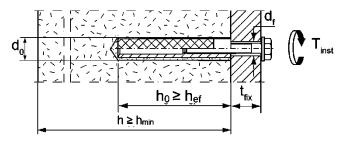
Marking:

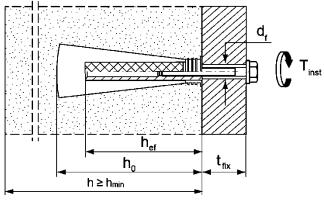
Size, e.g. M8, Stainless steel: R, e.g. M8 R, High corrosion resistant steel: HCR, e.g. M8 HCR

Installation conditions:

Internal threaded anchor in cylindrical drill hole

Internal threaded anchor in conical drill hole





Figures not to scale

Injection system Selkent SEL-V+ for masonry

Intended Use

Installation parameters for Selkent internal threaded anchor E without perforated sleeve



Table B6.1: Installation parameters for anchor rods and Selkent internal threaded anchors E with perforated sleeves (pre-positioned installation)

Selkent perforated sleeve H K	12x50	12x85 ²⁾	16x85	16x130 ²⁾	20x85	20x130 ²⁾	20x200 ²⁾	
Nominal drill hole diameter d ₀ [mm]		12		16		20		
Depth of drill hole	ho[mm]	55	90	90	135	90	135	205
Effective analysis doubt	h _{ef,min} [mm]	50	65	85	110	85	110	180
Effective anchorage depth	h _{ef.max} [mm]	50	85	85	130	85	130	200
Size of threaded rod	[-]	M6 a	nd M8	M8 ar	nd M10	M	112 and M	16
Size of Selkent internal threaded	d anchor E	-	-	11x85	-	15x85	-	-
Diameter of cleaning brush ¹⁾	see Table B8.1							
Maximum installation torque	see parameters of brick							

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

Perforated sleeve

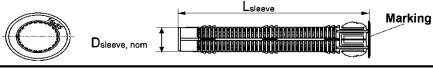
Selkent H 12x50 K; Selkent H 12x85 K; Selkent H 16x85 K; Selkent H 16x130 K;

Selkent H 20x85 K; Selkent H 20x130 K; Selkent H 20x200 K

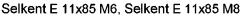
Marking:

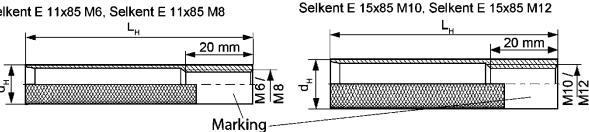
Size D_{sleeve, nom} x L_{sleeve}

(e.g.: 16x85)



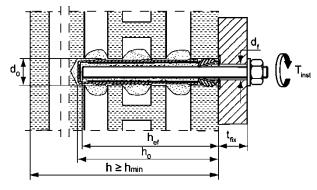
Selkent internal threaded anchor E



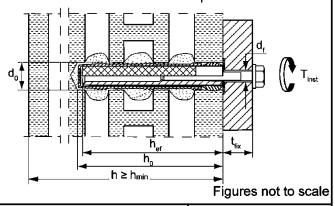


Installation conditions:

Anchor rod with perforated sleeve



Internal threaded anchor with perforated sleeve



Injection system Selkent SEL-V+ for masonry

Intended Use

Installation parameters for anchor rods and Selkent internal threaded anchor E with perforated sleeve (pre-positioned installation)

Annex B6

Z091627.25

²⁾ Bridging of unbearing layer (e.g. plaster) is possible. When reducing the effective anchorage depth hef, min, the values of the next shorter perforated sleeve of the same diameter must be used. The smaller value of charastereristic resistance must be taken.



movable

Table B7.1: Installation parameters for anchor rods with perforated sleeves (push through installation)

Selkent perforated sleeve H K		18x1	22x130/200			
Nominal sleeve diameter	D _{sleeve,nom} [mm]		20			
Nominal drill hole diameter	d₀[mm]		18	22		
Depth of drill hole	h₀[mm]	135				
Effective anchorage depth	h _{ef} [mm]	≥130				
Diameter of cleaning brush 1)	d _b ≥ [mm]		see Table B8.1			
Size of threaded rod	[-]	M10	M16			
Maximum installation torque	T _{inst} [Nm]	see parameters of brick				
Thickness of fixture	t _{fix,max} [mm]		200			

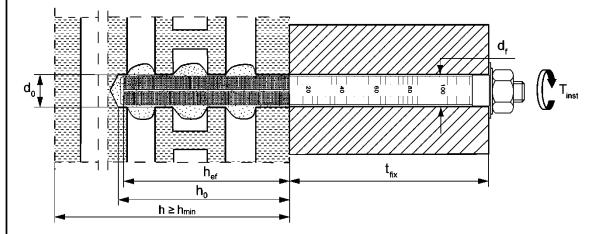
¹⁾ Only for solid areas in hollow bricks and solid bricks.

Perforated sleeve



Installation conditions:

Anchor rod with perforated sleeve



Figures not to scale

Injection system Selkent SEL-V+ for masonry **Annex B7** Intended Use Installation parameters for anchor rods with perforated sleeves (push through installation)



Table B8.1: Parameters of the cleaning brush BS (steel brush with steel bristles)											
The size of the cleaning brush refers to the drill hole diameter											
Drill hole diameter	Drill hole diameter d₀ [mm] 8 10 12 14 16 18 20 22										
Brush diameter	d₅ [mm]	9	11	14	16	20	20	25	25		



Only for solid bricks and autoclaved aerated concrete or solid areas of perforated bricks and hollow blocks

Table B8.2: Maximum processing times and minimum curing times

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

Temperature at anchoring base	Maximum processing time ²⁾ t _{work}	Minimum curing time 1), 2) t _{cure}
[°C]	Selkent SEL-V+	Selkent SEL-V+
> -5 to 0	> 13 min	24 h
> 0 to 5	13 min	3 h
> 5 to 10	9 min	90 min
> 10 to 20	5 min	60 min
> 20 to 30	4 min	45 min
> 30 to 40	2 min	35 min

¹⁾ For wet bricks the curing time must be doubled.

Figures not to scale

Injection system Selkent SEL-V+ for masonry

Intended Use
Cleaning brush (steel brush)
Maximum processing times and minimum curing times

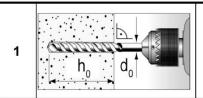
Annex B8

²⁾ Minimum cartridge temperature +5°C.



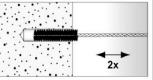
Installation instruction part 1

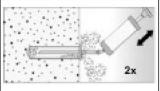
Installation in solid brick and autoclaved aerated concrete (without perforated sleeve)



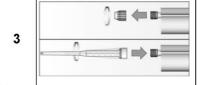
Drill the hole (drilling method see Annex C of the respective brick) depth of drill hole h₀ and drill hole diameter d₀ see Table B4.1; B5.1.



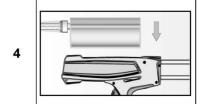




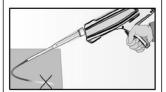
Blow out the drill hole twice. Brush twice and blow out twice again.



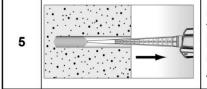
Remove the sealing cap. Screw on the static mixer. (the spiral in the static mixer must be clearly visible).



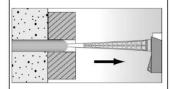
Place the cartridge into a suitable dispenser.



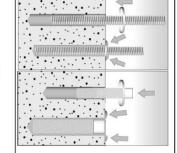
Press out approximately 10 cm of mortar until the resin is permanently grey in colour. Mortar which is not grey in colour will not cure and must be disposed of.



Fill approximetly 2/3 of the drill hole with mortar beginning from the bottom of the hole1). Avoid bubbles!



For push through installation fill the annular clearance with mortar.



Only use clean and oil-free metal parts.

Mark the anchor rod for setting depth.

Insert the anchor rod or Selkent internal threaded anchor E

by hand using light turning motions.

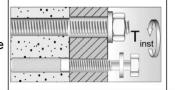
When reaching the setting depth marking, excess mortar must emerge from the mouth of the drill hole.

7

6



Do not touch. Minimum curing time see Table B8.2.



Mounting the fixture. max Tinst see parameter of brick in Annex C.

Injection system Selkent SEL-V+ for masonry

Intended Use

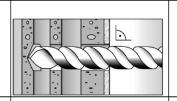
Installation instruction (without perforated sleeve) part 1

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



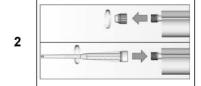
Installation instruction part 2

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

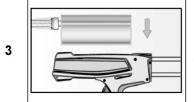


Drill the hole (drilling method see Annex C of the respective brick). depth of drill hole h_0 and drill hole diameter d_0 see **Table B6.1**

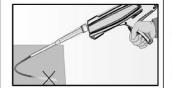
When install perforated sleeves in solid bricks or solid areas of hollow bricks, also clean the hole by blowing out and brushing.



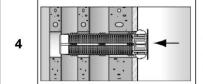
Remove the sealing cap. Screw on the static mixer. (the spiral in the static mixer must be clearly visible).



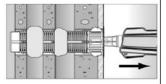
Place the cartridge into a suitable dispenser.



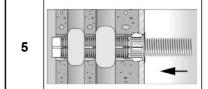
Press out approximately 10 cm of mortar until the resin is permanently grey in colour. Mortar which is not grey in colour will not cure and must be disposed of.



Insert the perforated sleeve flush with the surface of the masonry or plaster.



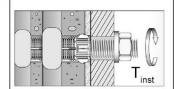
Fill the perforated sleeve completely with mortar beginning from the bottom of the hole¹⁾.



Only use clean and oil-free metal parts. Mark the ancher rod for setting depth. Insert the anchor rod or the Selkent internal threaded anchor E by hand using light turning motions until reaching the setting depth marking (anchor rod) or flush with the surface (internal threaded anchor).



Do not touch. Minimum curing time see **Table B8.2**



Mounting the fixture. max T_{inst} see parameter of brick in **Annex C**.

Injection system Selkent SEL-V+ for masonry

Intended Use

Installation instruction (with perforated sleeve) part 2

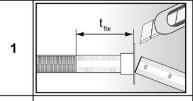
Annex B₁₀

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

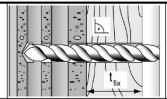


Installation instruction part 3

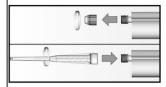
Installation in perforated or solid brick with perforated sleeve (push through installation)



Push the movable stop up to the correct thickness of fixture and cut the overlap.

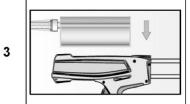


Drill the hole through the fixture. Depth of drill hole (h₀ + t_{fix}) and drill hole diameter see **Table B7.1**.



2

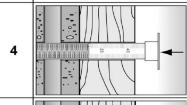
Remove the sealing cap. Screw on the static mixer. (the spiral in the static mixer must be clearly visible).



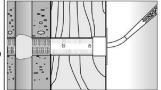
Place the cartridge into a suitable dispenser.



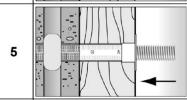
Press out approximately 10 cm of mortar until the resin is permanently grey in colour. Mortar which is not grey in colour will not cure and must be disposed of.



Insert the perforated sleeve flush with the surface of the fixture into the drill hole.



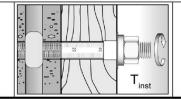
Fill the sleeve with mortar beginning from the bottom of the hole. 1) For deep drill holes use an extension tube.



Only use clean and oil-free metal parts. Mark the anchor rod for setting depth. Insert the anchor rod or the Selkent internal threaded anchor E by hand using light turning motions until reaching the setting depth marking (anchor rod) or flush with the surface (internal threaded anchor).



Do not touch.
Minimum curing time see **Table B8.2**.



Mounting the fixture. max T_{inst} see parameter of brick in **Annex C**.

Injection system Selkent SEL-V+ for masonry

Intended Use

Installation instruction (with perforated sleeve) part 3

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



Installation instruction part 4 Installation in autoclaved aerated concrete with special conic drill be

Installation in autoclaved aerated concrete with special conic drill bit PBB (pre-positioned installation) Position the movable drill bit arrester on the used drill hole depth (see **Table B4.1**). 1 For this, unlock the clamp screw and slide the arrester. Now fix the clamp screw. Drill the cylindrical hole with rotating drill until the arrester contact the material 2 surface (drilling method see Annex C of the respective brick). Deviate the working power drill circulate to generate an conic undercut in the 3 material. Blow out the drill hole four times. 4 4x Remove the sealing cap. Screw on the static mixer. 5 (the spiral in the static mixer must be clearly visible). Press out approximately 10 cm of mortar until the Place the cartridge into resin is permanently grey in 6 a suitable dispenser. colour. Mortar which is not grey in colour will not cure and must be disposed of. Put the center sleeve into the drill hole and Fill the drill hole with 7 adapt the injection injection mortar. adapter onto the static mixer. Only use clean and oil-free metal parts. Mark the anchor rod for setting depth. Insert the anchor rod or Selkent internal threaded 8 anchor E by hand using light turning motions. When reaching the setting depth marking, excess mortar must emerge from the mouth of the drill hole. Do not touch. Mounting the fixture. 9 Minimum curing time max T_{inst} see parameter see Table B8.2. of brick in Annex C.

Injection system Selkent SEL-V+ for masonry

Intended Use

Installation instruction for autoclaved aerated concrete with special conic drill bit PBB (pre-positioned installation) part 4



Kind of masonry	E	Brick format Mean compressive Main country origin			Mean gross density ρ [kg/dm³]	Annex
	NF	≥240x115x71	15 / 25 / 35	Germany	≥1,8	C4 – C7
0 - 15 - 1 - 1 - 1 - 1 - 1 - 1 - 1	2DF	≥240x115x113	12,5 / 20	Germany	≥1,8	C8 / C9
Solid brick Mz		≥ 245x118x54	12,5 / 25	Italy	≥1,8	C10 / C11
		≥ 230x108x55	12,5 / 25	Denmark	≥1,8	C12 / C13
Solid calcium sili	cate (sand- lime) bric	k KS / perforated calciui	n silicate (sa	nd- lime) bric	k KSL
	NF	≥240x115x71	15 / 25 / 35	Germany	≥2,0	C14 / C15
Solid calcium silicate	8DF	≥ 250x240x240	12,5 / 25 / 35	Germany	≥2,0	C16 / C17
orick KS		≥ 997x214x538	12,5 / 25 & 45	Netherlands	≥1,8 & ≥2,2	C18 / C19
		≥ 240x115x113	12,5 / 25	Germany	≥1,8	C20 - C23
Perforated calcium silicate brick KSL	3DF	240x175x113	10 / 12,5 / 15 / 20 / 25	Germany	≥1,4	C24 – C27
		Vertic	al perforated brick HLz			
		370x240x237	5 / 7,5 / 10 / 12,5 / 15	Germany	≥1,0	C28 / C29
		500x175x237	5 / 7,5 / 10 / 12,5 / 15	Germany	≥1,0	C28 / C29
	2DF	240x115x113	7,5 / 12,5 / 20 / 25 / 35	Germany	≥1,4	C30 / C31
		248x365x248	5 / 7,5 / 10	Germany	≥0,6	C32 – C3
		248x365x249	10 / 12,5 / 15	Germany	≥0,7	C36 – C39
		248x365x249	5 / 8	Germany	≥0,5	C40 - C43
		248x425x248	5/8/10	Germany	≥0,8	C44 – C47
		248x425x248	5 / 7,5 / 10	Germany	≥0,8	C48 – C5
		500x200x315	5 / 7,5 / 10	Germany	≥0,6	C52 – C5
Vertical perforated		500x200x300	5 / 7,5 / 10 / 12,5	France	≥0,7	C56 – C59
brick HLz		500x200x315	2,5 / 5 / 7,5 / 10	France	≥0,7	C60 – C6
		560x200x275	5/8/10	France	≥0,7	C64 / C65
		255x120x118	2,5 / 5 / 8 / 10 / 12,5 / 15	Italy	≥1,0	C66 - C68
		275x130x94	7,5 / 10 / 15 / 20 / 25	Spain	≥0,8	C69 - C71
		220x190x290	7,5 / 10 / 12,5	Portugal	≥0,7	C72 - C7
		253x300x240	2,5 / 5 / 8	Austria	≥0,8	C76 - C79
		250x440x250	8 / 10 / 12,5	Austria	≥0,7	C80 - C83
		230x108x55	2,5 / 5 / 8 / 10	Denmark	≥1,4	C84 - C85
		365x248x245	10	Austria	≥0,6	C86 - C89
		240x175x113	12,5	Germany	≥0,9	C90 - C93



Table B14.1: Overview of assessed bricks part 2											
Kind of masonry	Brick format [mm]	Mean compressive Main country of strength origin [N/mm²]		Mean gross density ρ [kg/dm³]	Annex						
Horizontal perforated brick LLz											
Horizontal perforated	248x78x250	2,5 / 5 / 8	Italy	≥0,7	C94 / C95						
brick LLz	128x88x275	2,5	Spain	≥0,8	C96 / C97						
Light-weight concrete hollow block Hbl											
	362x240x240	2,5 / 5	Germany	≥1,0	C98 - C101						
Light-weight concrete hollow block Hbl	500x200x200	2,5 / 5 / 8	France	≥1,0	C102 / C103						
HOHOW BIOCK TIBI	440x215x215	5 / 8 / 10 / 12,5	Ireland	≥1,2	C104 - C107						
	Light-v	veight concrete so	olid block Vbl								
	≥ 372x300x254	2,5	Germany	≥0,6	C108 / C109						
Light-weight concrete	≥ 250x240x239	5/8/10	Germany	≥1,6	C110 - C113						
solid block Vbl	≥ 440x100x215	5 / 8 / 10 / 12,5	Ireland	≥2,0	C114 / C115						
	≥ 440x95x215	7,5 / 10 / 12,5 / 15	England	≥2,0	C116 / C117						
	Autoc	laved aerated con	crete (AAC)								
PP2 / AAC	(=)	2,5	Germany	0,35	C118 – C122						
PP4 / AAC	-	5	Germany	0,5	C118 - C122						
PP6 / AAC	(= ;	8	Germany	0,65	C118 – C122						

Injection system Selkent SEL-V+ for masonry	
Intended Use Overview of assessed bricks part 2	Annex B14



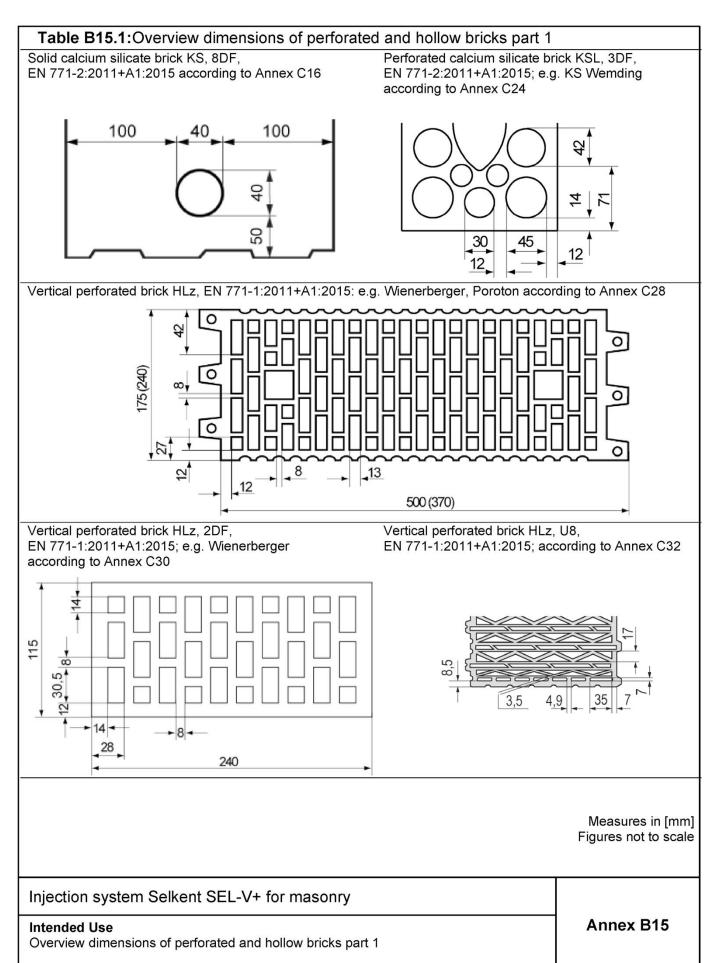
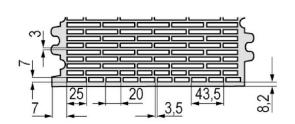


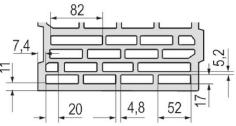


Table B16.1:Overview dimensions of perforated and hollow bricks part 2

Vertical perforated brick HLz, T10, T11, EN 771-1:2011+A1:2015; according to Annex C36

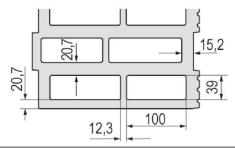
Vertical perforated brick HLz, T7 PF, filled with perlit, EN 771-1:2011+A1:2015; according to Annex C40

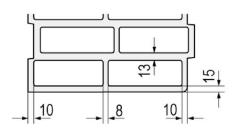




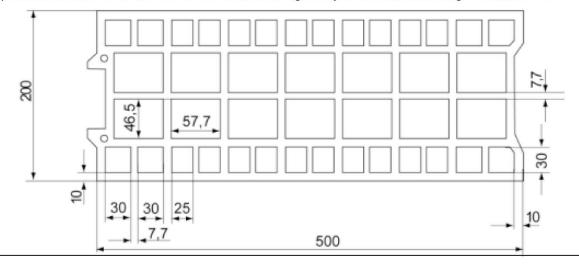
Vertical perforated brick HLz, T9 MW, filled with mineral wool, EN 771-1:2011+A1:2015; according to Annex C44

Vertical perforated brick HLz, FZ 7, filled with mineral wool, EN 771-1:2015; according to Annex C48





Vertical perforated brick HLz, EN 771-1:2011+A1:2015; e.g. Bouyer Leroux; According to Annex C52



Measures in [mm] Figures not to scale

Injection system Selkent SEL-V+ for masonry

Intended Use
Overview dimensions of perforated and hollow bricks part 2

Annex B16



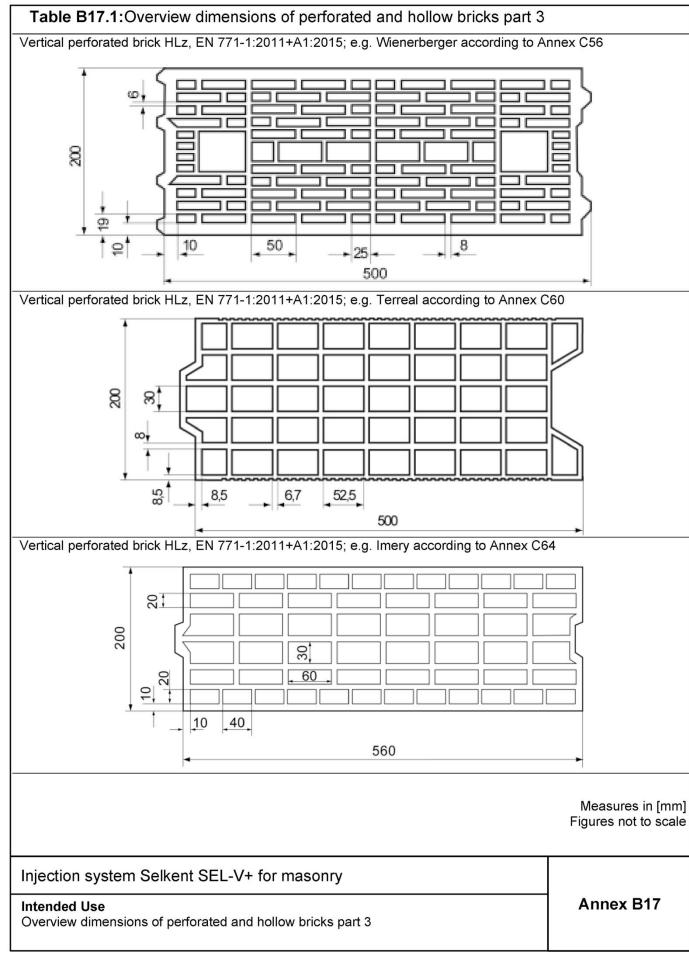
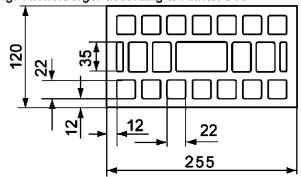




Table B18.1:Overview dimensions of perforated and hollow bricks part 4

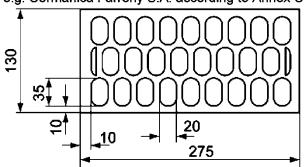
Vertical perforated brick HLz, EN 771-1:2011+A1:2015;

e.g. Wienerberger according to Annex C66



Vertical perforated brick HLz, EN 771-1:2011+A1:2015;

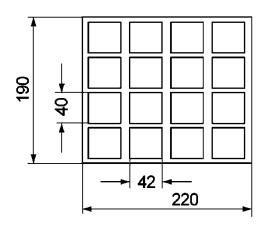
e.g. Cermanica Farreny S.A. according to Annex C69



Vertical perforated brick HLz,

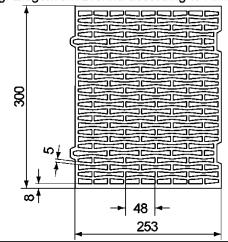
EN 771-1:2011+A1:2015;

e.g. Perceram according to Annex C72

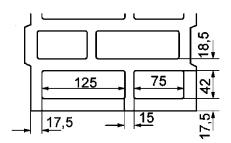


Vertical perforated brick HLz, EN 771-1:2011+A1:2015;

e.g. Ziegelwerk Brenna according to Annex C76

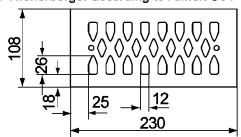


Vertical perforated brick HLz, Porotherm W 44, filled with mineral wool, EN 771-1:2011+A1:2015 according to Annex C80



Vertical perforated brick HLz, EN 771-1:2011+A1:2015;

e.g. Wienerberger according to Annex C84



Measures in [mm] Figures not to scale

Injection system Selkent SEL-V+ for masonry

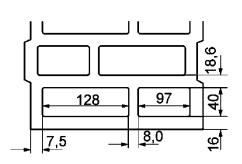
Intended Use

Overview dimensions of perforated and hollow bricks part 4



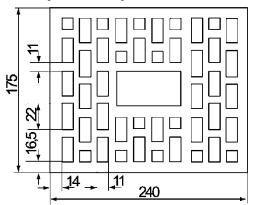
Table B19.1:Overview dimensions of perforated and hollow bricks part 5

Vertical perforated brick filled with mineral wool, EN 771-1:2011+A1:2015; according to Annex C86



Vertical perforated brick HLz, EN 771-1:2011+A1:2015:

e.g. Wienerberger according to Annex C90

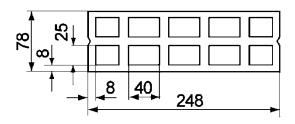


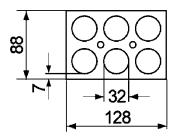
Horizontal perforated brick LLz,

EN 771-1:2011+A1:2015; according to Annex C94

Horizontal perforated brick LLz, EN 771-1:2011+A1:2015;

e.g. Cermanica Farreny S.A according to Annex C96

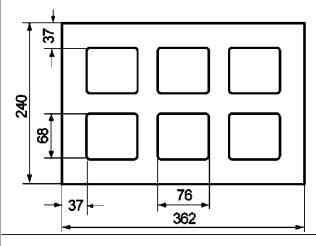


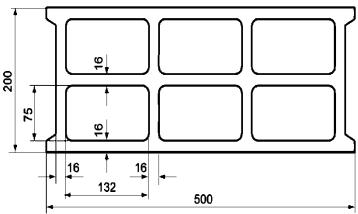


Light-weight concrete hollow block Hbl, EN 771-3:2011+A1:2015; according to Annex C98

Light-weight concrete hollow block Hbl, EN 771-3:2011+A1:2015;

e.g. Sepa according to Annex C102





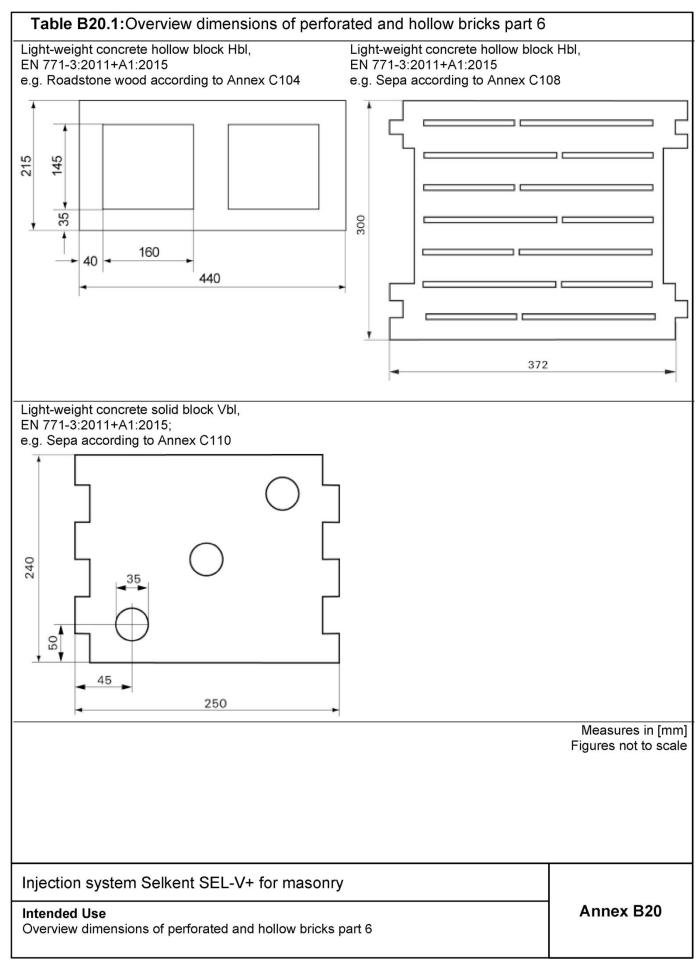
Measures in [mm] Figures not to scale

Injection system Selkent SEL-V+ for masonry

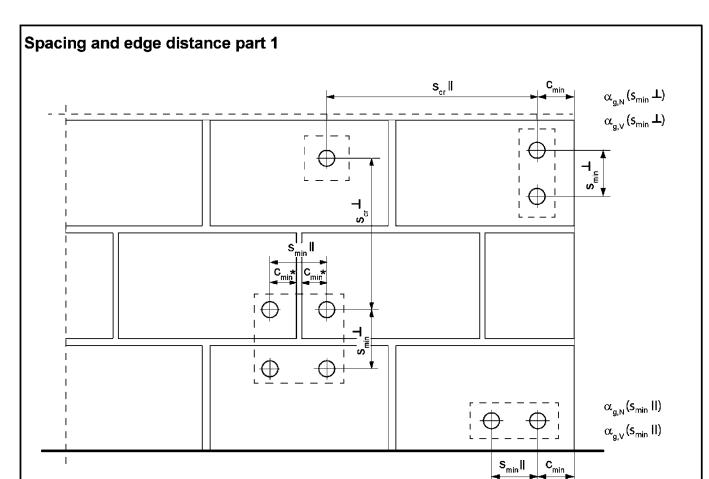
Intended Use

Overview dimensions of perforated and hollow bricks part 5









* Only, if vertical joints are not completely filled with mortar

 s_{min} II = Minimum spacing parallel to horizontal joint

 s_{min} = Minimum spacing perpendicular to horizontal joint

s_{cr} II = Characteristic spacing parallel to horizontal joint

 $s_{cr} \perp$ = Characteristic spacing perpendicular to horizontal joint

 $c_{cr} = c_{min}$ = Edge distance

 $\alpha_{g,N}$ (s_{min} II) = Group factor for tension load, anchor group parallel to horizontal joint

 $\alpha_{g,V}(s_{min} | I)$ = Group factor for shear load, anchor group parallel to horizontal joint

 $\alpha_{g,N}(s_{min}^{\perp})$ = Group factor for tension load, anchor group perpendicular to horizontal joint

 $\alpha_{g,V}(s_{min} \perp)$ = Group factor for shear load, anchor group perpendicular to horizontal joint

Figures not to scale

Injection system Selkent SEL-V+ for masonry	
Intended Use Spacing and edge distance part 1	Annex B21



Spacing and edge distance part 2

For
$$s \ge s_{cr}$$
: $\alpha_g = 2$

For $s_{min} \le s < s_{cr}$: α_g according to installation parameters of brick Annex C

Group of 2 anchors

$$N^{g}_{Rk} = \alpha_{g,N} \cdot N_{Rk}$$
; $V^{g}_{Rk,b} = V^{g}_{Rk,c,II} = V^{g}_{Rk,c,\perp} = \alpha_{g,V} \cdot V_{Rk}$

Group of 4 anchors

$$N_{Rk} = \alpha_{g,N} (s_{min} II) \cdot \alpha_{g,N} (s_{min} L) \cdot N_{Rk}$$
;

$$V^{g}_{Rk,b} = V^{g}_{Rk,c,II} = V^{g}_{Rk,c,\perp} = \alpha_{g,V} (s_{min}II) \bullet \alpha_{g,V} (s_{min}^{\perp}) \bullet V_{Rk}$$

with N_{Rk} and $\alpha_{g,N}$ depending on $s_{min}II$ or $s_{min}\bot$ acc. to Annex C

with V_{Rk} and $~\alpha_{g,V}$ depending on $s_{min}II$ or $s_{min}\bot$ acc. to Annex C

Injection system Selkent SEL-V+ for masonry

Intended Use

Spacing and edge distance part 2



Table C1.1: Characteristic resistance to steel failure under tension loading of Selkent anchor rods and standard threaded rods

Anchor rod / standard threaded rod					M6	M8 ³⁾	M10 ³⁾	M12	M16			
Characteristic resistance to steel failure under tension loading												
			4.6		8,0	14,6(13,2)	23,2(21,4)	33,7	62,8			
., σ	Steel zinc plated		4.8		8,0	14,6(13,2)	23,2(21,4)	33,7	62,8			
istic N _{Rk,s}	Steel Zille plated		5.8		10,0	18,3(16,6)	29,0(26,8)	42,1	78,5			
Seri		Property	8.8	[LNI]	16,0	29,2(26,5)	46,4(42,8)	67,4	125,6			
Characteristic esistance N _{Rk,}	Stainless steel R and	class	50	[kN]	10,0	18,3	29,0	42,1	78,5			
ည် <u>နို</u>	High corrosion		70		14,0	25,6	40,6	59,0	109,9			
	resistant steel HCR		80		16,0	29,2	46,4	67,4	125,6			
Partia	al factors 1)											
			4.6		2,00							
5490	Stool zine plated		4.8		1,50							
ors	Steel zinc plated		5.8		1,50							
fact s,z	-	Property	8.8	r 1		1,50						
Partial factors	Stainless steel R and	class	50	[-]	2,86							
Pe	High corrosion		70			1,50 ²⁾ / 1,87						
	resistant steel HCR		80				1,60					

¹⁾ In absence of other national regulations

Injection system Selkent SEL-V+ for masonry	
Performance Characteristic resistance to steel failure under tension loading of Selkent anchor rods and standard threaded rods	Annex C1

²⁾ Only for Selkent Anchor rod made of high corrosion resistant steel HCR

³⁾ Values in brackets are valid for undersized threaded rods with smaller stress area A_s for hot-dip galvanised standard threaded rods according to EN ISO 10684:2004+AC:2009.



Table C2.1: Characteristic resistance to steel failure under shear loading of Selkent anchor rods and standard threaded rods

Anch	or rod / standard	threaded ro	nd .		M6	M8 ³⁾	M10 ³⁾	M12	M16
	acteristic resistar			unde	10.770.75%		WITO	IVIIZ	IVITO
	out lever arm	ice to steer	ianure	unue	ei Sileai ioa	unig			
WILLIC	out level allii	1	4.6		4,8	8,7(7,9)	13,9(12,8)	20,2	37,6
			4.8		4,8	8,7(7,9)	13,9(12,8)	20,2	37,6
tic Rk,s	Steel zinc plated		5.8		6,0	10,9(9,9)	17,4(16,0)	25,2	47,1
eris e V		Property	8.8		8,0	14,6(13,2)	23,2(21,4)	33,7	62,8
Characteristic esistance V _{Rk,s}	Stainless steel R	class	50	[kN]	5,0	9,1	14,5	21,0	39,2
Cha	and High corrosion		70		7,0	12,8	20,3	29,5	54,9
	resistant steel HCR		80		8,0	14,6	23,2	33,7	62,8
with	lever arm					~		,	
9	Steel zinc plated	Property	4.6		6,1	14,9(12,9)	29,9(26,5)	52,3	132,9
tano			4.8		6,1	14,9(12,9)	29,9(26,5)	52,3	132,9
Sis			5.8	[Nm]	7,6	18,7(16,1)	37,3(33,2)	65,4	166,2
ristic re M ⁰ Rk,s			8.8		12,2	29,9(25,9)	59,8(53,1)	104,6	265,9
eristi M°	Stainless steel R and	class	50		7,6	18,7	37,3	65,4	166,2
Characteristic resistance M ⁰ Rk,s	High corrosion resistant steel		70		10,6	26,2	52,3	91,5	232,6
ਠੌ	HCR		80		12,2	29,9	59,8	104,6	265,9
Partia	al factors ¹⁾								
			4.6				1,67		
	Steel zinc plated		4.8				1,25		
tors	Steel Zille plated		5.8				1,25		
al fac γ _{Ms,} ∨		Property	8.8	[-]			1,25		
Partial factors	Stainless steel R and	class	50	ן נ־ <u>ז</u>			2,38		
ď	High corrosion resistant steel		70				1,25 ²⁾ / 1,56		
	HCR		80				1,33		

¹⁾ In absence of other national regulations

Injection system Selkent SEL-V+ for masonry	
Performance Characteristic resistance to steel failure under shear loading of Selkent anchor rods and standard threaded rods	Annex C2

²⁾ Only for Selkent Anchor rod made of high corrosion resistant steel HCR

³⁾ Values in brackets are valid for undersized threaded rods with smaller stress area A_s for hot-dip galvanised standard threaded rods (M8 resp. M10) according to EN ISO 10684:2004+AC:2009.



Table C3.1: Characteristic resistance to steel failure under tension / shear loading of Selkent internal threaded anchors E											
Selkent Selkent	intern	al threade	d anch	or E	М6	M8	M1	10	M12		
Characteristic resistance to steel failure under tension loading, decisive values of Selkent internal threaded anchor E with screw/threaded rod											
		Property class	4.6		8,0	14,6	23	,2	33,7		
Characteristic resistance	$N_{Rk,s}$	Property class	5.8	[kN]	10,0	18,3	29	,0	42,1		
		Property class 70	$\frac{R}{HCR}$		14,0 14,0	25,6 25,6	40		59,0 59,0		
Partial factors ¹⁾							•				
		Property class	4.6			2	,00				
Partial factors	γMs,N	Property class	5.8	[-]		1	50				
		Property	R				,87				
371900		class 70	HCR				87	eth.			
Characteristic reanchor E with so				unde	er shear loading	; decisive valu	es of Sell	kent int	ernal threade		
without lever arr		n caucu 10	u								
		Property class	4.6		4,8	8,7	13	,9	20,2		
Characteristic resistance	$V_{Rk,s}$	Property class	5.8	[kN]	6,0	10,9	15	,0	21,0		
		Property	R		7,0	12,8	20	,3	29,5		
		class 70	HCR		7,0	12,8	20	,3	29,5		
with lever arm											
		Property class	4.6	[Nm]	6,1	14,9	29	,9	52,3		
Characteristic resistance	M^0 Rk,s	Property class				18,7	37		65,4		
		Property	R		10,6	26,2	52,3		91,5		
D (1.15 (4)		class 70	HCR		10,6	26,2	52	,3	91,5		
Partial factors ¹⁾		D .									
		Property	4.6			1,	67				
Partial factors	$\gamma_{\text{Ms,V}}$	Property class	5.8	[-]			25				
		Property class 70	R	_	1,56						
1) In absence of	other i		HCR Julations			1,	56				
Injection syste	m Se	lkent SEI	V+ fc	or ma	sonry						
Performance Characteristic resinternal threaded			ailure ui	nder te	ension / shear loa	ading of Selkent		A	nnex C3		



Solid brick Mz, NF, EN 771-1:2011+A1:2015 Producer e.g. Wienerberger length L | width W | height H Nominal dimensions [mm] ≥ 240 ≥ 115 ≥ 71 Mean gross dry density ρ [kg/dm³] ≥ 1,8 Mean compressive strength / Min. 15 / 12 or 25 / 20 or $[N/mm^2]$ compressive strength single brick 1) 35 / 28Standard or annex EN 771-1:2011+A1:2015

Table C4.1: Installation parameters for edge distance c=100mm

Anchor rod		M6	M8	M10	M12	-		-		
Selkent internal threaded anchor E			-	=	-	-	M6 N		M10	M12 85
Anchor rod ar	1112		102	.00						
			50	50	50	50				
Effective anchorage dep	th h _{ef}	[mm]	80	80	80	80	85			
and lorage dep	ui	(A MODE) (A MODE)	200	200	200	200				
Max. installatio torque	n max T _{inst}	[Nm]	4		10	4		10		
General instal	lation parameters			,						
Edge distance	C _{min} = C _{cr}			10	100					
Edge distance	Edge distance h _{ef} =200 c _{min} = c _{cr}		150					_2)		
Sr				6	60					
	hef=200 smin II,N	[mm]		24	_2)					
Spacing	Smin II,	7		24	240					
,	S _{cr} I		240					240		
,	s _{cr} ⊥ = s _{min} ⊥]		7	75					

Drilling method

Hammer drilling with hard metal hammer drill

Table C4.2: Group factors

Anchor rods	â	M6	M6 M8 M10 M12						-		
Salkant inter					M6	M8	M10	M12			
Selkent internal threaded anchor E			-	-	-	-1	112	x85	153	k 85	
Edge distance	C _{min}	[mm]				100					
	αα.N (Smin II)					1,5					
	α _{g,V} (S _{min} II)		2,0								
	h _{ef} =200 α _{g,N} (s _{min} II)		1,5								
	h _{ef} =200 α _{g,V} (s _{min} II)					2,0					
Group factor	α _{α,N} (S _{min} ⊥)	[-]				2,0					
	α _{g,} ν (S _{min} ⊥)					2,0					
	h _{ef} =200 α _{q,N} (s _{min} ⊥)		2,0								
	h _{ef} =200 α _{g,V} (s _{min} ⊥)		2,0								

Injection system Selkent SEL-V+ for masonry	
Performance Solid brick Mz, NF, dimensions, installation parameters for edge distance c=100mm, Group factors	Annex C4

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

²⁾ No performance assessed



Solid brick Mz, NF, EN 771-1:211+A1:2015

Table C5.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading for edge distance c=100mm

Anchor rod Selkent internal threaded anchor E			M6 M8 M10					M12			-			
			-	-	-				0 - 0		M6 M8		M10	M12 x85
N _{Rk} = N _{Rk,p} = N _{Rk,b,c} = N _{Rk,p,c} = N _{Rk,b,c} [kN]; temperature range 50/80°C ²⁾														
Mean compressive	U	Jse Effective anchorage depth h _{ef} [mm]												
strength / Min. compressive strength single brick 1)	1000	on- ions	≥50	≥50	50	80	200	50	80	200			85	
15 / 12 N/mm²	w/w	w/d	2,5	2,5	2,0	3,0	7,5	2,0	3,5	5,0 3,5				
15 / 12 N/MM-	C	/d	4,0	4,0	3,5	5,0	12,0	3,0	5,5	8,0		į.	5,5	
25 / 20 N/mm²	w/w	w/d	3,5	3,5	3,0	4,5	11,0	3,0	5,0	7,0		į	5,0	
	C	/d	5,5	5,5	5,0	7,0	12,0	4,5	8,0	11,5		8	3,0	

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C5.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading for edge distance c=100mm

Anchor rod		M6	M8	M	10	M12 -					-
Selkent internal thread anchor E	led	-	-	,	-	,	M6 11x8	M8	M10	M12 x85	
$V_{Rk} = V_{Rk,b} = V_{Rk,c,li} = V_{Rk}$	= V _{Rk,c,⊥} [kN]; temperature range 50/80°C and 72/120°C									107	100
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions	≥50	≥50	E ≥50	ffective ar	ochorage o ≥50	depth h _{ef} [r 200	mm] 85			
15 / 12 N/mm²	w/w w/d d/d	2,5	2,5	4,0	8,5	4,0	11,5	2,5			
25 / 20 N/mm²	w/w w/d d/d	4,0	4,0	6,0	12,0	5,5	12,0	4,0			

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Solid brick Mz, NF, Characteristic resistance under tension and shear loading, edge distance c=100mm	Annex C5

²⁾ For temperature range 72/120°C: $N_{Rk (72/120^{\circ}C)} = 0.83 \cdot N_{Rk (50/80^{\circ}C)}$.



Anchor Effective	t internal threaded		M6	M8	M10	M12	M16		-		-
Anchor Effective		i	_	_	_	_	_	M6	M8	M10	M12
Effective	8.8		- 575-5		1,50		702	112	x85	15>	(85
	r rod and Selkent i	interna				1					
	е .	ļ. ,	50	50	50	50	50		_		
	age depth h _{ef}	[mm]	100 200	100 200	100 200	100 200	100 200		5	35	
Max. instorque	stallation max T _{inst}	[Nm]	4	200		0	200	4		10	
	l installation para	meters	.								
Edge di	,		·			60					
Edge di h _{ef} =200						60					
	s _{min} II, _N					80					
	h _{ef} =200 s _{min} II, _N	7				80					
Spacing	s _{min} II,v	1 -				80					
	S _{cr} II	-				3x h _{ef}					
	S _{min} ⊥	+				3x h _{ef}					
Drilling	method					JX Het					
Hamme	er drilling with hard of the company			l							
Hamme	C6.2: Group			M8	M10	M12	M16		-		-
Hamme Table Anchor	C6.2: Group r rods t internal threaded	facto	rs		M10 -	M12 -	M16 -	M6	- M8 x85	M10	
Hamme Table Anchor Selkent anchor	C6.2: Group r rods t internal threaded E	facto	rs		B1300000 10000 00 11	100000000000000000000000000000000000000	M16 -	M6	M8		
Hamme Table Anchor Selkent anchor	C6.2: Group r rods t internal threaded E	facto	rs		B1300000 10000 00 11	-	M16 -	M6	M8		
Hamme Table Anchor Selkent anchor	C6.2: Group r rods t internal threaded E	facto	rs		B1300000 10000 00 11	- 60	M16 -	M6	M8		
Hamme Table Anchor Selkent anchor Edge distance	C6.2: Group r rods t internal threaded E α _{g,N} (s _{min} II) α _{g,V} (s _{min} II) h _{ef} =200 α _{g,N} (s _{min} II)	facto	rs		B1300000 10000 00 11	- 60 0,6 1,3 1,4	M16	M6	M8		
Table Anchor Selkent anchor Edge distance	C6.2: Group r rods t internal threaded E c Cmin α _{g,N} (Smin II) α _{g,V} (Smin II) her=200 α _{g,N} (Smin II) her=200 α _{g,V} (Smin II)	factor	rs		B1300000 10000 00 11	- 60 0,6 1,3 1,4 1,5	M16 -	M6	M8		
Table Anchor Selkent anchor Edge distance	C6.2: Group r rods t internal threaded E α _{g,N} (S _{min} II) α _{g,V} (S _{min} II) h _{ef} =200 α _{g,N} (S _{min} II) α _{g,N} (S _{min} II) α _{g,N} (S _{min} II)	facto	rs		B1300000 10000 00 11	- 60 0,6 1,3 1,4 1,5 0,3	M16	M6	M8		
Table Anchor Selkent anchor Edge distance Group factor	C6.2: Group r rods t internal threaded E c Cmin αg,N (Smin II) αg,V (Smin II) her=200 αg,N (Smin II)	factor	rs		B1300000 10000 00 11	- 60 0,6 1,3 1,4 1,5 0,3 1,3	M16	M6	M8		
Hamme Table Anchor Selkent anchor Edge distance	C6.2: Group r rods t internal threaded E α _{g,N} (S _{min} II) α _{g,V} (S _{min} II) h _{ef} =200 α _{g,N} (S _{min} II) α _{g,N} (S _{min} II) α _{g,N} (S _{min} II)	factor	rs		B1300000 10000 00 11	- 60 0,6 1,3 1,4 1,5 0,3	M16	M6	M8		



Solid brick Mz, NF, EN 771-1:2011+A1:2015

Table C7.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading for edge distance c=60mm

Anchor rod					IV	18		M10			M12			M16		11.	-	-	
Selkent internal thre	aded		-			-	-				-			-		M6	M8 (85		M12 x85
$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,b}$	Rk,p,c	= N _{Rk}	, _{b,c} [k	N]; t	emp	eratu	ire ra	ange	50/8	0°C 3	3)								
Mean compressive	U:	se					E	Effec	tive a	ncho	rage	dep	th hef	[mm]				
strength / Min. compressive strength single brick 1)	Use con- ditions		50 100		50	100	50	100	200	50	100	200	50	100	200		8	5	
15 / 12 N/mm²	w/w	w/d	1	,5	2,0	2,0	2,0	2,5	_2)	2,0	2,5	_2)	2,0	5,5	_2)		-	2)	
15 / 12 N/MM	d	/d	2	,5	3,0	4,0	3,0	4,0	9,5	3,0	4,0	9,5	3,0	8,5	9,5		-	2)	
25 / 20 N/mm ²	w/w	w/d	2	,0	2,5	3,0	2,5	3,5	_2)	3,0	3,5	_2)	3,0	7,5	_2)		_	2)	
29 / 20 N/IIIIII	d,	/d	3	,5	4,5	5,5	4,5	5,5	12	4,5	5,5	12	4,5	12	12		-	2)	
25 / 20 N/mm²	w/w	w/d	2	,5	3,0	4,0	3,0	4,0	_2)	3,5	4,0	_2)	3,5	9,0	_2)		-	2)	

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

6,5 | 12 |

5,5

6,5 12

5,5

5,5 6,5 5,5

35 / 28 N/mm²

d/d

4,0

Table C7.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading for edge distance c=60mm

Anchor rod	M6	M8	M10	M12	M16	-	-
Selkent internal threaded anchor E	-	-	-	-	-	M6 M8 11x85	M10 M12 15x85
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp} [\![kN \!]\!]$]; tempera	ature ranç	ge 50/80°C and	d 72/120°C			
		Effective and several and the bound					

WICK WICK,D WICK,C,II	k - VRK,b - VRK,c,i - VRK,c, _ [RI4], temperature range 50/00 5 and 72/125 5														
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions	50	100	50	100			tive a		rage 100] 200	85
15 / 12 N/mm ²	\A/\A/	1,2	2,5	1,2	3,0	2,0	3,0	1,5	1,5	3,0	3,0	0,6	3,0	4,5	_2)
25 / 20 N/mm ²	w/w w/d	1,5	3,5	1,5	4,5	3,0	4,5	2,5	2,0	4,5	4,5	0,9	4,5	6,0	_2)
35 / 28 N/mm ²	d/d	2,0	4,0	2,0	5,0	3,5	5,0	3,0	2,5	5,0	5,0	1,2	5,0	7,5	_2)

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Solid brick Mz, NF, Characteristic resistance under tension and shear loading, edge distance c=60mm	Annex C7

²⁾ No performance assessed.

³⁾ For temperature range 72/120°C: $N_{Rk (72/120^{\circ}C)} = 0.83 \cdot N_{Rk (50/80^{\circ}C)}$.

²⁾ No performance assessed.



Solid brick Mz, 2DF, EN 771-1:2011+A1:2015 Producer e.g. Wienerberger length L width W height H Nominal dimensions [mm] ≥ 240 ≥ 115 ≥ 113 Mean gross dry density ρ [kg/dm³] ≥ 1,8 Mean compressive strength / Min. $[N/mm^2]$ 12,5 / 10 or 20 / 16 compressive strength single brick 1) Standard or annex EN 771-1:2011+A1:2015

Table C8.1: Installation parameters

Anchor rod	Anchor rod			16	IV	18	M	10	M	12	M	16					
Selkent interna	l threaded	I								_:			M6	M8	M10	M12	
anchor E			·				_		- 3	_		11x85		15x85			
Anchor rod and	d Selkent i	nternal	threa	aded	ancho	or E w	rithou	t perf	orate	d slee	eve				-		
Effective anchorage dept	h h _{ef}	[mm]	50	100	50	100	00 50 100 50 100 50 100				100		8	5			
Max. instal- lation torque	max T _{inst}	[Nm]	2	4				1	0				4		10		
Anchor rod and	d Selkent i	nternal	threa	aded	ancho	or E w	ith pe	erfora	ted s	leeve	Selke	ent H	16x85 K				
Effective anchorage dept	h h _{ef}	[mm]	_2	2)		85					8	5		2)			
Max. instal- lation torque	max T _{inst}	[Nm]	-	-,		10)				·		4	10	-	-/,	
General install	ation para	meters															
Edge distance	C _{min} = C _{cr}								6	80							
	s _{min} II	[mm]							1	20							
Spacing	s _{cr} II	[mm]		240													
So	er⊥=s _{min} ⊥				115												

Drilling method

Hammer drilling with hard metal hammer drill

Table C8.2: Group factors

Anchor r	Anchor rods			М8	M10	M12	M16		•	-		
Selkent i	Selkent internal threaded		_	_	_	_	_	M6	M8	M10	M12	
anchor E	anchor E		_	_	_	-	_	112	c 85	15	x85	
	α _{g,N} (s _{min} II)					1,5						
Group	$\alpha_{ extsf{g,V}}\left(extsf{s}_{ extsf{min}} extsf{II} ight)$	r_1				1,4						
factor	$\alpha_{\rm g,N} ({\sf s}_{\rm min} \bot) \over \alpha_{\rm g,V} ({\sf s}_{\rm min} \bot)$	[-]				2,0						

Injection system Selkent SEL-V+ for masonry	
Performance Solid brick Mz, 2DF, dimensions, installation parameters, Group factors	Annex C8

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

²⁾ No performance assessed.



Solid brick Mz, 2DF, EN 771-1:2011+A1:2015

Table C9.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading

Anchor rod	M6	M8	M10	M12	M16	∵=	- 3	M8	M10	-
Selkent internal threaded anchor E	-	-	-	-	-	M6 M8 11x85	M10 M12 15x85	-	-	M6 M8 11x85
Perforated sleeve Selkent H K	-	-	-	-	-	-	-		16x	85

$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} = N_{Rk,b,c}$ [kN]; temperature range 50/80°C ²⁾														
Mean compressive strength / Min. compressive strength single brick 1)	Use con- dition	-	50	100	50	100	50	Effe 100	50	8	hora 50	ge de 100	pth h _{ef} [mm] 85	
12 E / 10 N/mm²	w/w w	v/d	1,5	2,5	1,5	2,5	1,5	3,0	2,0	3,5	2,0	3,5	2,0	1,5
12,5 / 10 N/mm²	d/d		3,0	4,0	3,0	4,0	3,0	4,5	3,0	5,5	3,0	5,5	3,0	3,0
20 / 46 N/mama ²	w/w w	v/d	2,5	4,0	2,5	4,0	2,5	4,5	3,5	5,5	3,5	5,5	3,5	2,5
20 / 16 N/mm² d/d			4,5	7,0	4,5	7,0	4,5	7,5	5,5	8,0	5,5	8,0	5,5	4,5

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C9.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading

Anchor rod	M6	M8	M10	M12	M16		-	M8	M10	
Selkent internal threaded anchor E	-	-	-	-	-	M6 M	M10 M1: 15x85	-	-	M6 M8 11x85
Perforated sleeve Selkent H K	-	-	-	-	-	-	-		16x	85

Company of the second state of the second of		0				-	2							-
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} =$	· V _{Rk,c,⊥} [k	N]; tem	perature i	range 50/8	0°C and	72/120°C								
Mean compressive strength / Min.	Use con-		Effective anchorage depth h _{ef} [mm]											
compressive strength single brick ¹⁾	ditions		≥ 50 85											
12,5 / 10 N/mm²	w/w w/d d/d	2,5	3,0	3,0	3,5	3,0	2,5	3,0	3,0	3,0	3,0	3,5	2,5	3,0
20 / 16 N/mm ²	w/w w/d	4,0	5,0	5,5	5,5	5,0	4,0	5,0	5,0	5,0	5,0	6,0	4,0	5,0

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Solid brick Mz, 2DF, Characteristic resistance under tension and shear loading	Annex C9

²⁾ For temperature range 72/120°C: N_{Rk} (72/120°C) = 0,83 · N_{Rk} (50/80°C).



Solid brick Mz, EN 771-	-1:2011+A1:2015					
2178	Producer	e.g. Nigra				
100	Nominal dimensions	[mm]	length L	width W	height H	
	Norminal differsions	נייייון	≥ 245	≥ 118	≥ 54	
4	Mean gross dry density ρ	≥ 1,8				
*	Mean compressive strength / Min. compressive strength single brick 1) [N/mm²] 12,5 / 10 or 2					
2245	Standard or annex	EN 771-1:2011+A1:2015				

Table C10.1: Installation parameters

Anchor rod		M6	IV	18	М	10	M	12	M	16				-		
Selkent internal threaded		-		-1									M6	M8	M10	M12
anchor E						-		-			11x85		15x85			
Anchor rod and Selkent into	ernal th	readed	anch	or E v	vitho	ıt per	forate	d slee	eve		-		-			
Effective anchorage depth hef [m	nm] 50	100	50	100	50	100	50	100	50	100		85				
Max. installation max T _{inst} [N	lm]	4				1	0				4	4 10				
General installation parame	eters															
Edge distance c _{min} = c _{cr}							6	0								
Specifica Scr = Smin [m	nm][245														
Spacing $s_{cr} \perp = s_{min} \perp$		60														

Drilling method

Hammer drilling with hard metal hammer drill

Table C10.2: Group factors

Anchor rods		M6	M8	M10	M12	M16	-		-	
Selkent internal threaded				_		_	M6	M8	M10	M12
anchor E		-	-0		-	_	11x85		15x85	
$ \begin{array}{c} \text{Group factor} & \frac{\alpha_{\text{g,N}} \left(\text{S}_{\text{min}} \ \text{II} \right)}{\alpha_{\text{g,V}} \left(\text{S}_{\text{min}} \ \text{II} \right)} \\ \hline \alpha_{\text{g,V}} \left(\text{S}_{\text{min}} \ \bot \right) \\ \hline \alpha_{\text{g,V}} \left(\text{S}_{\text{min}} \ \bot \right) \end{array} $	[-]				2					

Injection system Selkent SEL-V+ for masonry	
Performance Solid brick Mz, dimensions, installation parameters, Group factors	Annex C10

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.



Solid brick Mz, EN 771-1:2011+A1:2015

Table C11.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading

Anchor rod	M6	М8	M10	M12	M16		-0		-
Selkent internal threaded	The state of the s			1000		M6	M8	M10	M12
anchor E	-	-	-	-	-	11)	(85	15	x85

$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c}$	= N _{Rk,l}	_{b,c} [k	N]; tempe	rature rang	ge 50/80°C	2)	-					
Mean compressive strength/	Us	e		E	Effective an	chorage de	epth hef[mn	n]	1]			
Min. compressive strength single brick 1)	gle brick 1) dition				≥ 50 85							
12,5 / 10 N/mm²	w/w	w/d	0,60	0,90	0,75	0,75	0,75	0,60		0,75		
	d/	d	1,20	1,50	1,20	1,20	1,20	1,20		1,20		
25 / 20 N/mam ²	w/w	w/d	0,90	1,50	1,20	1,20	1,20	0,90		1,20		
25 / 20 N/mm²	d/	d	1,50	2,50	2,00	2,00	2,00	1,50		2,00		

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C11.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading

Anchor rod	M6	M8	M10	M12	M16		-	-			
Selkent internal threaded anchor E	-	-	-	-	•	M6	M6 M8 I 11x85		M12 (85		
V _{Rk} = V _{Rk,b} = V _{Rk,c,II} = V _{Rk,c,⊥} [kN]; temperature range 50/80°C and 72/120°C											

$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,}$	$_{\perp}$ [kN]; tem	perature r	ange 50/80	0°C and 72	/120°C						
Mean compressive strength / Min.	Use		E	Effective an	chorage de	epth h _{ef} [mn	n] I				
compressive strength single brick 1)	con- ditions	con- ditions ≥ 50						85			
12,5 / 10 N/mm²	w/w w/d	2,0	3,0	4,0	4,5	5,5	2,0	3,0	4,0	4,5	
25 / 20 N/mm²	w/w w/d d/d	2,5	4,0	5,5	6,0	8,0	2,5	4,0	5,5	6,0	

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry

Performance
Solid brick Mz, Characteristic resistance under tension and shear loading

Annex C11

²⁾ For temperature range 72/120°C: N_{Rk} (72/120°C) = 0,83 · N_{Rk} (50/80°C).



Solid brick Mz, EN 771-1:2011+A1:2015 \$100 Producer e.g. Wienerberger length L width W | height H Nominal dimensions [mm] ≥ 230 ≥ 108 ≥ 55 Mean gross dry density ρ [kg/dm³] ≥ 1,8 Mean compressive strength / Min. $[N/mm^2]$ 12,5 / 10 or 25 / 20 compressive strength single brick 1) Standard or annex EN 771-1:2011+A1:2015

Table C12.1: Installation parameters

			-25													
Anchor rod	Anchor rod		M6		M8		M	M10		M12		16				-
Selkent internal threaded		l			100-70								M6	M8	M10	M12
anchor E			-		-		-				-		11x85		15x85	
Anchor rod and Selkent internal threaded anchor E without perforated sleeve																
Effective anchorage depth	h _{ef}	[mm]	50	90	50	90	50	90	50	90	50	90		85		
Max. installation torque	max T _{inst}	[Nm]	4	4		2	29	1	0				4 10			
General installa	tion para	meter	s													
Edge distance	C _{min} = C _{cr}			60												

Edge distan	ce c _{min} = c _{cr}	60
Chaoina	s _{cr} II = s _{min} II [m	230
Spacing	$s_{cr} \perp = s_{min} \perp$	60

Drilling method

Hammer drilling with hard metal hammer drill

Table C12.2: Group factors

Anchor rods			M6	М8	M10	M12	M16			-	
	Selkent internal threaded anchor E				_	-	-	M6	M8	7000000	M12
anchor E								11x85		15	x85
Group factor	$\begin{array}{c} \alpha_{g,N} \ (s_{min} \ II) \\ \\ \alpha_{g,V} \ (s_{min} \ II) \\ \\ \alpha_{g,N} \ (s_{min} \ \bot) \\ \\ \alpha_{g,V} \ (s_{min} \ \bot) \end{array}$	[-]				2					

Injection system Selkent SEL-V+ for masonry	
Performance Solid brick Mz, dimensions, installation parameters, Group factors	Annex C12

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.



Solid brick Mz, EN 771-1:2011+A1:2015

Table C13.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading

Anchor rod		M6	М8	M10	M12	M16		■k		- 1
Selkent internal thread anchor E	led	-		-		-	M6	M8 x85	M10	M12 x85
$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk}$,p,c = N _{Rk,b,c} [k	N]; tempe	rature rang	ge 50/80°C	2)		-		5.	
Mean compressive	Llse			Effective an	chorage de	epth hef [mn	n]			

$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c}$	$= N_R$	k,b,c [k	N]; tempe	rature ranç	ge 50/80°C	2)		
Mean compressive strength / Min.		se		E	Effective an	chorage de	epth hef[mn	n]
compressive strength single brick 1)		on- ons			≥ 50			85
12,5 / 10 N/mm ²	w/w	w/d	0,60	0,90	0,75	0,75	0,75	0,75
12,5 / 10 10/111111	d,	/d	1,20	1,50	1,20	1,20	1,20	1,20
25 / 20 N/mm ²	w/w	w/d	0,90	1,50	1,20	1,20	1,20	1,20
25 / 20 N/IIIIII	d	/d	1,50	2,50	2,00	2,00	2,00	2,00

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C13.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading

M6	M8	M10	M12	M16		-	-	-
-	-	-	-	-	M6 112	M8 x85	M10 15>	M12 x85
	M6 -	M6 M8				M6	M6 M8	M6 M8 M10

$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,}$	$_{\perp}$ [kN]; tem	perature r	ange 50/80	0°C and 72	/120°C					
Mean compressive strength / Min.	Use		E	Effective ar	ichorage de	epth h _{ef} [mn	n] 			
compressive strength single brick 1)	con- ditions			≥ 50				8	5	
12,5 / 10 N/mm²	w/w w/d d/d	2,0	3,0	4,0	4,5	5,5	2,0	3,0	4,0	4,5
25 / 20 N/mm²	w/w w/d d/d	2,5	4,0	5,5	6,0	8,0	2,5	4,0	5,5	6,0

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry

Performance
Solid brick Mz, Characteristic resistance under tension and shear loading

Annex C13

²⁾ For temperature range 72/120°C: N_{Rk (72/120°C)} = 0,83 · N_{Rk (50/80°C)}.



Solid calcium silicate b	orick KS, NF, EN 771-2:2011+A1:	2015			
2175	Producer			=	
	Nominal dimensions	[mm]	length L	width W	height H
	INOTHINAL difficults	finni	≥ 240	≥ 115	≥ 71
≥77≤	Mean gross dry density ρ	[kg/dm ³]		≥ 1,8	
X	Mean compressive strength / Min. compressive strength single brick 1)	[N/mm ²]	15 / 12 o	r 25 / 20 c	r 35 / 28
2240	Standard or annex		EN 771	-2:2011+ <i>A</i>	1:2015

Table C14.1: Installation parameters

Anchor rod			N	16	N	18	M	10	M	12	М	16				-
Selkent intern	al threaded	ı											M6	M8	M10	M12
anchor E				-	'	-11	11	•		-		-	11)	x85 1		x85
Anchor rod ar	nd Selkent i	nterna	al thr	eaded	anch	or E v	vithou	ıt per	forate	ed slee	eve					
Effective	h	[]	EO	100	E0.	100	50	100	50	100	50	100	0	E		E
anchorage dep	oth h _{ef}	[mm]	50	100	50	100	20	00	200 2		200 200		85		8	5
Max. installation torque	max T _{inst}	[Nm]	;	3	į	5	1	5	1	5	2	25	3 5		1	5
General insta	llation para	meter	s					e i							8	
Edge distance	$C_{min} = C_{cr}$								6	0						
_	s _{min} II								8	0						
Cassing —	s _{cr} II	[mm]							8	0						
Spacing —	$s_{min} \bot$								3x	h _{ef}						
	s cr⊥								3x	h _{ef}						

Drilling method

Hammer drilling with hard metal hammer drill

Table C14.2: Group factors

Anchor rod			M6	M8	M10	M12	M16	0.	•	-
Selkent inter anchor E	nal threaded			•	-	h	•	M6	M8 (85	M12 x85
	α _{g,N} (s _{min} II)					0,7				
Croup factor	$\alpha_{\text{g,V}}$ (s _{min} II)	r 1				1,3				
Group factor	α _{g,N} (S _{min} ⊥)	[-]				2,0				
,	α _{g,} ∨ (s _{min} ⊥)					2,0				

Injection system Selkent SEL-V+ for masonry	
Performance Solid calcium silicate brick KS, NF, dimensions, installation parameters, Group factors	Annex C14

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength...

25 / 20 N/mm²

35 / 28 N/mm²



Solid calcium silicate brick KS, NF, EN 771-2:2011+A1:2015

Table C15.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading

Anchor rod		M	16	N	18		M10			M12		20	M16			•		-
Selkent internal threanchor E	eaded		•(1	-		-			-			-		M6 112		M10 15x	M12 x85
$N_{Rk} = N_{Rk,p} = N_{Rk,b} = I$	$N_{Rk,p,c} = N_F$	Rk,b,c [kN];	temp	perat	ure r	ange	50/8	30°C	2)		-						
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions	50	100	50	100			tive a			e dep 200		ef [mm	n] 200	8	5	8	5
15 / 12 N/mm²	w/w w/d	2,0	3,0	2,5	4,5	2,5	3,5	7,0	2,5	3,0	6,5	2,5	3,5	8,0	2	5	2,	,5
19 / 12 N/IIIII	d/d	4,0	5,5	4,0	8,0	4,0	5,5	12	4,0	4,5	12	4,5	5,5	12	4	0	4,	,0

4,5

8,0

5,5

9,0

10 3,5

12

12 4,5

12 7,0 7,5

6,0

4.0

6,5

5,0

9.5 4.0

12 6,5

11 4,5

12 7,5

5.0

0,8

5,5

9,5

11

12

12

12

3.5

6,0

4,5

7,0

3.5

6,0

4,5

7.0

3,0

5,5

3,5

6,5

4,5

7,5

5,0

9,0

3,5

6,0

4,0

7,0

6.5

11

8,0

12

3.5

6,0

4,5

7,0

w/w w/d

d/d

w/w w/d

d/d

Table C15.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading

Anchor rod		I N	16	l V	18	M	10	M12 N		M	16	-	
Selkent internal thr anchor E	eaded		-				-	,	-	-	- (t	M6 M8	M10 M12 15x85
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} =$	V _{Rk,c,⊥} [kN	l]; te	mpei	atur	e ran	ge 50/8	30°C an	d 72/1	20°C				
Mean compressive	Use	- 50 100 50 100 50 2100 50 2100 95 95											
strength / Min. compressive strength single brick 1)	con- ditions	50	100	50	100	50	≥100	50	≥100	50	≥100	85	85
15 / 12 N/mm²	w/w w/d d/d	1,5	3,0	1,5	3,0	1,2	2,0	1,2	2,0	1,2	2,0	1,2	1,2
25 / 20 N/mm²	w/w w/d d/d	2,5	4,0	2,5	4,0	1,5	3,0	1,5	3,0	1,5	3,0	1,5	1,5
35 / 28 N/mm²	w/w w/d	3,0	4,5	3,0	4,5	1,5	3,5	1,5	3,5	1,5	3,5	1,5	1,5

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry

Performance
Solid calcium silicate brick KS, NF, Characteristic resistance under tension and shear loading

Annex C15

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

²⁾ For temperature range 72/120°C: $N_{Rk (72/120^{\circ}C)} = 0.83 \cdot N_{Rk (50/80^{\circ}C)}$.



Max. installation torque max T _{inst} [Nm] 4 Anchor rod and Selkent internal threaded anchor E with	M10 - ithout periods 50 100	[kg [N/	leeve	12,5 / 12	10 or 271-2: ion se B15	2011+, ee also	≥ 240 or 35 / 28 A1:2015 M10 M12 15x85
Nominal dimensions Mean gross dry density ρ Mean compressive strength compressive strength single Standard or annex Table C16.1: Installation parameters Anchor rod	M10 - ithout periods 50 100	[kg [N/	J/dm³] /mm²]	≥ 250 12,5 / 1 EN 7 Dimens Annex	10 or 271-2: ion se B15	≥ 240 ≥ 2,0 25 / 20 2011+, ee also - M8 x85	≥ 240 or 35 / 28 A1:2015 M10 M12 15x85
Mean compressive strength compressive strength single Standard or annex Table C16.1: Installation parameters Anchor rod	M10 - ithout periods 50 100	M12	/mm ²]	12,5 / ´EN 7 Dimens Annex	71-2: ion so B15	≥ 2,0 25 / 20 2011+, ee also - M8 x85	or 35 / 28 A1:2015 M10 M12 15x85
Mean compressive strength compressive strength single Standard or annex Table C16.1: Installation parameters Anchor rod	M10 - ithout periods 50 100	M12	/mm ²]	12,5 / 12	71-2: ion se B15	25 / 20 2011+, ee also - M8 x85	A1:2015 - M10 M12 15x85
Table C16.1: Installation parameters Anchor rod	M10 - ithout periods 50 100	M12	leeve	EN 7 Dimens Annex I	71-2: ion se B15	2011+, ee also - M8 x85	A1:2015 - M10 M12 15x85
Table C16.1: Installation parameters Anchor rod	M10 - ithout peri	- forated s	leeve	Dimens Annex I	ion so B15	- M8 x85	- M10 M12 15x85
Table C16.1: Installation parameters Anchor rod	M10 - ithout peri	- forated s	leeve	M16	M6	- M8 x85	- M10 M12 15x85
Anchor rod Selkent internal threaded anchor E Anchor rod and Selkent internal threaded anchor E wite Effective anchorage depth Max. installation torque	ithout peri	- forated s	leeve	-		x85	15x85
Selkent internal threaded anchor E Anchor rod and Selkent internal threaded anchor E with Effective anchorage depth Max. installation torque Anchor rod and Selkent internal threaded anchor E with the self-self-self-self-self-self-self-self-	ithout peri	- forated s	leeve	-		x85	15x85
Anchor E Anchor rod and Selkent internal threaded anchor E wite Effective anchorage depth Max. installation torque Anchor rod and Selkent internal threaded anchor E wite Max. Installation torque Anchor rod and Selkent internal threaded anchor E wite Max. Installation torque	50 100			100		x85	15x85
Effective anchorage depth hef [mm] 50 100 50 100 5 Max. installation torque max T _{inst} [Nm] 4 Anchor rod and Selkent internal threaded anchor E with the self-self-self-self-self-self-self-self-	50 100			100			
anchorage depth hef [mm] 50 100 50 100 8 Max. installation torque max T _{inst} [Nm] 4 Anchor rod and Selkent internal threaded anchor E with		50 10	0 50	100		8	 5
Anchor rod and Selkent internal threaded anchor E with				100			
	10	0			4		10
Transportation of the second o	ith perfora	ated sleev	∕e Sel	kent H	16x8	5 K	
Effective anchorage depth hef [mm] 85			_2)		8	35	_2)
Max. installation torque max T _{inst} [Nm]	(4	10	
General installation parameters							
Edge distance $c_{min} = c_{cr}$		60					
Smin II		80					
Spacing s _{cr} II [mm]		3x h _{ef}					
S _{min} ⊥		80					
S _{cr} ⊥		3x h _{ef}					
Drilling method							
Hammer drilling with hard metal hammer drill							
1) The minimum compressive strength of the single brick mus 2) No performance assessed.	st not be les	ss than 80	% of the	ne mean	com	pressive	e strength.

ods		M6	M8	M10	M12	M16	8.			-		
ternal threaded		_	- y	_	_	_	M6	M8	_	M12		
							11)	(85	15	x85		
ααΝ (Smin II)					1,5							
$\alpha_{\text{q,V}}$ (s _{min} II)	r 1		1,2									
α _{g,N} (S _{min} ⊥)	[-]		1,5									
$\alpha_{ extsf{g,V}}$ ($ extsf{s}_{ extsf{min}}$ \perp)					1,2							
	ternal threaded $\frac{\alpha_{\text{d N}} (\text{s}_{\text{min}} \text{II})}{\alpha_{\text{q,V}} (\text{s}_{\text{min}} \text{II})}$ $\alpha_{\text{g,N}} (\text{s}_{\text{min}} \bot)$	ternal threaded $\frac{\alpha_{\text{d N }}(\text{S}_{\text{min }}\text{II})}{\alpha_{\text{d,N }}(\text{S}_{\text{min }}\text{L})} \ [-]$	Cα N (Smin II) αq.N (Smin II) αq.N (Smin II) [-]	ternal threaded	ternal threaded	ternal threaded $ \begin{array}{c cccc} \underline{\alpha_{\text{a N }}(s_{\text{min }}II)} \\ \underline{\alpha_{\text{a.V }}(s_{\text{min }}II)} \\ \underline{\alpha_{\text{g.N }}(s_{\text{min }}\bot)} \end{array} $	ternal threaded $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ternal threaded $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ternal threaded $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		

Injection system Selkent SEL-V+ for masonry	
Performance Solid calcium silicate brick KS, 8DF, dimensions, installation parameters, Group factors	Annex C16



Solid calcium silicate brick KS, 8DF, EN 771-2:2011+A1:2015

Table C17.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading

Anchor rod	M6	M8	M10	M12	M16		-	-	M8	M10	-
Selkent internal threaded anchor E		-	-	-	-	M6 11)	100000000000000000000000000000000000000	M12 x85	-	-	M6 M8 11x85
Perforated sleeve Selkent H K	-	-	-	-	-		•	-		16x8	5

$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk}$	$_{p,c} = \mathbf{N}_{Rk,b,c}$	c [kN];	tempe	rature	range !	50/80°C	2)				
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions	s ≥ 50 85									
12,5 / 10 N/mm ²	w/w w/d	3,0	4,0	4,5	4,5	3,5	3,0	3,5	4,5	3,0	4,5
12,5 / 10 10/111111	d/d	5,0	7,0	7,0	7,0	5,5	5,0	5,5	8,0	5,0	8,0
25 / 20 N/mm ²	w/w w/d	4,5	6,0	6,0	6,0	5,0	4,5	5,0	6,5	4,5	6,5
25 / 20 N/IIIII	d/d	7,5	10,0	10,0	10,0	7,5	7,5	7,5	11,0	7,5	11
25 / 29 N/mm²	w/w w/d	5,0	8,0	8,5	8,5	7,0	5,0	7,0	8,5	5,0	8,5
35 / 28 N/mm²	d/d	8,5	12,0	12,0	12,0	11,0	8,5	11,0	12,0	8,5	12

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C17.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading

Anchor rod	M6	M8	M10	M12	M16		•		-	M8	M10	-
Selkent internal threaded						M6	M8	M10	M12		1	M6 M8
anchor E	-	-	-	-	_	11)	(85	15	x85	-	-	11x85
Perforated sleeve Selkent H K	₩.	=	-	-	-		•		•		16x8	5

$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk}$	_{k,c,⊥} [kN]; 1	temper	ature range 50/80°C and 72	2/120°C					
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions		Effective and ≥ 50	chorage depth h _{ef} [mm] 85					
12,5 / 10 N/mm²	w/w w/d d/d	2,5	4,5	2,5	4,5	4,5	2,5	4,5	
25 / 20 N/mm²	w/w w/d d/d	4,0	6,5	4,0	6,5	6,5	4,0	6,5	
35 / 28 N/mm²	w/w w/d d/d	5,0	9,0	5,0	9,0	9,0	5,0	9,0	

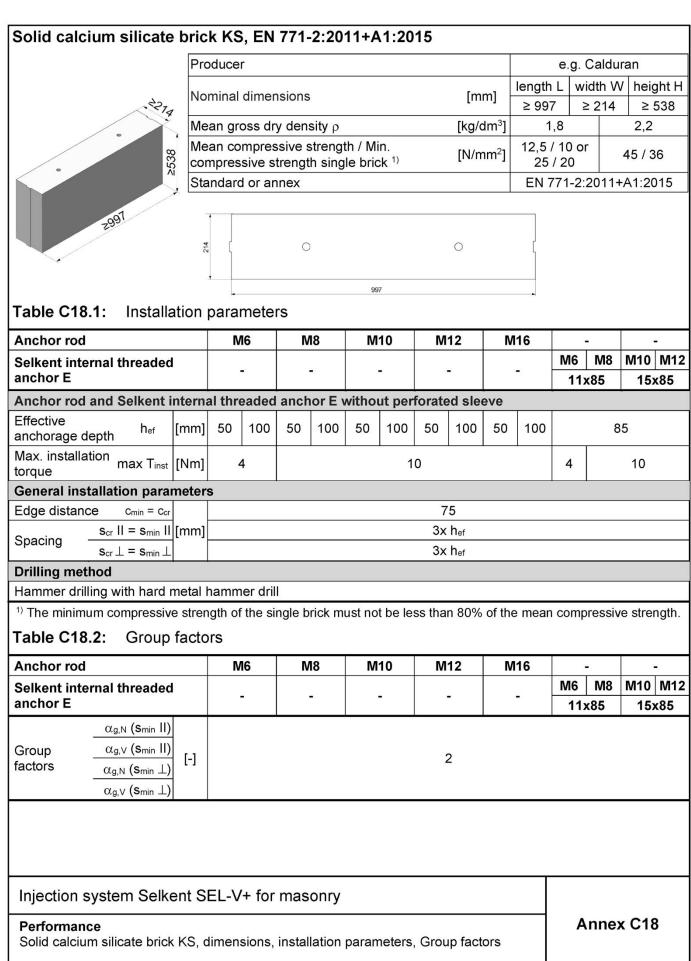
¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Solid calcium silicate brick KS, 8DF, Characteristic resistance under tension and shear loading	Annex C17

²⁾ For temperature range 72/120°C: N_{Rk} (72/120°C) = 0,83 · N_{Rk} (50/80°C).





Anchor rod



Solid calcium silicate brick KS, EN 771-2:2011+A1:2015

Table C19.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading

Anchor rod			N	16	M	8	M1	0	M	12	M	16	-		-	
Selkent internal threa anchor E	ded		-			•	-	ò	-		-	•	M6 11x		M10 15x	
$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_R$	k,p,c =	N _{Rk,t}	,c [kN]; tem	perati	ıre ra	nge 50	/80°C	2)							
Mean compressive strength / Min. compressive strength single brick 1)	Us co ditio	n-	50	100	50	100	ffectiv 50	e anc 100	horage 50	e dept	h h _{ef} [r	mm] 100		8	35	
12,5 / 10 N/mm ²	w/w	w/d	4	,0	4,0	7,0	5,0	6,0	5,0	6,0	5,5	7,5		5	5,5	
12,5 / 10 14/111111	d/	d	7	,0	7,0	12,0	8,0	9,5	8,0	10,0	9,0	11,5		9	0,0	
25 / 20 N/mm ²	w/w	w/d	5	,5	6,0	10,0	7,0	8,5	7,0	9,0	8,0	11,0		8	3,0	
25 / 20 N/IIIII	d/	d	8	,5	10,5	12,0	11,5	12,0	11,0	12,0	12,0	12,0		1:	2,0	
45 / 26 N/mama ²	w/w	w/d	4	,5	8,0	12,0	11,5	12,0	12,0	12,0	12,0	12,0		1:	2,0	
45 / 36 N/mm ²	d/	d	8	,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0		1:	2,0	

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

M6

Table C19.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading

M10

M12

M16

M8

Selkent internal threa	ded			_	_	_	М6	M8	M10	M12
anchor E		-		-	-	_	11x85		15)	x85
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{I}$	_{Rk,c,⊥} [kN];	temperatu	re range 50	/80°C and 7	2/120°C					
Mean compressive strength / Min.	Use con-			oth h _{ef} [mm]	[r					
compressive strength single brick 1)	ditions	≥ 50						5		
12,5 / 10 N/mm²	w/w w/d d/d	3,0	5,0	5,5	4,0	4,0	3,0	5,0	5,5	4,0
25 / 20 N/mm²	w/w w/d d/d	4,5	7,0	7,5	6,0	6,0	4,5	7,0	7,5	6,0
45 / 36 N/mm²	w/w w/d d/d	4,5	9,0	11,0	12,0	12,0	4,5	9,0	11,0	12,0

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Solid calcium silicate brick KS, Characteristic resistance under tension and shear loading	Annex C19

²⁾ For temperature range 72/120°C: $N_{Rk (72/120^{\circ}C)} = 0.83 \cdot N_{Rk (50/80^{\circ}C)}$.



		oric	k KS	, EN	771-	2:20	11+A	1:20	15								
115		Pro	oducer														
* <	95	No	minal	dimer	nsions					[mr	ฑโ	length	_	A110 - 001000			
113											_	≥ 240	-	115	≥ 1	113	
*	>35.	_	an gro			• ,	th / Mir			[kg/d	ım³j		1	,8			
	Ť						le bricl			[N/m	ım²]	1:	12,5 / 10 or 25 / 20				
240		Sta	andard	or ar	nex							EN 7	771-2:20)11+	A1:20	15	
T-11- 000 4	V																
Table C20.1	: Installat (Pre-pos					n with	Selk	ent p	erfo	rated	sle	eve H	K)				
Anchor rod			M6	M8	10.	-	M8 M10					-	M12 N	116	M12	М1	
Selkent intern	nal threaded		_	•	M6	M8	_					M12			_		
anchor E			40				11x85 16x85			100	15	x85				400	
Selkent perfo		_	12x		!			. 11		130		20>		!	20x	130	
Anchor rod au Max.	na Seikent in	terna	ai thre	eaded	ancn	orev	with Se	eiken	t perr	orated	sie	eve H	N .				
installation torque	max T _{inst} [I	Nm]	2							4	C.						
General insta	llation param	eter	s														
Edge distance		1							10	00							
	Smin II																
Spacing	Scr II	mm]	25	255		255 255			55		390		25	255		390	0
	S _{min} ⊥																
Drilling metho				,											,		
Hammer drillin	od g with hard m																
Drilling method Hammer drilling 1) The minimum Table C20.2	od g with hard mentors of the compressive	strer	ngth of ors	the si	ngle b												
Hammer drillin The minimum Table C20.2 Anchor rod	g with hard mon compressive	strer acto	ors M6	the si	ngle b	M8	M1		M8	M10		VI12	M16	M1	2 1	V116	
Hammer drillin Table C20.2 Anchor rod Selkent perfo	g with hard mon compressive : Group farated sleeve	strer acto	ors M6	the si	ngle b	M8				M10			M16	M1		V116	
Hammer drillin 1) The minimum Table C20.2 Anchor rod Selkent perform αg Group	g with hard men compressive Group for the state of the s	strer acto	ors M6	the si	ngle b	M8	M1		M8	M10 130		VI12	M16	M1	2 1	V11(



Solid calcium silicate brick KS, EN 771-2:2011+A1:2015

Table C21.1: Installation parameters

(Push through installation with Selkent perforated sleeve H K)

Anchor rod			M10	M12	M16
Selkent perfora	ted sleeve	ΗK	18x13	0/200	22x130/200
Anchor rod with	n Selkent	perfor	ated sleeve H K		
Max. installation torque	max T _{inst}	[Nm]			4
General installa	tion para	meters	3		
Edge distance	C _{min} = C _{cr}				100
	s _{min} II				390
Chasina	s _{cr} II	[mm]			390
Spacing	s _{min} ⊥				390
	s cr⊥				390
Drilling method					
Hammer drilling	with hard r	netal h	nammer drill		

Table C21.2: Group factors

Anchor roo	d	M10	M12	M16				
Selkent pe	rforated sleeve H K	18x13	30/200	22x130/200				
Group factors	$\frac{\alpha_{g,N} (s_{min} I)}{\alpha_{g,V} (s_{min} I)}$ $\frac{\alpha_{g,N} (s_{min} \bot)}{\alpha_{g,V} (s_{min} \bot)}$ [-]		:	2				

Injection system Selkent SEL-V+ for masonry

Performance
Solid calcium silicate brick KS, dimensions, installation parameters, Group factors

Annex C21



Solid calcium silicate brick, EN 771-2:2011+A1:2015

Table C22.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Pre-positioned installation)

Anchor rod	M6	M8		-	M8	M10	M8	M10	15	-	M12	M16	M12	M16		
Selkent internal threaded anchor E			M6	M8 1x85		-		-		M12 x85		•	-			
Selkent perforated sleeve H K	12>	(85	16x		x85		16x	130	20		130 20x85		x85		20x130	

 $N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} = N_{Rk,b,c}$ [kN]; temperature range 50/80°C²⁾ Mean compressive Use strength / Min. concompressive strength ditions single brick 1) w/w 2,0 2,0 2,0 4,5 3,5 6,5 12,5 / 10 N/mm² d/d 6,0 4,0 7,0 3,5 3,5 10,5 5.0 3.0 3,0 w/w 3.0 9.5 6.0 25 / 20 N/mm² d/d 5,5 5,5 12,0 10,0 8,5 5,5

Table C22.2: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Push through installation)

Anchor rod		M10	M12	M16							
Selkent perforated sle	eeve H K	18x13	0/200	22x130/200							
$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_R$	N _{Rk} = N _{Rk,p} = N _{Rk,b,c} = N _{Rk,p,c} = N _{Rk,b,c} [kN]; temperature range 50/80°C ²⁾										
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions										
12,5 / 10 N/mm²	w/w d/d	2.		4,5 7,0							
25 / 20 N/mm²	w/w d/d	3. 5.	100	6,0 10,0							

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Solid calcium silicate brick KS, Characteristic resistance under tension loading	Annex C22

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

²⁾ For temperature range 72/120°C no performance assessed.

²⁾ For temperature range 72/120°C no performance assessed.



Table C23.1:	Characteristic resistance to local brick failure or brick edge failure of a single
	anchor under shear loading (Pre-positioned installation)

Anchor rod	M6	M8		-	M8	M10	M8	M10		-	M12	M16	M12	M16			
Selkent internal threaded anchor E			M6	M8 1x85	2	-	ā	-		M12 x85		•	-	•			
Selkent perforated sleeve H K	12>	(85	16x		x85		16x85 16x		130	20		20		x85		20x	130

	to the second course are a	y try and the second section is a second	The state of the s		
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{F}$	Rk,c,⊥ [kN]	tempe	rature range 50/80°C ²⁾		
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions				
12,5 / 10 N/mm ²	w/w d/d	3,0		3,5	
25 / 20 N/mm ²	w/w d/d	4,0		5,5	

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C23.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Push through installation)

Anchor rod		M10 M12		M16						
Selkent perforated sleeve H K		18x13	30/200	22x130/200						
$V_{Rk} = V_{Rk,b} = V_{Rk,c, } = V_{Rk,c,\perp}$ [kN]; temperature range 50/80°C ²⁾										
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions									
12,5 / 10 N/mm²	w/w d/d		3	.5						
25 / 20 N/mm²	w/w d/d		5	5						

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

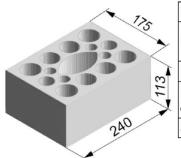
Injection system Selkent SEL-V+ for masonry	
Performance Solid calcium silicate brick KS, Characteristic resistance under shear loading	Annex C23

²⁾ For temperature range 72/120°C no performance assessed.

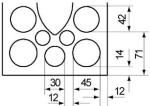
²⁾ For temperature range 72/120°C no performance assessed.



Perforated calcium silicate brick KSL, 3DF, EN 771-2:2011+A1:2015



	Producer			-	
Nominal dimensions	Naminal dimensions	[mm]	length L	ength L width W	
	Norminal difficults	Limin	240	175	113
	Mean gross dry density ρ	[kg/dm ³]		≥ 1,4	
	Mean compressive strength / Min. compressive strength single brick 1)	[N/mm ²]	10 / 8 or 12,5 / 10 or 15 / 7 or 20 / 16 or 25 / 20		
	Standard or annex		EN 771	-2:2011+ <i>A</i>	1:2015



Dimension see also Annex B15

Table C24.1: Installation parameters

(Pre-positioned installation with Selkent perforated sleeve H K)

Anchor rod	M6	M8	M6 M8		- M8 M		M10	M8	M10	-		M12	M16	M12	M16	
Selkent internal threaded anchor E					M6	M8					M10	M12				
		-		×		11x85		-	-		15x85		-		-	
Selkent perforated sleeve H K	123	<50	12)	(85		162	(85		16x	130		202	x85		20x	130

Anchor rod and Selkent internal threaded anchor E with Selkent perforated sleeve H K

Max. installation	max T _{inst}	[MIM]	2	,
torque	IIIax I inst	[[INITI]	2	

General installation parameters

Edge distance	C _{min} = C _{cr}	60	80
Caraina	s _{min} II		100
	s _{cr} II [mm]	240
Spacing	S _{min} ⊥		115
	S _{cr} ⊥		115
Tel. (1) 10 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)			

Drilling method

Hammer drilling with hard metal hammer drill

Table C24.2: Group factors

Anchor ro	d		M6	M8	M6	M8	9	-	M8	M10	M8	M10	-		M12 I	VI16	M12	M16
Selkent in anchor E	elkent internal threaded nchor E			-	-		M6	M8 x85	V	-		-		M12 x85	-		-	-
Selkent pe	Selkent perforated sleeve H K			x50	12x85		16>		x85		16x130 20		20:	x85		20x	130	
Group	$\alpha_{g,N} (s_{min} II) = Group \qquad \alpha_{g,V} (s_{min} II)$									1	,5							
factors	$\alpha_{g,N} (s_{min} \perp) = \alpha_{g,V} (s_{min} \perp)$	[-]								2	,0							

Injection system Selkent SEL-V+ for masonry

Performance

Perforated calcium silicate brick KSL, 3DF, dimensions, installation parameters, Group factors

Annex C24

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.



Perforated calcium silicate brick KSL, 3DF, EN 771-2:2011+A1:2015

Table C25.1: Installation parameters

(Push through installation with Selkent perforated sleeve H K)

Anchor rod			M10	M12	M16					
Selkent perforat	ed sleeve	нк	18x13	0/200	22x130/200					
Anchor rod with	Selkent	perfo	rated sleeve H K							
Max. installation torque	max T _{inst}	[Nm]		2						
General installa	tion parai	neter	s							
Edge distance	C _{min} = C _{cr}			80						
	s _{min} II				100					
Cassina	s _{cr} II	[mm]			240					
Spacing	$s_{min} \perp$		115							
	s _{cr} ⊥		115							
Drilling method										

Hammer drilling with hard metal hammer drill

Table C25.2: Group factors

Anchor roo	d	M10	M12	M16
Selkent pe	rforated sleeve H K	18x13	30/200	22x130/200
Group	$\frac{\alpha_{g,N} (s_{min} II)}{\alpha_{g,V} (s_{min} II)}$		1	.5
factors	$\frac{\alpha_{g,N}(Smin\perp)}{\alpha_{g,V}(Smin\perp)}$ [-]		2	0

Injection system Selkent SEL-V+ for masonry **Performance** Perforated calcium silicate brick KSL, 3DF, dimensions, installation parameters, Group factors

Annex C25



Perforated calcium silicate brick KSL, 3DF, EN 771-2:2011+A1:2015

Table C26.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Pre-positioned installation)

Anchor rod		M6	M8	M6	M8	-	M8	M10	M8	M10		-	M12	M16	M12	M16
Selkent internal threaded anchor E			•		-01	M6 M	\dashv	-		-	M10 15)	M12 x85		-		•
Selkent perforated sleeve H K			(50	12	x85	1	6x85		16>	(130		20	x85		20x	130
$\mathbf{N}_{Rk} = \mathbf{N}_{Rk,p} = \mathbf{N}_{Rk,b} = \mathbf{N}_{Rk,p,c}$	N]; 1	tem	pera	ture	range	50/80	°C ²⁾									
Mean compressive	Use															

$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,b,c} = N_{Rk,b,c}$ [kN]; temperature range 50/80°C ²⁾										
Mean compressive strength/ Min. comp. strength single brick 1)	Us cor ditio	า-								
10 / 8 N/mm ²	w/w	w/d	1,5	2,0	2,0	2,0	2,0			
10 / 0 10/111111	d/d	d	1,5	2,0	2,5	2,5	2,5			
12,5 / 10 N/mm ²	w/w	w/d	2.0	2.0	2,5	2.5	2,5			
12,37 10 14/11/11	d/d	d	2,0	2,5	3,0	3,0	3,0			
15 / 12 N/mm²	w/w	w/d	2,5	2,5	3,0	3,0	3,0			
15 / 12 N/IIIII	d/d	d	2,5	3,0	3,5	3,5	3,5			
20 / 16 N/mm ²	w/w	w/d	3,0	3,5	4,5	4,5	4,5			
20 / 10 N/IIIII	d/d	d	3,5	4,0	4,5	4,5	4,5			
25 / 20 N/mm²	w/w	w/d	4,0	4,5	5,5	5,5	5,5			
25 / 20 N/IIIII	d/d	d	4,5	5,0	6,0	6,0	6,0			

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C26.2: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Push through installation)

Anchor rod			M10	M12	M16
Selkent perforated sleeve	еΗК		18x′	130/200	22x130/200
$\mathbf{N}_{Rk} = \mathbf{N}_{Rk,p} = \mathbf{N}_{Rk,b} = \mathbf{N}_{Rk,p,c}$	= N _R	, _{b,c} [k	N]; temperature	e range 50/80°C ²⁾	
Mean compressive strength / Min. comp. strength single brick 1)	Us co ditio				
10 / 8 N/mm²	w/w d/	w/d ′d			2.0 2,5
12,5 / 10 N/mm ²	w/w	w/d			2,5
12,57 10 14/111111	d/	'd			3,0
15 / 12 N/mm²	w/w	w/d			3.0
157 12 14/111111	d/	'd			3,5
20 / 16 N/mm ²	w/w	w/d			4,5
20 / 10 14/111111	d/	'd			4,5
25 / 20 N/mm²	w/w	w/d			5,5
25 / 20 N/IIIII	d/	'd			6,0

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Perforated calcium silicate brick KSL, 3DF, Characteristic resistance under tension loading	Annex C26

²⁾ For temperature range 72/120°C: N_{Rk} (72/120°C) = 0,83 · N_{Rk} (50/80°C).

 $^{^{2)}}$ For temperature range 72/120°C: N_{Rk (72/120°C)} = 0,83 \cdot N_{Rk (50/80°C)}.



Perforated calcium silicate brick KSL, 3DF, EN 771-2:2011+A1:2015

Table C27.1: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Pre-positioned installation)

Anchor rod	M6	M8	M6	M8		-	M8	M10	M8	M10	-		M12	M16	M12	M16
Selkent internal threaded anchor E		•		•	M6 112	M8 <85		-		-	M10 N			-		-
Selkent perforated sleeve H K	122	x50	12)	k 85		16)	c 85		16x	130		20)	k 85		20x	130

Seikeilt periorated sit	CCVC	11.1	12/	130	12/	103		10.00	107 130	20,000		201	130
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,II}$	V _{Rk} = V _{Rk,b} = V _{Rk,c,II} = V _{Rk,c,⊥} [kN]; temperature range 50/80°C and 72/120°C												
Mean compressive strength / Min. compressive strength single brick 1)	Us co ditio	n-											
10 / 8 N/mm ²	w/w d/				1,5				3,0		2,5	3,0	2,5
12,5 / 10 N/mm²	w/w d/				2,0					3,5			
15 / 12 N/mm²	w/w d/				2,5				4,5		4,0	4,5	4,0
20 / 16 N/mm²	w/w d/		3,0	3,5	3,0	3,5	3,0		6,0		5,5	6,0	5,5
25 / 20 N/mm ²	w/w d/		4,0	4,5	4,0	4,5	4,0		7,5		6,5	7,5	6,5

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C27.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Push through installation)

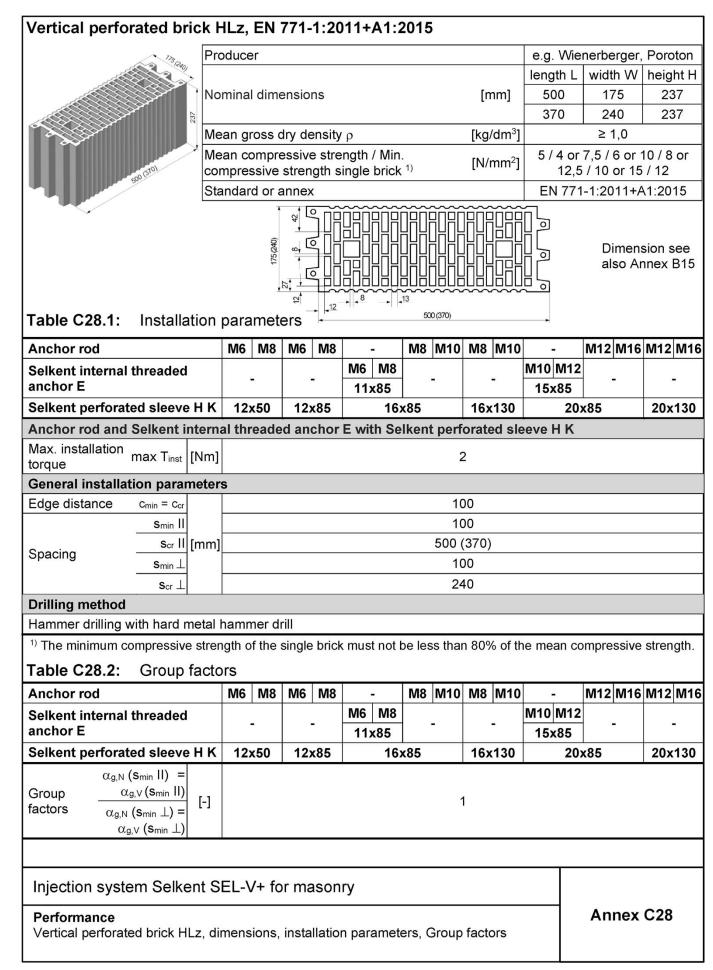
Anchor rod		M10	M12	M16					
Selkent perforated sl	eeve H K	K 18x130/200 22x130/200							
V _{Rk} = V _{Rk,b} = V _{Rk,c,II} = V _{Rk,c,⊥} [kN]; temperature range 50/80°C and 72/120°C									
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions								
10 / 8 N/mm ²		3.	.0	2,5					
12,5 / 10 N/mm ²	w/w	3.	5	3,5					
15 / 12 N/mm ²	w/d	4.	5	4,0					
20 / 16 N/mm ²	d/d	6,	.0	5,5					
25 / 20 N/mm ²		7.	.5	6.5					

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Perforated calcium silicate brick KSL, 3DF, Characteristic resistance under shear loading	Annex C27







Vertical perforated brick HLz, EN 771-1:2011+A1:2015

Table C29.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading

Anchor rod	M6	M8	М6	M8	-		M8	M10	M8	M10		-	M12	M16	M12	M16
Selkent internal threaded					M6 I	M8					M10	M12				
anchor E		•		-	11x8	85		-	31	-	15	x85		-		
Selkent perforated sleeve H K	12>	(50	12	x85		16	x85		16x	130		20:	x85		20x	130
$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} = N_{Rk,b,c}$ [kN]; temperature range 50/80°C ²⁾																

1-1			TO MANUFACTURE AND ADDRESS OF THE PROPERTY ADDRESS OF THE PROP	
$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p}$	c = N _{Rk,b,c} [kN]; temperature	range 50/80°C ²⁾	
Mean compressive strength / Min. comp. strength single brick 1)	Use con- ditions			
5 / 4 N/mm²	w/w w/d	0.30 0,40	0.90 0,90	1,20 1,20
7,5 / 6 N/mm²	w/w w/d		1,50 1,50	2,00
10 / 8 N/mm²	w/w w/d d/d		2,00 2,00	2,50 2,50
12,5 / 10 N/mm²	w/w w/d d/d	0,90 0,90	2,50 2,50	3,00 3,50
15 / 12 N/mm²	w/w w/d d/d	0.90 1,20	3.00 3,00	3.50 4,00

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C29.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading

Anchor rod		M6	M8	M6	M8	•	M8	M10	M8	M10	-	M12	M16	M12	M16
Selkent internal thread anchor E	ed		•	3	→ ⊽	M6 M8 11x85		-		-	M10 M12 15x85	-		-	•
Selkent perforated slee	lkent perforated sleeve H K		(50	12	x85	16x85		16x	130	20	x85		20x	130	
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk}$,c,⊥ [kN]; te	mper	rature range 50/80°C and 72/120°C												
Mean compressive	Use														
strength / Min. comp.	con-														

strength / Min. comp. strength single brick 1)	con- ditions				
5 / 4 N/mm ²		0,50	0,60	0,50	0,60
7,5 / 6 N/mm²	w/w	0,75	0,90	0,75	0,90
10 / 8 N/mm²	w/d	0,90	1,20	0,90	1,20
12,5 / 10 N/mm ²	d/d	1,20	1,50	1,20	1,50
15 / 12 N/mm²		1,50	2,00	1,50	2,00

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, Characteristic resistance under tension and shear loading	Annex C29

²⁾ For temperature range 72/120°C: $N_{Rk (72/120^{\circ}C)} = 0.83 \cdot N_{Rk (50/80^{\circ}C)}$.



775 P	roducer								e.(ı. Wiene	erberg	er	
NI NI	ominal -	limons	iona				Γ	m1	length l	_		eight H	
	ominal d	imens	ions				[mr	nj	240	118	5	113	
	ean gros						[kg/d			≥ 1,			
CC	ean com ompressi	ive stre	ength s				[N/m	m ²]	01 25 / 20 01 35 / 28				
240 St	tandard o	or ann	ex						EN 77	1-1:201	1+A1	:2015	
Table C30.1: Installation	ole C30.1: Installation parameters								Dimension see also Annex B15				
Anchor rod	M6	M8	M6	M8	_		M8	M10	n	(III)	M12	M16	
Selkent internal threaded	IVIO	IVIO	IVIO	IVIO	M6	M8	IVIO	IVI	M10	M12	IVIIZ	. 10110	
anchor E	-	•:	,	-3	11x			-		5x85	1		
Selkent perforated sleeve H K	12x	5 0	12	x85	100	16)	k85			20	x85		
Anchor rod and Selkent interr	nal threa	aded a	nchor	E with	Selker	nt perf	orated	slee	ve H K				
Max. installation max T _{inst} [Nm]					2	2						
General installation paramete	rs												
Edge distance c _{min} = c _{cr}													
	,					272	0						
Spacing $s_{cr} I = s_{min} I $ [mm]					24	40						
Spacing $\frac{s_{cr} I = s_{min} I }{s_{cr} \perp = s_{min} \perp} [mm]$]					24							
Spacing $s_{cr} I = s_{min} I $ [mm		er drill				24	40						
Spacing $\frac{s_{cr} I = s_{min} I }{s_{cr} \perp = s_{min} \perp}$ [mm] Drilling method Hammer drilling with hard metal 1) The minimum compressive stree Table C30.2: Group fact	hamme ength of the	he sing				2 ⁴ 1 ² ess than	15 n 80%						
Spacing $\frac{s_{cr} I = s_{min} I }{s_{cr} \perp = s_{min} \perp}$ [mm] Drilling method Hammer drilling with hard metal 1) The minimum compressive stree Table C30.2: Group fact Anchor rod	hamme	38 3400040000	yle brick	c must r	-	11	10 15	of the	0	-	sive st		
Spacing $\frac{s_{cr} I = s_{min} I }{s_{cr} \perp = s_{min} \perp}$ [mm] Drilling method Hammer drilling with hard metal 1) The minimum compressive stree Table C30.2: Group fact	hamme ength of the	he sing				11 ess than	15 n 80%) M10	-			
Spacing $\frac{s_{cr} I = s_{min} I }{s_{cr} \perp = s_{min} \perp} $ [mm] Drilling method Hammer drilling with hard metal 1) The minimum compressive stree Table C30.2: Group fact Anchor rod Selkent internal threaded	hamme ength of the ors M6	he sing M8	M6		- M6	24 17 ess than M8	15 n 80%) M10	- M12 5x85			
$Spacing \qquad \frac{s_{cr} \mid I = s_{min} \mid I \mid}{s_{cr} \perp = s_{min} \perp} \\ \hline \textbf{Drilling method} \\ \hline Hammer drilling with hard metal \\ \end{tabular}$ $\begin{tabular}{ll} 1) The minimum compressive streeth st$	hamme ength of the ors M6	he sing M8	M6	M8	- M6	24 11 ess than M8 85 16)	15 n 80%) M10	- M12 5x85	M12		
$Spacing \qquad \frac{s_{cr} \mid I = s_{min} \mid I \mid}{s_{cr} \perp = s_{min} \perp} \\ \hline \textbf{Drilling method} \\ \hline Hammer drilling with hard metal \\ ^{1)} The minimum compressive street \\ \hline \textbf{Table C30.2:} \qquad Group fact \\ \hline \textbf{Anchor rod} \\ \hline \textbf{Selkent internal threaded anchor E} \\ \hline \textbf{Selkent perforated sleeve H K} \\ \hline \frac{\alpha_{g,N} \left(s_{min} \mid I \right)}{\alpha_{g,N} \left(s_{min} \mid I \right)} \\ \hline \frac{\alpha_{g,N} \left(s_{min} \mid I \right)}{\alpha_{g,N} \left(s_{min} \mid I \right)} \\ \hline \end{bmatrix} [-]$	hamme ength of the ors M6	M8	M6	M8 - x85	- M6	24 11 ess than M8 85 16)	15 n 80% M8) M10	- M12 5x85	M12		



Vertical perforated brick HLz, 2DF, EN 771-1:2011+A1:2015

Table C31.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading

Anchor rod	M6 M8 M6 M8 - M8 M10			-		M16						
Selkent internal threaded anchor E			,	•	M6	M8 x85		•	M10	M12 <85	j.	•
Selkent perforated sleeve H K	12x50		12	k 85		16	3x85			20>	c 85	

			ACC		· OXO	20/100
$\mathbf{N}_{\mathrm{Rk}} = \mathbf{N}_{\mathrm{Rk,p}} = \mathbf{N}_{\mathrm{Rk,b}} = \mathbf{N}_{\mathrm{Rk,p,c}} = \mathbf{N}_{\mathrm{Rk,p,c}}$	N _{Rk,b,c}	[kN]; t	emperatur	e range 50)/80°C ²⁾	
Mean compressive strength / Min. compressive strength single brick 1)	co	se on- ons				
7,5 / 6 N/mm ²	w/w	w/d	0,75	0,90	0,75	0,90
.,0701	d,	/d	0,75	1,20	0,75	0,90
12,5 / 10 N/mm ²	w/w	w/d	1,20	1,50	1,20	1,50
12,37 10 14/11/11	d,	/d	1,20	2,00	1,20	1,50
20 / 16 N/mm ²	w/w	w/d	2.00	2.50	2,00	2,00
207 10 14/11111	d,	/d	2,00	3,00	2,00	2,50
25 / 20 N/mm²	w/w	w/d	2,50	3,50	2,50	3,00
25 / 20 14/111111	d,	/d	2,50	4,00	2,50	3,00
35 / 28 N/mm²	w/w	w/d	3,00	5,00	3,50	4,00
35 / 26 N/IIIII	d,	/d	3,50	5,50	3,50	4,50

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C31.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading

Anchor rod	M6 M8		M6	M8	-		M8	M10	-		M12	M16
Selkent internal threaded anchor E	-		,	-	M6 112	M8 x85	1	-	M10	M12 <85		_
Selkent perforated sleeve H K	12x50		12	x85	1		6x85		20:		(85	

$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$	N]; tempera	ature	range	50/8	0°C a	and 7	2/120°C	
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions							
7,5 / 6 N/mm ²		1,2	1,5	1,2	2,0	1,2	1,5	2,5
12,5 / 10 N/mm ²	w/w	2,0	2,5	2,0	4,0	2,0	2,5	4,5
20 / 16 N/mm ²	w/d	3,0	3,5	3,0	6,0	3,0	3,5	7,0
25 / 20 N/mm ²	d/d	4,0	4,5	4,0	7,5	4,0	4,5	8,5
35 / 28 N/mm ²		5,0	6,5	5,0	9,5	5,0	6,5	12,0

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

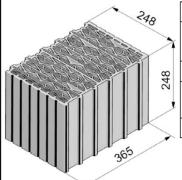
Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance	Annex C31
Vertical perforated brick HLz, 2DF,	
Characteristic resistance under tension and shear loading	

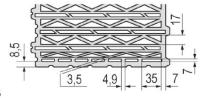
²⁾ For temperature range 72/120°C: N_{Rk} (72/120°C) = 0,83 · N_{Rk} (50/80°C).



Vertical perforated brick HLz, U8, EN 771-1:2011+A1:2015



		**				
Producer	e.g. Wienerberger					
Nominal dimensions	[mm]	length L width W h		height H		
, INOMINAL CIMENSIONS	[mm]	248	365	248		
Mean gross dry density ρ	[kg/dm ³]		0,6			
Mean compressive streng compressive strength sing	[N/mm ²] 5 / 4 or 7,5 / 6 or					
Standard or annex		EN 771	-1:2011+	A1:2015		



Dimension see also Annex B15

Table C32.1: Installation parameters

(Pre-positioned installation with Selkent perforated sleeve H K)

Anchor rod	М6	M8	М6	M8	77	-	M8	M10	M8	M10	-	M12	M16	M12	M16	M12	M16
Selkent internal threaded anchor E		-	,	-	M6	M8 c85	,	-		•	M10 M12	,	-	-	•	-	-
Selkent perforated sleeve H K	12	<50	12	k 85	16x		k 85		16x	130	20:	x85		20x	130	20x	200

Anchor rod and Selkent internal threaded anchor E with Selkent perforated sleeve H K

Max. installation torque	max T _{inst}	[Nm]	3	5	3	5	3	5		5
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General installation parameters

Edge distar	nce Cmin = Ccr		60										
	s _{min} II		80										
Consiss	s _{cr} II	[mm]	250										
Spacing	S _{min} ⊥		80										
	s cr ⊥	L											250

Drilling method

Rotary drilling with carbide drill

Table C32.2: Group factors

Anchor rod		M6	M8	M6	M8	-	M8	M8 M10		M10	-	M12 M1	6	/112 N	/116	M12	M16
Selkent internal threaded anchor E			•	-		M6 M8		•	-		M10 M12 15x85			-		-	-
Selkent per	forated sleeve H K	ted sleeve H K 12x				12x50 12x85 16x85						c 85	1	20x1	30	20x	200
	α _{g,N} (s _{min} II)				1,3												
Group	α _{g,V} (s _{min} II)								1	,2							
factors	$\alpha_{g,N}$ (S _{min} \perp) [-]						1,3										
	α _{g,} ∨ (S _{min} ⊥)		1,0														

Injection system Selkent SEL-V+ for masonry

Performance

Vertical perforated brick HLz, U8, dimensions, installation parameters, Group factors

Annex C32

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.



Vertical perforated brick HLz, U8, EN 771-1:2011+A1:2015

Table C33.1: Installation parameters

(Push through installation with Selkent perforated sleeve H K)

Anchor rod	i		M10	M12	M16							
Selkent per	rforated sleeve	нк	18x13	0/200	22x130/200							
Anchor rod	with Selkent	perfor	ated sleeve H K									
Max. installatorque	ation max T _{inst}	[Nm]	5									
General installation parameters												
Edge distan	$c_{min} = c_{cr}$		60									
	s _{min} II		80									
Coosina	s _{cr} II	[mm]	250									
Spacing	$s_{min} \perp$		80									
2	S _{cr} ⊥		250									
Drilling me	thod											
Rotary drilling	ng with carbide	drill										

Table C33.2: Group factors

Anchor ro	d	M10	M12	M16								
Selkent pe	rforated sleeve H K	18x130/200 22x130/200										
	α _{g,N} (s _{min} II)		1,	3								
Group	α _{g,V} (S _{min} II)		1,	2								
Group factors	$\alpha_{g,N}$ ($s_{min} \perp$) [-]		1,3									
	α _{g,} ∨ (S _{min} ⊥)		1,0									

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, U8, dimensions, installation parameters, Group factors	Annex C33



Vertical perforated brick HLz, U8, EN 771-1:2011+A1:2015

Table C34.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Pre-positioned installation)

Anchor rod	M6	M8	M6	M8	-	M8 M10	M8 M10	-	M12 M16	M12 M16	M12 M16
Selkent internal threaded anchor E	-		-		M6 M8	- 1	-	M10 M12 15x85	_	-	•
Selkent perforated sleeve H K	12x	50	12x	85	16:	k 85	16x130	20>	c 85	20x130	20x200

						71	
Rk,b,c [kN];	tempe	rature ran	ige 50/80°C ²)			
Use con- ditions							
w/w w/d	1,2			11	1,2		
d/d	1,2	1,2					
w/w w/d	1,5			13	1,5		
d/d	1,5				1,5		
w/w w/d	1,5			;	2,0		
d/d	2,0				2,0	-	
	Use conditions w/w w/d d/d w/w w/d d/d w/w w/d d/d w/w w/d	Use conditions w/w w/d 1,2 d/d 1,2 w/w w/d 1,5 d/d 1,5 w/w w/d 1,5	Use conditions w/w w/d 1,2	Use conditions w/w w/d 1,2 d/d 1,2 w/w w/d 1,5 d/d 1,5 w/w w/d 1,5	conditions w/w w/d 1,2 d/d 1,2 w/w w/d 1,5 d/d 1,5 w/w w/d 1,5 2	Use conditions w/w w/d 1,2 1,2 d/d 1,2 1,5 w/w w/d 1,5 1,5 d/d 1,5 1,5 w/w w/d 1,5 2,0	

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C34.2: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Push through installation)

Anchor rod			M10	M12	M16
Selkent perforated sleeve H	K		18x13	0/200	22x130/200
$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} = N$	Rk,b,c	[kN];	temperature rang	ge 50/80°C ²⁾	
Mean compressive strength / Min. compressive strength single brick 1)	cc	se on- ons			
5 / 4 N/mm²	Committee orange	w/d /d			,2 ,5
7,5 / 6 N/mm²		w/d /d			,5 ,5
10 / 8 N/mm²	_	w/d /d			,0 ,0

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, U8, Characteristic resistance under tension loading	Annex C34

²⁾ For temperature range 72/120°C: N_{Rk} (72/120°C) = 0,83 · N_{Rk} (50/80°C).

²⁾ For temperature range 72/120°C: $N_{Rk (72/120^{\circ}C)} = 0.83 \cdot N_{Rk (50/80^{\circ}C)}$.



Vertical perforated brick HLz, U8, EN 771-1:2011+A1:2015

Table C35.1: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Pre-positioned installation)

Anchor rod	М6	M8	М6	М8	-	M8	M10	M8	M10	-	M12 M16	M12 M16	M12 M16
Selkent internal threaded anchor E	-	•			M6 M8 11x85		-		-	M10 M12 15x85	-	-	
Selkent perforated sleeve H K	12>	(50	12)	(85	16:	x85		16x	130	202	k 85	20x130	20x200

$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$ [k]	N]; tempe	rature range 50/80°C and 72/120°C
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions	
5 / 4 N/mm²	w/w w/d d/d	1,2
7,5 / 6 N/mm²	w/w w/d d/d	1,5
10 / 8 N/mm²	w/w w/d d/d	1,5

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C35.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Push through installation)

Anchor rod		M10	M12	M16
Selkent perforated sleeve H	K	18x13	0/200	22x130/200
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$ [k	N]; tempe	rature range 50/8	0°C and 72/120°C	
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions			
5 / 4 N/mm²	w/w w/d d/d		1	,2
7,5 / 6 N/mm²	w/w w/d d/d	9	1	,5
10 / 8 N/mm²	w/w w/d		1	,5

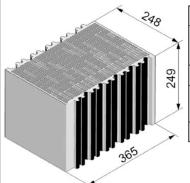
¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

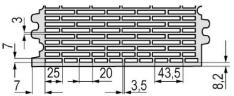
Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, U8, Characteristic resistance under shear loading	Annex C35



Vertical perforated brick HLz, T10, T11, EN 771-1:2011+A1:2015



Producer		e.g. Wienerberger						
Nominal dimensions	[mm]	length L	width W	height H				
	[mm]	248	248 365					
Mean gross dry density ρ	[kg/dm³]	0,7						
Mean compressive strength / Min. compressive strength single brick 1)	[N/mm ²]	10 / 8 or 12,5 / 10 or 15 / 12						
Standard or annex	EN 771-1:2011+A1:2015							



Dimension see also Annex B16

Table C36.1: Installation parameters

(Pre-positioned installation with Selkent perforated sleeve H K)

Anchor rod	М6	M8	М6	M8		-	M8	M10	M8	M10	-		M12	M16	M12	M16	M12	M16
Selkent internal threaded anchor E		•	,	-	M6	M8 <85		-	,	-	M10 M 15x8		,	-	-			
Selkent perforated sleeve H K	12	<50	12	12x85 16		(85		16x130		20x8		(85		20x	130	20x2	200	

Anchor rod and Selkent internal threaded anchor E with Selkent perforated sleeve H K

Max. installation torque	max T _{inst}	[Nm]	3	5	3	5
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General installation parameters

Edge distar	nce c _{min} = c _{cr}		60		
	s _{min} II		80		
Cassina	s _{cr} II	[mm]	[mm]	[mm]	250
Spacing	S _{min} ⊥				80
	S _{cr} ⊥		250		

Drilling method

Rotary drilling with carbide drill

Table C36.2: Group factors

Anchor rod		M6 M8 M6 M8 - M8 M10 M8 M10 - M12 M16 M12 M								M12 M16	M12 M16				
Selkent internal threaded anchor E					M6	M8 x85		•	-		M10 M12 15x85		-	-	
Selkent perforated sleeve H K			x50	12	x85	16x85				16x130		20x85		20x130	20x200
	α _{g,N} (S _{min} II)									1	,7	-			
Group	$\alpha_{g,V}$ (S _{min} II) [-]		0,5												
factors	_αg,N (Smin ⊥)	1,3													
	αg,∨ (S _{min} ⊥)									0	,5				

Injection system Selkent SEL-V+ for masonry	
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Performance

Vertical perforated brick HLz, T10, T11, dimensions, installation parameters, Group factors

Annex C36

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.



Vertical perforated brick HLz, T10, T11, EN 771-1:2011+A1:2015

 Table C37.1:
 Installation parameters

(Push through installation with Selkent perforated sleeve H K)

Anchor rod			M10	M12	M16							
Selkent perfora	ated sleeve	нК	18x13	0/200	22x130/200							
Anchor rod wit	h Selkent	perfo	rated sleeve H K									
Max. installation torque	max T _{inst}	[Nm]		5								
General install	ation para	neter	S									
Edge distance	C _{min} = C _{cr}			(50							
	s _{min} II			3	30							
Cassina	s _{cr} II	[mm]		2	50							
Spacing —	s _{min} ⊥			8	30							
i	s _{cr} ⊥		250									
Drilling method	t											

Rotary drilling with carbide drill

Table C37.2: Group factors

Anchor rod	I	M10	M10 M12 M16								
Selkent per	rforated sleeve H K	18x13	30/200	22x130/200							
	α _{g,N} (S _{min} II)		1,	7							
Group	α _{g,V} (S _{min} II)		0,	5							
Group factors	$\alpha_{g,N} \left(S_{min} \perp \right)$	1,3									
	α _{g,} ∨ (S _{min} ⊥)	0,5									

Injection system Selkent SEL-V+ for masonry

Performance
Vertical perforated brick HLz, T10, T11, dimensions, installation parameters, Group factors

Annex C37



Vertical perforated brick HLz, T10, T11, EN 771-1:2011+A1:2015

Table C38.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Pre-positioned installation)

Anchor rod	M6	M8	M6	M8	:-	M8 M10	M8 N	110	-	M12	M16	M12	V116	M12 M16
Selkent internal threaded anchor E		=	•	•	M6 M8 11x85	-	-	-	10M12 5x85	-		-		•
Selkent perforated sleeve H K	12	x50	12>	(85	162	c 85	16x1	30	20:	x85		20x1	30	20x200

Contone portoratoa cicoro i			IZAGO	LACO	IOAGO	IOXIOO	20,000	-UX 100	LUXLUU	
$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} = N_{Rk,b,c}$ [kN]; temperature range 50/80°C ²										
Mean compressive strength / Min. compressive strength single brick 1)	CC	se on- ons								
10 / 8 N/mm²	w/w	w/d	1,5	ē		1	,5			
10 / 6 14/111111	d/d		1,5			2	,0			
12,5 / 10 N/mm ²	w/w	w/d	1,5			2	,0			
12,57 10 14/111111	d.	/d	2,0			2	,0			
15 / 12 N/mm ²	w/w	w/d	2,0			2	,0			
15 / 12 N/IIIIIF	d	/d	2,0			2	,5			

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C38.2: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Push through installation)

Anchor rod			M10	M12	M16		
Selkent perforated sleeve H K			18:	<130/200	22x130/200		
$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} =$	N _{Rk,b}	,c [kN	l]; temperatur	e range 50/80°C ²⁾			
Mean compressive strength / Min. compressive strength single brick 1)	CC	se on- ons					
10 / 8 N/mm²		w/d /d		1,5 2,0	1,5 2,0		
42.5./40.N/mm²		w/d		2,0	2,0		
12,5 / 10 N/mm²	d.	/d		2,0	2,0		
15 / 12 N/mm²		w/d		2,0	2,0		
	d	/d		2,5	2,5		

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, T10, T11, Characteristic resistance under tension loading	Annex C38

²⁾ For temperature range 72/120°C: N_{Rk} (72/120°C) = 0,83 · N_{Rk} (50/80°C).

²⁾ For temperature range 72/120°C: $N_{Rk (72/120^{\circ}C)} = 0.83 \cdot N_{Rk (50/80^{\circ}C)}$.

15 / 12 N/mm²



2,0

Vertical perforated brick HLz, T10, T11, EN 771-1:2011+A1:2015

d/d w/w w/d

d/d

Table C39.1: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Pre-positioned installation)

Anchor rod	M6	М8	М6	М8		-	М8	M10	M8	M10	-	M1:	2M16	M12	M16	M12 M16	
Selkent internal threaded anchor E			_		•		M8		_		_	M10M1		_		_	_
						112	(85					15x85	<u> </u>				
Selkent perforated sleeve H l	12	x50	12>	(85		16	x85		16	x130	20x85			20x	130	20x200	
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$ [k]	N]; tempe	ratu	re ra	inge	e 50	0/80	°C a	and	72/1	20	°C						
Mean compressive strength /	Use																
Min. compressive strength	con-																
single brick 1)	ditions																
40.40.814 2	w/w w/d			_					_						_		
10 / 8 N/mm²	d/d		0,	9				1	1,5					2	2,0		
12,5 / 10 N/mm²	w/w w/d		0	0				1	· 6					,			
12,5 / 10 N/IIIII	al /al	1	0,	9		l		- 1	5, ا						2,0		

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

2,0

1,2

Table C39.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Push through installation)

Anchor rod		M10	M12	M16
Selkent perforated sleeve H	K	18x13	0/200	22x130/200
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$ [k]	N]; tempe	rature range 50/8	0°C and 72/120°C	
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions			
10 / 8 N/mm²	w/w w/d d/d	1	,5	2,0
12,5 / 10 N/mm²	w/w w/d d/d	1	,5	2,0
15 / 12 N/mm²	w/w w/d d/d	2	,0	2,0

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, T10, T11, Characteristic resistance under shear loading	Annex C39



	248	Produ	cer									e.g. \	Vienerbe	rger	
68		Namain	aminal disconsions							leng	gth L	width W	height I		
		Nomin	ominal dimensions [mm]						2	48	365	249			
	249	Mean (gros	s dry der	nsity ρ				[k	g/dm³]			0,5		
					strength th single				[1	N/mm²]		5	/ 4 or 8 / 6	6	
		Standa	ard c	or annex							ΕN	l 771-	1:2011+A	1:2015	
Table C40			arameters 20 4,8 52 ed installation with Selkent perforated slee							d sleev	Dimension see also Annex B16				
Anchor rod		M6	M8	M6 M8	-	M8	M10	M8	M10	-	M1	2 M16	M12 M16	M12 M1	
Selkent inte anchor E	rnal threaded	-		-	M6 M8		-	-		M10 M1	_	-	-	-	
Selkent perf	forated sleeve H l	₹ 12x	50	12x85	16:	k85		16x	130	2	0x85	j	20x130	20x20	
Anchor rod	and Selkent inter	nal thr	ead	ed anch	or E with	Sel	kent	perf	orat	ed slee	ve H	K	_		
Max. installa torque	max Tinst [INI			2			5	2				5			
	tallation paramet	ers													
Edge distanc	2440							6	(12)						
-	S _{min} II S _{cr} II [mr	n1						25	77.0						
Spacing -	S _{min} \perp	'''						8	1000						
-	S _{cr} ⊥							25							
Drilling met															
Rotary drillin	g with carbide drill														
1) The minimuter Table C40	um compressive str .2: Group fac		f the	single br	ick must r	not b	e less	s thar	า 80%	% of the	mea	n com	pressive	strength	
Anchor rod		M6	M8	M6 M8	-	М8	M10	M8	M10	-	M1	2 M16	M12 M16	M12 M1	
Selkent inte anchor E	rnal threaded	-		•	M6 M8		-	-		M10 M1	_	•	-	-	
Selkent per	forated sleeve H l	√ 12x	50	12x85	16:	ĸ85		16x	130	2	0x85		20x130	20x20	
	αg,N (Smin II)							1,	1						
Group	$\alpha_{g,V}$ (S _{min} II) [-]							1,	2						
factors	$\alpha_{g,N}$ (Smin \perp)							1,							
	α _{g,V} (S _{min} ⊥)							1,	2						
Injection s	system Selkent	SEL-V	/+ f	or maso	onry										
Performance Vertical perforated brick HLz, T7 PF, filled with perlite, dimensions, installation parameters, Group factors									Annex C40						



Vertical perforated brick HLz, T7 PF, filled with perlite, EN 771-1:2011+A1:2015

Table C41.1: Installation parameters

(Push through installation with Selkent perforated sleeve H K)

Anchor rod			M10	M12	M16				
64				Control of the Contro	Monthson Workship Name (Name (
	kent perforated sleeve H K 18x130/200 22x130/200								
Anchor rod with Selkent perforated sleeve H K									
Max. installati torque	ion max T _{inst}	[Nm]	5						
General installation parameters									
Edge distance	e C _{min} = C _{cr}			6	60				
	S _{min} II 80								
Cassina	s _{cr} II	[mm]	250						
Spacing -	$s_{min} \perp$			8	30				
Drilling meth	nod								
Rotary drilling	with carbide	drill							

Table C41.2: Group factors

Anchor rod	I	M10	M12	M16				
Selkent per	rforated sleeve H K	18x13	0/200	22x130/200				
	α _{g,N} (S _{min} II)	1,1						
Group factors	α _{g,V} (s _{min} II)	1,2						
factors	$\frac{\alpha_{g,N} (s_{min} \perp)}{\alpha_{g,N} (s_{min} \perp)}$ [-]	1,1						
	α _{g,} ν (S _{min} ⊥)	1,2						

Injection system Selkent SEL-V+ for masonry

Performance
Vertical perforated brick HLz, T7 PF, filled with perlite, dimensions, installation parameters, Group factors

Annex C41



Vertical perforated brick HLz, T7 PF, filled with perlite, EN 771-1:2011+A1:2015

Table C42.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Pre-positioned installation)

Anchor rod	M6	M8	М6	M8	-		M8	M10	M8	M10	14		M12	M16	M12	M16	M12 M16
Selkent internal threaded anchor E		•	-		M6 11x	200000000000000000000000000000000000000		-			M10 15x	and an ender-	-		-		
Selkent perforated sleeve H K	12)	(50	12x	85		16	ĸ85	·	16x	130		20x	85		20x	130	20x200

$\mathbf{N}_{\mathrm{Rk}} = \mathbf{N}_{\mathrm{Rk,p}} = \mathbf{N}_{\mathrm{Rk,b}} = \mathbf{N}_{\mathrm{Rk,p,c}} = \mathbf{N}$	N _{Rk} = N _{Rk,p} = N _{Rk,b} = N _{Rk,p,c} = N _{Rk,b,c} [kN]; temperature range 50/80°C ²⁾											
Mean compressive strength / Min. compressive strength single brick 1)	Co ditio	0.0000										
5 / 4 N/mm ²	w/w	w/d	1,2	1,2	1,2	1,2	2,0					
3 / 4 N/IIIII-	d/	⁄d	1,5	1,5	1,5	1,5	2,0					
8 / 6 N/mm ²	w/w	w/d	1,5	1,5	1,5	1,5	2,5					
8 / 6 N/IIIII-	d/	/d	1,5	2,0	1,5	2,0	3,0					

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C42.2: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Push through installation)

Anchor rod			M10	M12	M16
Selkent perforated sleeve H	K		18x13	0/200	22x130/200
$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} = N_{Rk,p,c}$	Rk,b,c	[kN];	ge 50/80°C ²⁾		
Mean compressive strength / Min. compressive strength single brick 1)	C	se on- ions			
5 / 4 N/mm ²	w/w	w/d	1	,2	1,2
3 / 4 N/IIIII	d	l/d	1	,5	1,5
8 / 6 N/mm ²	w/w	w/d	1	,5	1,5
8 / 6 N/IIIII-	d	l/d	2	,0	2,0

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, T7 PF, filled with perlite, Characteristic resistance under tension loading	Annex C42

²⁾ For temperature range 72/120°C: $N_{Rk (72/120^{\circ}C)} = 0.83 \cdot N_{Rk (50/80^{\circ}C)}$.

²⁾ For temperature range 72/120°C: N_{Rk} (72/120°C) = 0,83 · N_{Rk} (50/80°C).



Vertical perforated brick HLz, T7 PF, filled with perlite, EN 771-1:2011+A1:2015

Table C43.1: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Pre-positioned installation)

Anchor rod	M6	М8	M6	M8	-		M8 N	/110	М8	M10	-		M12	M16	M12	M16	M12	M16
Selkent internal threaded anchor E		•			M6 11x		-			•	M10 15x			-		-		-
Selkent perforated sleeve H K	12	<50	12>	(85		16x	85		16x	130		20x	85		20x	130	20x	200

$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$ [k]	V _{Rk} = V _{Rk,b} = V _{Rk,c,II} = V _{Rk,c,⊥} [kN]; temperature range 50/80°C and 72/120°C										
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions										
5 / 4 N/mm²	w/w w/d d/d	0,9	1,5	1,	2						
8 / 6 N/mm²	w/w w/d d/d	1,2	2,0	1,	,5						

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C43.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Push through installation)

Anchor rod		M10	M12	M16
Selkent perforated sleeve H I	<	18x13	0/200	22x130/200
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$ [k]	l]; tempe	rature range 50/80	0°C and 72/120°C	
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions			
5 / 4 N/mm²	w/w w/d d/d	1,	,5	1,2
8 / 6 N/mm²	w/w w/d d/d	2	0,0	1,5

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, T7 PF, filled with perlite, Characteristic resistance under shear loading	Annex C43



Vertical perforated brick HLz, T9 MW, filled with mineral wool, EN 771-1:2011+A1:2015 Producer e.g. Wienerberger length L | width W | height H Nominal dimensions [mm] 248 425 248 Mean gross dry density p [kg/dm³] 0,8 Mean compressive strength / Min. $[N/mm^2]$ 5/4 or 8/6 or 10/8 compressive strength single brick 1) Standard or annex EN 771-1:2011+A1:2015 15,2 Dimension see also Annex B16 8 12,3 **Table C44.1:** Installation parameters (Pre-positioned installation with Selkent perforated sleeve H K) M8 M10 M8 M10 Anchor rod M6 **M8** M6 M8 M12 M16 M12 M16 M12 M16 M10 M12 M6 M8 Selkent internal threaded anchor E 11x85 15x85 16x85 Selkent perforated sleeve H K | 12x50 12x85 16x130 20x85 20x130 20x200 Anchor rod and Selkent internal threaded anchor E with Selkent perforated sleeve H K Max. installation max T_{inst} [Nm] 3 5 3 5 torque General installation parameters Edge distance 60 Cmin = Ccr 80 smin II Scr II [mm] 250 Spacing 80 Smin 1 250 Scr \perp **Drilling method** Rotary drilling with carbide drill

1) The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C44.2: Group factors

Anchor roo	i	M6	M8	М6	M8	-	M8	M10	M8	M10		M12 M16	M12 M16	M12 M16
Selkent into	ernal threaded		•		-	M6 M8		-	,	-	M10 M12 15x85	-	-	-
Selkent per	rforated sleeve H K	122	<50	12	x85	16:	x85		16x	130	20:	k 85	20x130	20x200
	α _{g,N} (S _{min} II)								1	,3				
Group	$\alpha_{g,V}\left(s_{min}\;II\right)$								1	,2				
factors	$\alpha_{g,N}$ (Smin \perp) [-]		0,6											
	αg,ν (s _{min} ⊥)								1	,2				

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, T9 MW, filled with mineral wool, dimensions, installation parameters, Group factors	Annex C44



Vertical perforated brick HLz, T9 MW, filled with mineral wool, EN 771-1:2011+A1:2015

Table C45.1: Installation parameters

(Push through installation with Selkent perforated sleeve H K)

Anchor rod	i		M10	M12	M16				
Selkent per	rforated sleeve	нк	18x13	0/200	22x130/200				
Anchor rod with Selkent perforated sleeve H K									
Max. installatorque	ation max T _{inst}	[Nm]			5				
General ins	stallation para	neters	3						
Edge distance $c_{min} = c_{cr}$ 60									
	s _{min} II		80						
Coosina	s _{cr} II	[mm]	250						
Spacing	$s_{min} \perp$		80						
s _{cr} ⊥ 250									
Drilling me	thod								
Rotary drilling	ng with carbide	drill							

Table C45.2: Group factors

Anchor roo	ł	M10	M16							
Selkent pe	rforated sleeve H K	18x13	30/200	22x130/200						
	α _{g,N} (s _{min} II)		1,	3						
Group factors	αg, v (Smin II)		1,	2						
factors	$\frac{\alpha_{g,N}(s_{min}\perp)}{\alpha_{g,N}(s_{min}\perp)}$ [-]	0,6								
	$\alpha_{\sf g,V}$ (S _{min} \perp)	1,2								

Injection system Selkent SEL-V+ for masonry

Performance
Vertical perforated brick HLz, T9 MW, filled with mineral wool, dimensions, installation parameters, Group factors

Annex C45



Vertical perforated brick HLz, T9 MW, filled with mineral wool, EN 771-1:2011+A1:2015

Table C46.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Pre-positioned installation)

Anchor rod	M	6 M8	M6	M8	-	M8	M10	M8	M10	-	M12 M16	M12 M16	M12 M16
Selkent internal threaded anchor E		•		-	M6 M8	-	•	•		M10 M12 15x85	_	-	-
Selkent perforated sleeve H K		2x50	12	x85	16:	x85		16x	130	20:	x85	20x130	20x200
N _{Rk} = N _{Rk,p} = N _{Rk,p,c} = N _{Rk,p,c} [kN]; temperature range 50/80°C ²⁾													
Maan aamaraaaiya atranath /	_												

$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} = N$	N _{Rk} = N _{Rk,p} = N _{Rk,b} = N _{Rk,p,c} = N _{Rk,b,c} [kN]; temperature range 50/80°C ²⁾													
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions	3												
E / 4 N/mm²	w/w w	'd 1,5	2,0	3,0	2,5	4,0								
5 / 4 N/mm²	d/d	2,0	2,5	3,0	2,5	4,5								
8 / 6 N/mm ²	w/w w	d 2,0	2,5	3,5	3,0	5,0								
87614/11111	d/d	2,0	3,0	4,0	3,0	5,5								
10 / 8 N/mm²	w/w w	d 2,5	3,0	4,0	3,5	6,0								
10 / 0 14/111111	d/d	2,5	3,0	4,5	3,5	6,5								

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C46.2: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Push through installation)

Anchor rod			M10	M12	M16
Selkent perforated sleeve H	K		18x13	30/200	22x130/200
$\mathbf{N}_{Rk} = \mathbf{N}_{Rk,p} = \mathbf{N}_{Rk,b} = \mathbf{N}_{Rk,p,c} = \mathbf{N}$	Rk,b,c	[kN]	; temperature ran	ge 50/80°C ²⁾	
Mean compressive strength / Min. compressive strength single brick ¹⁾	CC	se on- ons			
5 / 4 N/mm ²	w/w	w/d		3,0	4,0
37 4 14/111111	d	/d		3,0	4,5
8 / 6 N/mm ²	w/w	w/d		3,5	5,0
6 / 6 N/IIIII-	d	/d	8	4,0	5,5
10 / 8 N/mm²	w/w	w/d		4,0	6,0
10 / 6 N/MM-	d	/d	9	4,5	6,5

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, T9 MW, filled with mineral wool; Characteristic resistance under tension loading	Annex C46

²⁾ For temperature range 72/120°C: N_{Rk} (72/120°C) = 0,83 · N_{Rk} (50/80°C).

²⁾ For temperature range 72/120°C: $N_{Rk (72/120^{\circ}C)} = 0.83 \cdot N_{Rk (50/80^{\circ}C)}$.



Vertical perforated brick HLz, T9 MW, filled with mineral wool, EN 771-1:2011+A1:2015

Table C47.1: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Pre-positioned installation)

Anchor rod	М6	M8	М6	M8	-		M8	M10	M8	M10	-	М	12	M16	M12	M16	M12 M16
Selkent internal threaded anchor E		•		-	M6 11x			-		-	M10 M 15x8		-		-		-
Selkent perforated sleeve H K	12x50		12	x85		16>	(85		16x130		2	8x0	5		20x	130	20x200

	((=)						
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$ [k]	l]; tempe	rature r	ange 50	/80°C and 72/1	120°C		
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions						
5 / 4 N/mm²	w/w w/d d/d	2,0		2,0	2,5	2,0	1,5
8 / 6 N/mm²	w/w w/d d/d	2,5		2,5	3,0	2,5	2,0
10 / 8 N/mm²	w/w w/d d/d	2,5		3,0	4,0	3,0	2,5

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C47.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Push through installation)

Anchor rod		M10	M12	M16
Selkent perforated sleeve H	K	18x13	0/200	22x130/200
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$ [k]	N]; tempe	erature range 50/8	0°C and 72/120°C	
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions			
5 / 4 N/mm²	w/w w/d d/d	2,	5	2,0
8 / 6 N/mm²	w/w w/d d/d	3,	0	2,5
10 / 8 N/mm²	w/w w/d d/d	4,	0	3,0

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, T9 MW, filled with mineral wool; Characteristic resistance under shear loading	Annex C47



Vertical perforated brick HLz, FZ 7, filled with mineral wool, EN 771-1:2011+A1:2015 Producer e.g. Wienerberger length L | width W | height H Nominal dimensions [mm] 248 425 248 Mean gross dry density ρ [kg/dm³] 0,8 Mean compressive strength / Min. [N/mm²]5/4 or 7,5/6 or 10/8 compressive strength single brick 1) Standard or annex EN 771-1:2011+A1:2015 Dimension see also 13 Annex B16

Table C48.1: Installation parameters (Pre-positioned installation with Selkent perforated sleeve H K)

10

Anchor rod	М6	M8	М6	M8		•	M8	M10	M8	M10	1-	M12 M1	6 M12 M16	M12 M16
Selkent internal threaded anchor E	,	-		-		M6 M8		-	-		M10 M12 15x85	¥	-	-
Selkent perforated sleeve H K	12)	x50	12	k 85	5 16x		x85		16x	130	20x85		20x130	20x200

Seikent periorated sieeve	12,30	12703	1000		107130	20.00	20X 130	2012
Anchor rod and Selkent is		ded anchor l	E with Selke	ent p	erforat	ed sleeve H K		
Max. installation max T _{inst}	[Nm]	2		5	2	5		
General installation parar	neters							
Edge distance Cmin = Cor					60			

Edge distance	C _{min} = C _{cr}	60
	s _{min} II	80
Cassina	s _{cr} II [n	250
Spacing —	$s_{min} oldsymbol{\perp}$	80
	s _{cr} ⊥	250

Drilling method

Rotary drilling with carbide drill

Table C48.2: Group factors

Anchor rod		M6	M8	M6	M8		•	M8 M	10	M8 M10	-	M12 M16	M12 M16	M12 M16
Selkent inte anchor E	rnal threaded	•	•		-	M6	M8 (85	-		-	M10 M12 15x85	-	-	-
Selkent perf	12)	(50	12	x85	16>		k 85		16x130	20:	x85	20x130	20x200	
		1,9												
Group	Group $\frac{\alpha_{g,N} (s_{min} II)}{\alpha_{g,V} (s_{min} II)}$			0,9										
factors	$\frac{\alpha_{g,N} (s_{min} \perp)}{\alpha_{g,N} (s_{min} \perp)} [-]$		1,0											
	$lpha$ g,v (Smin \perp)	0,7												

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, FZ 7, filled with mineral wool; dimensions, installation parameters, Group factors	Annex C48

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.



Vertical perforated brick HLz, FZ 7, filled with mineral wool, EN 771-1:2011+A1:2015

Table C49.1: Installation parameters

(Push through installation with Selkent perforated sleeve H K)

Anchor rod			M10	M16								
Selkent perfora	ted sleeve	HK	18x130/200 22x130/200									
Anchor rod with Selkent perforated sleeve H K												
Max. installation torque	T _{inst}	[Nm]	5									
General installation parameters												
Edge distance	C _{min} = C _{cr}		60									
	s _{min} II				80							
Ci	s _{cr} II	[mm]			250							
Spacing ——	S _{min} ⊥ 80											
t 	s _{cr} ⊥		250									
Drilling method												

Rotary drilling with carbide drill

Table C49.2: Group factors

Anchor ro	d	M10	M12	M16
Selkent pe	erforated sleeve H K	18x130	0/200	22x130/200
	α _{g,N} (S _{min} II)		1,	9
Group factors	α _{g,V} (s _{min} II)		0.	9
factors	$\alpha_{g,N}$ (S _{min} \perp) [-]		1,	0
	αg,∨ (Smin ⊥)		0	7

Injection system Selkent SEL-V+ for masonry

Performance
Vertical perforated brick HLz, FZ 7, filled with mineral wool; dimensions, installation parameters, Group factors

Annex C49



Vertical perforated brick HLz, FZ 7, filled with mineral wool, EN 771-1:2011+A1:2015

Table C50.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Pre-positioned installation)

Anchor rod	М	6 M	в Ме	M8	-	M8	M10	M8	M10	-	M12	M16	M12 M16	M12 M16
Selkent internal threaded anchor E		•		-	M6 M		-		•	M10 M1	2000	-	-	-
Selkent perforated sleeve H K		2x50	12	x85	16x85		16x	(130	20x85			20x130	20x200	
N _{Rk} = N _{Rk,p} = N _{Rk,b} = N _{Rk,p,c} = N _{Rk,b,c} [kN]; temperature range 50/80°C ²⁾														
Mean compressive strength / Us	se													

NRK = NRK,p = NRK,b,c = NRK,b,c [KN]; temperature range 50/80°C 2/										
Mean compressive strength / Min. compressive strength single brick 1)	co	se n- ons								
5 / 4 N/mm ²	w/w	w/d	0,60	0,75	1,50	2,00	1,20	2,00	2,00	
5 / 4 N/IIIII	d/d		0,60	0,90	1,50	2,00	1,50	2,00	2,50	
7,5 / 6 N/mm ²	w/w	w/d	0,75	0,90	1,50	2,00	1,50	2,50	2,50	
7,576 14/111111	d/	′d	0,90	0,90	2,00	2,50	2,00	2,50	3,00	
10 / 8 N/mm²	w/w	w/d	0,90	1,20	2,00	2,50	2,00	2,50	3,00	
	d/	'd	0,90	1,20	2,00	3,00	2,00	3,00	3,50	

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C50.2: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Push through installation)

Anchor rod			M10	M12	M16
Selkent perforated sleeve H	K		18x13	30/200	22x130/200
$\mathbf{N}_{Rk} = \mathbf{N}_{Rk,p} = \mathbf{N}_{Rk,b} = \mathbf{N}_{Rk,p,c} = \mathbf{N}$	Rk,b,c	[kN]	; temperature ran	ge 50/80°C ²⁾	
Mean compressive strength / Min. compressive strength single brick ¹⁾	CC	se on- ons			
5 / 4 N/mm ²	w/w	w/d	2	,0	2,0
3 / 4 N/IIIII	d	/d	2	,0	2,0
7,5 / 6 N/mm²	w/w	w/d	2	,0	2,5
7,576 N/IIIII-	d	/d	2	,5	2,5
10 / 8 N/mm²	w/w	w/d	2	,5	2,5
10 / 6 N/MM-	d	/d	3	,0	3,0

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, FZ 7, filled with mineral wool; Characteristic resistance under tension loading	Annex C50

²⁾ For temperature range 72/120°C: N_{Rk} (72/120°C) = 0,83 · N_{Rk} (50/80°C).

²⁾ For temperature range 72/120°C: $N_{Rk (72/120^{\circ}C)} = 0.83 \cdot N_{Rk (50/80^{\circ}C)}$.



Vertical perforated brick HLz, FZ 7, filled with mineral wool, EN 771-1:2011+A1:2015

Table C51.1: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Pre-positioned installation)

Anchor rod	М6	M8	М6	M8	-		M8	M10	М8	M10	-	ľ	M12	M16	M12	M16	M12 M16
Selkent internal threaded anchor E		•			M6 11x		1	-		-	M10 M 15x8		•	•	-		-
Selkent perforated sleeve H K	12)	(50	12:	x85		16>	(85		16x	130	:	20x	85		20x	130	20x200

Comone porteration discreti			10/100	.0%.00	_0,00	 -01-00	
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$ [k]	N]; tempe	rature r	ange 50	/80°C and 72/	120°C		
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions						
5 / 4 N/mm²	w/w w/d d/d	1,2			1,5		1,5
7,5 / 6 N/mm²	w/w w/d d/d	1,5			2,0		1,5
10 / 8 N/mm²	w/w w/d d/d	1,5			2,5		2,0

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C51.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Push through installation)

Anchor rod		M10	M12	M16
Selkent perforated sleeve H	K	18x13	0/200	22x130/200
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$ [k]	N]; tempe	rature range 50/80	°C and 72/120°C	
Mean compressive strength / Min. compressive strength single brick ¹⁾	Use con- ditions			
5 / 4 N/mm²	w/w w/d d/d		1,	5
7,5 / 6 N/mm²	w/w w/d d/d		2,	0
10 / 8 N/mm²	w/w w/d d/d		2,	5

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, FZ 7, filled with mineral wool; Characteristic resistance under shear loading	Annex C51



Vertical perforated brick HLz, EN 771-1:2011+A1:2015 Producer e.g. Bouyer Leroux length L | width W | height H Nominal dimensions [mm] 500 200 315 Mean gross dry density ρ [kg/dm³] ≥ 0,6 Mean compressive strength / Min. 5/4 or 7,5/6 or 10/8 $[N/mm^2]$ compressive strength single brick 1) Standard or annex EN 771-1:2011+A1:2015 Dimension see also Annex B16 **Table C52.1:** Installation parameters (Pre-positioned installation with Selkent perforated sleeve H K) **M8** M6 M8 M8 M10 M8 M10 M12 M16 M12 M16 Anchor rod **M6** M10 M12 M6 | M8 Selkent internal threaded anchor E 11x85 15x85 12x50 Selkent perforated sleeve H K 12x85 16x85 16x130 20x85 20x130 Anchor rod and Selkent internal threaded anchor E with Selkent perforated sleeve H K Max. installation max Tinst [Nm] 2 torque General installation parameters Edge distance Cmin = Ccr 120 120 Smin II [mm] scr II 500 Spacing 315 $s_{min} \perp = s_{cr} \perp$ **Drilling method** Hammer drilling with hard metal hammer drill 1) The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength. **Table C52.2:** Group factors M6 M12 M16 M12 M16 Anchor rod **M6** M8 M10 M8 M10 **M8 M8** M6 **M8** M10 M12 Selkent internal threaded anchor E 11x85 15x85 Selkent perforated sleeve H K 12x50 12x85 16x85 16x130 20x85 20x130 $\alpha_{\text{g,N}}$ (s_{min} II) 1,3 1,7 $\alpha_{g,V}$ (s_{min} II) Group [-] factors $\alpha_{g,N}$ (Smin \perp) 2,0 $\alpha_{g,V}$ (Smin \perp) Injection system Selkent SEL-V+ for masonry Annex C52 **Performance** Vertical perforated brick HLz, dimensions, installation parameters, Group factors



Vertical perforated brick HLz, EN 771-1:2011+A1:2015

Table C53.1: Installation parameters

(Push through installation with Selkent perforated sleeve H K)

M10	M10 M12										
H K 18x13	30/200	22x130/200									
Anchor rod with Selkent perforated sleeve H K											
Nm]	2										
General installation parameters											
	12	20									
1	12	20									
11111	50	00									
315											
	H K 18x13 erforated sleeve H K	H K 18x130/200 erforated sleeve H K Nm] 2 eters 12 nm] 50									

Drilling method

Hammer drilling with hard metal hammer drill

Table C53.2: Group factors

Anchor ro	d	M10	M12	M16					
Selkent pe	erforated sleeve H K	18x13	30/200	22x130/200					
	α _{g,N} (s _{min} II)	1,3							
Group factors	αg,ν (Smin II)	1,7							
factors	$\frac{\alpha_{g,N} (s_{min} \perp)}{\alpha_{g,N} (s_{min} \perp)} $ [-]		0						

Injection system Selkent SEL-V+ for masonry

Performance
Vertical perforated brick HLz, dimensions, installation parameters, Group factors

Annex C53



Vertical perforated brick HLz, EN 771-1:2011+A1:2015

Table C54.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Pre-positioned installation)

Anchor rod	M6	M8	М6	M8		M8	M10	M8	M10		-	M12	M16	M12	M16
Selkent internal threaded anchor E		-		•	 M8 <85	150	-		-	M10 15			-	1)	-
Selkent perforated sleeve H K	12	12x50 12x85		16	x85		16>	(130		20:	k 85		20x	130	

•							
$\mathbf{N}_{Rk} = \mathbf{N}_{Rk,p} = \mathbf{N}_{Rk,b} = \mathbf{N}_{Rk,p,c} = \mathbf{N}_{Rk,p,c}$	N _{Rk,b,c} [kN	l]; tempe	rature ra	nge 50/80°C ²⁾			*/
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions						
Single brick	ditions						
5 / 4 N/mm²	w/w w/d	0,50		1,50	0,75	1,50	1,50
374 N/IIIII	d/d	0,60		1,50	0,90	1,50	2,00
7,5 / 6 N/mm ²	w/w w/d	0,75		2,00	1,20	2,00	2,50
7,576 14/111111	d/d	0,90		2,50	1,20	2,50	2,50
10 / 8 N/mm ²	w/w w/d	0,90		3,00	1,50	3,00	3,50
TO / 6 IN/IIIIII	d/d	1,20		3,00	2,00	3,00	3,50

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C54.2: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Push through installation)

Anchor rod			M10	M12	M16
Selkent perforated sleeve h	łΚ		18x13	0/200	22x130/200
$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} =$	N _{Rk,b,}	c [kN	l]; temperature ra	nge 50/80°C ²⁾	
Mean compressive strength / Min. compressive strength single brick 1)	cc	se n- ons			
5 / 4 N/mm²	w/w d/	w/d ⁄d		75 90	1,50 2,00
7,5 / 6 N/mm ²	w/w	w/d		20	2,50
7,570 14/11111	d,	/d	1,3	20	2,50
10 / 8 N/mm²		w/d		50	3,50
	d,	/d	2,	00	3,50

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, Characteristic resistance under tension loading	Annex C54

²⁾ For temperature range 72/120°C: N_{Rk} (72/120°C) = 0,83 · N_{Rk} (50/80°C).

²⁾ For temperature range 72/120°C: $N_{Rk (72/120^{\circ}C)} = 0.83 \cdot N_{Rk (50/80^{\circ}C)}$.



Vertical perforated brick HLz, EN 771-1:2011+A1:2015

Table C55.1: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Pre-positioned installation)

Anchor rod	M6	M8	М6	M8			M8	M10	M8	M10		-	M12	M16	M12	M16
Selkent internal threaded anchor E		-		•	M6 112	M8 (85	0	-		-	M10 15			-		-
Selkent perforated sleeve H K	12	x50	12)	(85		16	x85		16>	(130		20:	k 85		20x	130

	(E) =((E)			112.5.12.2				
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$	kN]; tem	perature r	ange 50	/80°C and 72/120	°C			
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions							
5 / 4 N/mm²	w/w w/d d/d		1	,5	0,9	1,5	2,5	0,9
7,5 / 6 N/mm²	w/w w/d d/d		2	,5	1,5	2,5	3,5	1,5
10 / 8 N/mm²	w/w w/d d/d	_	3	,5	2,0	3,5	4,5	2,0

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C55.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Push through installation)

Anchor rod		M10	M12	M16
Selkent perforated sleeve H	K	18x13	80/200	22x130/200
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$	N]; temp	erature range 50/8	80°C and 72/120°C	
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions			
5 / 4 N/mm²	w/w w/d d/d		0	9
7,5 / 6 N/mm²	w/w w/d d/d		1	,5
10 / 8 N/mm²	w/w w/d d/d		2	,0

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, Characteristic resistance under shear loading	Annex C55



Vertical perforated brick					1 0							
200	Producer								. Wienerbe			
	Nominal o	dimensions	í				[mm]	length L	width W	height H		
	Mean gro	ss dry den	sity ρ			[k	g/dm³]	≥ 0,7			
300		npressive				11	V/mm ²	5/40	5/4 or 75/6 or 10/8			
	100	ive strengt	h single bi	rick 1)	٠.	•////////		12,5 / 10			
	Standard	or annex	<u>(</u>						1-1:2011+	A1:2015		
	on parameters								Dimension see also Annex B17			
(Pre-position	med insta	allation w	rith Selke		erfo			eve H K)	M12 M16	N/12 N/1		
Selkent internal threaded	IVIO IVIO	IVIO IVIO	M6 M8	IVIO	IVITO	IVIO		- M10 M12	IVITZ	IVI I Z IVI I		
anchor E	-	-	11x85	70	-		-	15x85	-	-		
Selkent perforated sleeve H K	12x50	12x85	162	k 85		16x	130	20	k85	20x130		
Anchor rod and Selkent intern	al threade	ed anchor	E with Se	lken	t perf	orate	ed sle	eve H K				
Max. installation max T _{inst} [Nm]					2	2						
General installation parameter	rs	_							T			
Edge distance $c_{min} = c_{cr}$		50)	50	80		
	S _{min} II											
[mm]				10							
Spacing s _{cr} II]				50	00						
Spacing ${s_{cr} II}$ [mm] $s_{min} \perp = s_{cr} \perp$]					00						
Spacing $\frac{s_{cr} I }{s_{min} \perp = s_{cr} \perp}$ [mm] Drilling method					50	00						
Spacing $\frac{ \mathbf{s}_{cr} }{ \mathbf{s}_{min}\perp = \mathbf{s}_{cr}\perp}$ [mm] Drilling method Hammer drilling with hard metal 1) The minimum compressive stre Table C56.2: Group factors	hammer d ngth of the	rill single brick			50 30 ss thar	00 00 1 80%		e mean co				
Spacing $\frac{s_{cr} \text{ II}}{s_{min} \perp = s_{cr} \perp}$ [mm] Drilling method Hammer drilling with hard metal 1) The minimum compressive stre Table C56.2: Group factors Anchor rod	hammer d	rill	must not l		50 30	00 00 1 80%	M10	-	ompressive			
Spacing $\frac{ \mathbf{s}_{cr} }{ \mathbf{s}_{min}\perp }$ $ \mathbf{mm} $ Drilling method Hammer drilling with hard metal 1) The minimum compressive stre Table C56.2: Group factor Anchor rod Selkent internal threaded	hammer d ngth of the	rill single brick	must not t		50 30 ss thar	00 00 1 80%	M10	- M10 M12				
Spacing $\frac{s_{cr} \text{ II}}{s_{min} \perp = s_{cr} \perp}$ [mm] Drilling method Hammer drilling with hard metal 1) The minimum compressive stre Table C56.2: Group factor Anchor rod Selkent internal threaded anchor E	hammer d ngth of the ors M6 M8	rill single brick M6 M8	- M6 M8 11x85	M8	50 30 ss thar	00 00 n 80%	M10 -	- M10 M12 15x85	M12 M16	M12 M16		
Spacing Sor II Smin \(\pm = Scr \)	hammer d ngth of the ors M6 M8	rill single brick	- M6 M8 11x85		50 30 ss than	00 00 1 80% M8	M10	- M10 M12 15x85				
Spacing Sor I	hammer d ngth of the ors M6 M8	rill single brick M6 M8	- M6 M8 11x85	M8	50 30 ss thar	00 00 1 80% M8	M10 -	- M10 M12 15x85	M12 M16	M12 M16		
Spacing $\frac{ \mathbf{s}_{cr} }{ \mathbf{s}_{min}\perp }$ [mm] Drilling method Hammer drilling with hard metal The minimum compressive streem Table C56.2: Group factor Anchor rod Selkent internal threaded anchor E Selkent perforated sleeve H K \(\frac{\alpha_{g,V} (s_{min})}{\alpha_{g,V} (s_{min})} \) Group Group	hammer d ngth of the ors M6 M8	rill single brick M6 M8	- M6 M8 11x85	M8	50 30 ss than	00 00 1 80% M8	M10 -	- M10 M12 15x85	M12 M16	M12 M16		
Spacing ${s_{cr} \ II} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp = s_$	hammer d ngth of the ors M6 M8	rill single brick M6 M8	- M6 M8 11x85	M8	50 30 ss than M10	00 00 1 80% M8	M10 -	- M10 M12 15x85	M12 M16	M12 M10		
Spacing $\frac{ \mathbf{s}_{cr} }{ \mathbf{s}_{min}\perp }$ [mm] Drilling method Hammer drilling with hard metal The minimum compressive streem Table C56.2: Group factor Anchor rod Selkent internal threaded anchor E Selkent perforated sleeve H K \(\frac{\alpha_{g,V} (s_{min})}{\alpha_{g,V} (s_{min})} \) Group Group	hammer d ngth of the ors M6 M8	rill single brick M6 M8	- M6 M8 11x85	M8	50 30 ss than M10	00 00 1 80% M8	M10 -	- M10 M12 15x85	M12 M16	M12 M10		
Spacing ${s_{cr} \ II} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp = s_{cr} \perp \end{bmatrix} \begin{bmatrix} mm \\ s_{min} \perp = s_{cr} \perp = s_$	hammer d ngth of the ors M6 M8 - 12x50	rill single brick M6 M8 - 12x85	- M6 M8 11x85	M8	50 30 ss than M10	00 00 1 80% M8	M10 -	- M10 M12 15x85	M12 M16	M12 M10		



Vertical perforated brick HLz, EN 771-1:2011+A1:2015

Table C57.1: Installation parameters

(Push through installation with Selkent perforated sleeve H K)

Anchor rod			M10	M12	M16				
Selkent perfora	ted sleeve	ΗK	18x13	0/200	22x130/200				
Anchor rod with Selkent perforated sleeve H K									
Max. installation torque	max T _{inst}	[Nm]			2				
General installa	tion para	meter	S						
Edge distance	C _{min} = C _{cr}				80				
-	s _{min} II	[mama]			100				
Spacing	s _{cr} II	[mm]	500						
Sm	_{iin} ⊥=s _{cr} ⊥		300						

Drilling method

Hammer drilling with hard metal hammer drill

Table C57.2: Group factors

Anchor ro	od	M10	M12	M16					
Selkent p	erforated sleeve H K	18x13	30/200	22x130/200					
	α _{g,N} (s _{min} II)		1	.4					
Group factors	$\frac{\alpha_{g,\vee}(\mathbf{s}_{\min} \mathbf{I})}{[-]}$								
factors	$\alpha_{g,N}$ (S _{min} \perp)		2						
	$\alpha_{g,V}\left(s_{min}\perp\right)$								

Injection system Selkent SEL-V+ for masonry

Performance
Vertical perforated brick HLz, dimensions, installation parameters, Group factors

Annex C57



Vertical perforated brick HLz, EN 771-1:2011+A1:2015

Table C58.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Pre-positioned installation)

Anchor rod		M6	M8	M6	M8	-	M8	M10	M8	M10	-		M12	M16	M12	M16
Selkent internal threaded anchor E		- - ⊢		M6 M8	4	-		-		M10 M12 15x85		-		-		
Selkent perforated sleeve l	ΗK	12	x50	12	k 85	1	6x85	85		c130	20		x85		20x	130
$\mathbf{N}_{Rk} = \mathbf{N}_{Rk,p} = \mathbf{N}_{Rk,b} = \mathbf{N}_{Rk,p,c} =$	N _{Rk,b,c} [kl	1]; te	empe	ratu	re ra	ange 50	/80°C	²⁾								
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions															
										~~		_	7.5		- 1	<u>- </u>

-	Mean compressive strength / Min. compressive strength single brick 1)	co	se n- ons					
	5 / 4 N/mm²	w/w	w/d	0,50	0,60	1,20	0,75	1,50
L	3 / 4 IV/IIIII	d/	′d	0,60	0,75	1,20	0,90	1,50
ſ	7,5 / 6 N/mm ²	w/w	w/d	0,75	0,90	1,50	1,20	2,00
L	7,57 6 W/IIIIII	d,	′d	0,90	1,20	2,00	1,20	2,50
ſ	10 / 8 N/mm ²	w/w	w/d	0,90	1,20	2,00	1,50	2,50
	10 / 6 N/IIIII	d/	′d	1,20	1,50	2,50	1,50	3,00
ſ	12,5 / 10 N/mm ²	w/w	w/d	1,20	1,50	2,50	2,00	3,50
L	12,5 / 10 N/IIIII	d,	′d	1,50	2,00	3,00	2,00	4,00

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C58.2: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Push through installation)

Anchor rod		M10	M12	M16
Selkent perforated sleeve h	łΚ	18x1	30/200	22x130/200
$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} =$	N _{Rk,b,c} [kN	l]; temperature	range 50/80°C ²⁾	
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions			
5 / 4 N/mm²	w/w w/d	i.	1,2	1,5
5 / 4 N/IIIII	d/d		1,2	1,5
7,5 / 6 N/mm ²	w/w w/d		1,5	2,0
7,576 N/IIIII	d/d	2	2,0	2,5
10 / 8 N/mm ²	w/w w/d	2	2,0	2,5
TO / O IN/ITITIT	d/d	2	2,5	3,0
12,5 / 10 N/mm ²	w/w w/d	2	2,5	3,5
12,5 / 10 14/111111	d/d	3	3,0	4,0

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, Characteristic resistance under tension loading	Annex C58

²⁾ For temperature range 72/120°C: $N_{Rk (72/120^{\circ}C)} = 0.83 \cdot N_{Rk (50/80^{\circ}C)}$.

²⁾ For temperature range 72/120°C: $N_{Rk (72/120^{\circ}C)} = 0.83 \cdot N_{Rk (50/80^{\circ}C)}$.



Vertical perforated brick HLz, EN 771-1:2011+A1:2015

Table C59.1: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Pre-positioned installation)

Anchor rod	M6	M8	M6	M8	-	M8	M10	M8	M10	3	-	M12	M16	M12	M16
Selkent internal threaded anchor E		-			M8 x85		-		-		M12 x85		-	1.	-
Selkent perforated sleeve H K	12	x50	12)	(85	16	x85		16)	k130		20:	x85		20x	130

Deikent periorated sieeve i	1 13	12730	12703		10703	107130	2000	20X 130
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$ [I	kN]; temp	erature	range 50)/80°	°C and 72/120	°C		
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions							
5 / 4 N/mm²	w/w w/d d/d	0,9	1,2	0,9	1,2	0,6	2,0	0,6
7,5 / 6 N/mm²	w/w w/d d/d	1,2	1,5	1,2	1,5	0,9	3,0	0,9
10 / 8 N/mm²	w/w w/d d/d	1,5	2,0	1,5	2,0	1,2	4,0	1,2
12,5 / 10 N/mm²	w/w w/d d/d	2,0	3,0	2,0	3,0	1,5	5,0	1,5

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C59.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Push through installation)

Anchor rod		M10	M12	M16
Selkent perforated sleeve H	l K	18x13	0/200	22x130/200
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$ [I	kN]; temp	erature range 50/8	30°C and 72/120°	C
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions			
5 / 4 N/mm²	w/w w/d d/d		C	0,6
7,5 / 6 N/mm²	w/w w/d d/d		C),9
10 / 8 N/mm²	w/w w/d d/d		1	1,2
12,5 / 10 N/mm²	w/w w/d d/d		1	1,5

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, Characteristic resistance under shear loading	Annex C59



Vertical perforated brick HLz, EN 771-1:2011+A1:2015 Producer e.g. Terreal length L | width W | height H Nominal dimensions [mm] 500 200 315 Mean gross dry density ρ [kg/dm³] ≥ 0,7 Mean compressive strength / Min. 2,5 / 2 or 5 / 4 or [N/mm²]compressive strength single brick 1) 7,5 / 6 or 10 / 8 Standard or annex EN 771-1:2011+A1:2015 Dimension see also 8 Annex B17 **Table C60.1:** Installation parameters (Pre-positioned installation with Selkent perforated sleeve H K) M6 M8 M8 M10 M8 M10 M12 M16 M12 M16 M6 | M8 Anchor rod M6 M8 M10 M12 Selkent internal threaded anchor E 11x85 15x85 Selkent perforated sleeve H K 16x85 20x130 12x50 12x85 16x130 20x85 Anchor rod and Selkent internal threaded anchor E with Selkent perforated sleeve H K Max. installation max Tinst [Nm] torque General installation parameters Edge distance Cmin = Ccr 50 80 50 80 $s_{\text{min}} \, II$ 100 s_{cr} II [mm] 500 Spacing 100 $s_{min} \perp$ 315 Scr \perp **Drilling method** Hammer drilling with hard metal hammer drill 1) The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength. Table C60.2: Group factors Anchor rod M6 **M8** M6 **M8** M8 M10 M8 M10 M12 M16 M12 M16 M6 M8 M10 M12 Selkent internal threaded anchor E 15x85 11x85 16x85 Selkent perforated sleeve H K 20x85 12x50 12x85 16x130 20x130 αg,N (Smin II) 1,1 $\alpha_{g,V}$ (s_{min} II) 1.2 Group [-] factors 1,1 $\alpha_{g,N}$ ($s_{min} \perp$) 1,2 $\alpha_{g,V}$ ($s_{min} \perp$) Injection system Selkent SEL-V+ for masonry Annex C60 **Performance** Vertical perforated brick HLz, dimensions, installation parameters, Group factors



Vertical perforated brick HLz, EN 771-1:2011+A1:2015

Table C61.1: Installation parameters

(Push through installation with Selkent perforated sleeve H K)

Anchor rod			M10	M12	M16
Selkent perforat	ed sleeve	ΗK	18x13	0/200	22x130/200
Anchor rod with	Selkent	perfo	rated sleeve H K		
Max. installation torque	max T _{inst}	[Nm]		2	2
General installa	tion para	meter	S		
Edge distance	C _{min} = C _{cr}			8	0
	s _{min} II			10	00
Conneille	s _{cr} II	[mm]		50	00
Spacing	Smin 丄			10	00
	s _{cr} ⊥			3.	15
Duillin as an adla a d					

Drilling method

Hammer drilling with hard metal hammer drill

Table C61.2: Group factors

Anchor roo	d	M10	M12	M16			
Selkent pe	rforated sleeve H K	18x13	30/200	22x130/200			
	α _{g,N} (s _{min} II)		1,	.1			
Group	α _{g,V} (s _{min} II)		1,	,2			
Group factors	$\frac{\alpha_{g,N} (s_{min} \perp)}{\alpha_{g,N} (s_{min} \perp)} [-]$		1,	.1			
	$\alpha_{g,V}$ (Smin \perp)		1,	,2			

Injection system Selkent SEL-V+ for masonry

Performance
Vertical perforated brick HLz, dimensions, installation parameters, Group factors

Annex C61



Vertical perforated brick HLz, EN 771-1:2011+A1:2015

Table C62.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Pre-positioned installation)

Anchor rod	M6	M8	M6	M8	-		M8	M10	M8	M10		•	M12	M16	M12	M16
Selkent internal threaded anchor E		-		-	M6 11x	process.		=		-	M10 15>			-		-
Selkent perforated sleeve H K	12	x50	12	(85		16	x85		16>	(130		202	x85		20x	130

Seikent periorated sieeve in	1.	12350	12,000	10.00	107130	2000	20X 130
$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} = I$	N _{Rk,b,c} [kN	l]; tempe	rature ra	nge 50/80°C ²⁾			
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions						
2.5 / 2.N/m2	w/w w/d				0,5		
2,5 / 2 N/mm ²	d/d		0,	5	0,6	0,5	0,6
5 / 4 N/mm ²	w/w w/d				0,9		
5 / 4 N/IIIII	d/d	0,9			1,2		
7,5 / 6 N/mm²	w/w w/d				1,5		
7,5 / 6 N/IIIII-	d/d				1,5		
10 / 8 N/mm²	w/w w/d				2,0		
10 / 6 N/IIIII-	d/d				2,0		

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C62.2: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Push through installation)

Anchor rod		M10	M12	M16
Selkent perforated sleeve H	K	18x1	30/200	22x130/200
$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} = N_{Rk,p,c}$	N _{Rk,b,c} [kN]; temperature	range 50/80°C ²⁾	
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions			
2,5 / 2 N/mm²	w/w w/d d/d			0,5 0,6
5 / 4 N/mm²	w/w w/d d/d			0.9 1,2
7,5 / 6 N/mm²	w/w w/d d/d			1.5 1,5
10 / 8 N/mm²	w/w w/d d/d			2.0 2,0

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, Characteristic resistance under tension loading	Annex C62

²⁾ For temperature range 72/120°C: N_{Rk} (72/120°C) = 0,83 · N_{Rk} (50/80°C).

²⁾ For temperature range 72/120°C: $N_{Rk (72/120^{\circ}C)} = 0.83 \cdot N_{Rk (50/80^{\circ}C)}$.



Vertical perforated brick HLz, EN 771-1:2011+A1:2015

Table C63.1: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Pre-positioned installation)

Anchor rod	M6	M8	М6	M8	-		M8	M10	M8	M10		-	M12	M16	M12	M16
Selkent internal threaded anchor E		-		•	M6 11x		5	-		-	M10 15			=	13	-
Selkent perforated sleeve H K	12	x50	12>	(85		16x85		16x130 20		20	k 85		20x	130		

Seikent periorated sieeve i	1 N	12X5U	12000		TOXOD	100130	20x65	20X130
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$	kN]; temp	erature r	ange 50	/80°	C and 72/120	°C		
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions							
2,5 / 2 N/mm ²	w/w w/d d/d	0,30	0,60	0,3	0,60	0,60	0,90	0,75
5 / 4 N/mm²	w/w w/d d/d	0,75	1,20	0,7	1,20	1,20	2,00	1,50
7,5 / 6 N/mm²	w/w w/d d/d	0,90	2,00	0,9	2,00	1,50	3,00	2,00
10 / 8 N/mm²	w/w w/d d/d	1,50	2,50	1,5	2,50	2,00	4,00	3,00

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C63.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Push through installation)

Anchor rod		M10	M12	M16
Selkent perforated sleeve H	łΚ	18x13	30/200	22x130/200
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$ [kN]; temp	erature range 50/	80°C and 72/120°C	
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions			
2,5 / 2 N/mm²	w/w w/d d/d	0,	60	0,75
5 / 4 N/mm²	w/w w/d d/d	1,	20	1,50
7,5 / 6 N/mm²	w/w w/d d/d	1,	50	2,00
10 / 8 N/mm²	w/w w/d d/d	2,	00	3,00

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, Characteristic resistance under shear loading	Annex C63



	Pro	oducer						e.g. Imery		
	> _		oncies-			[mages]	length L	1		
	INC	ominal dime	ensions	i 		[mm]	560	200 275		
		ean gross o				[kg/dm³]		≥ 0,7		
	and the second second	ean compre mpressive		•		[N/mm ²]	5 / 4 or 8 / 6 or 10 / 8			
680	Sta	andard or a	annex	EN 771-1:2011+A1:2015						
Table C64.1: Installation	on pa	erameters	10 20 20		Dimension see also Annex B17					
Anchor rod			M10	M10	M12	M12	M16	M16		
Selkent perforated sleeve H	ıĸ	16x130			30/200	20x1		22x130/200		
Anchor rod with Selkent pe										
Max. installation max T _{inst} [N	lm]				2	2				
General installation parame	eters									
Edge distance c _{min} = c _{cr}	-				8	,				
Spacing $\frac{s_{min} I = s_{cr} I }{s_{min} I }$	nm]				56	> 100.00				
Smin \(\perp = Scr \)					27	75				
Drilling method Hammer drilling with hard me	tal har	mmer drill								
1) The minimum compressive s			ale brick	must not	ne less that	n 80% of the	mean co			
	orrigu		,					mpressive strength		
Table C64.2: Group fa	ctors	į						empressive strengtn		
Table C64.2: Group fa	ctors		M10	M10	M12	M12	M16	mpressive strength		
The second contract of the second sec				M10			M16			
Anchor rod Selkent perforated sleeve H		M8		M10	M12	M12 20x1	M16	M16		



Vertical perforated brick HLz, EN 771-1:2011+A1:2015

Table C65.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading

Anchor rod			M8 M10 M10 M12 M12 M16 M16								
Selkent perforated sleeve H	K		16x	130	18x13	30/200	20x130 22x130/200				
$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} = I$	Rk,b,c	kN]	; tempe	rature rai	nge 50/80)°C ²⁾					
Mean compressive strength / Min. compressive strength single brick 1)	Use con- dition	-									
5 / 4 N/mm²	w/w w	2000	0,9 1,2 1,2 1,5								
8 / 6 N/mm²	w/w w		1,5 2,0 1,5 2,0						,		
10 / 8 N/mm²	0 / 8 N/mm² w/w w/d			2,0 2,5							

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C65.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading

Anchor rod		M8	M10	M10	M12	M12	M16	M16	
Selkent perforated sleeve H	K	16x130 18x130/200 20x130 22x130							
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$ [k	N]; temp	erature r	ange 50/	80°C and	72/120°C	;			
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions								
5 / 4 N/mm²	w/w w/d d/d				0	,9			
8 / 6 N/mm²	w/w w/d d/d				1	,5			
10 / 8 N/mm²	w/w w/d d/d				2	,0			

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry

Performance
Vertical perforated brick HLz, Characteristic resistance under tension and shear loading

Annex C65

²⁾ For temperature range 72/120°C: N_{Rk} (72/120°C) = 0,83 · N_{Rk} (50/80°C).



Vartical partareted brief	UI - EN 77	1 1.2011 . A	1.2015						
Vertical perforated brick		1-1:2011+A	1:2015				Decident .		
120	Producer						Viener		
	Nominal dimer	nsions		[mm]		ngth L 255	width 120		eight H 118
	Mean gross dr	y density o		[kg/dm ³		255	1∠0 2 1,0		110
118	Mean compres		/ Min		1	,5 / 2 o			6 or
	compressive s			[N/mm ²		/ 8 or 1			
15	Standard or an	nex			E	N 771-	1:2011	+A1:	2015
Table C66.1: Installation	120	3 0 0 0		Dimension see also Annex B18					
Anchor rod	n parameters M6 M8	M6 M8	55	M8 N	110			M12	M16
Selkent internal threaded	IVIO IVIO	IVIO IVIO	M6 M8	IVIO IV	. 10		M12	14112	INITO
anchor E	-	-	11x85	1 - 10		15x8			(.))
Selkent perforated sleeve H I	〈 12x50	12x85	NO OLIVERTANA DESCRIPTION	k 85			20x	85	
Anchor rod and Selkent inter	nal threaded a	nchor E with	Selkent perf	orated s	eeve	нк			
Max. installation max T _{inst} [Nn torque	n]		2	2					
General installation parameter	ers								
Edge distance c _{min} = c _{cr}				0					
Spacing $\frac{s_{cr} = s_{min} }{s_{cr} = s_{min} }$ [mr	n]			55 20					
$s_{cr} \perp = s_{min} \perp$ Drilling method			14	20					
Hammer drilling with hard meta	al hammer drill								
Table C66.2: Group fac	tors		not be less than			ean con	npressi		
Anchor rod	M6 M8	M6 M8	- 840	M8 N	110	- 8440	N#40	M12	M16
Selkent internal threaded anchor E	-	-	M6 M8	==()	-	M10 15x8	M12		-
Selkent perforated sleeve H I	Κ 12x50	12x85		(85		1000	20x	85	
Group $ \frac{\alpha_{g,N} (s_{min} II)}{\alpha_{g,V} (s_{min} II)} $		1200		2					
factors $\alpha_{g,N} (s_{min} \perp)$ $\alpha_{g,V} (s_{min} \perp)$			•	-					
						-			
Injection system Selkent	SEL-V+ for n	nasonry							
Performance Vertical perforated brick HLz,	dimensions, ins	tallation parar	meters, Group	factors			Anne	ex C	36



Vertical perforated brick HLz, EN 771-1:2011+A1:2015

Table C67.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading

									_				
Anchor rod		М6	M8	M6	M8	-9		M8	M10	-		M12	M16
Selkent internal threaded anchor E			_		_		M8		_	M10	M12		
Comone internal timeaded at	ionoi L					11x85				15x85			
Selkent perforated sleeve H	K	12:	x50	123	k 85		16:	x85			20	x85	
$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} = N_{Rk,p,c}$	N _{Rk,b,c} [kN]; tem	perat	ure rai	nge 50	/80°C	1)						
Mean compressive strength /	Use												
Min. compressive strength	con-												
single brick 2)	ditions												
2.5 / 2.N/2	w/w w/d	0	,4			0,	5				_3	3)	
2,5 / 2 N/mm ²	d/d	0	,5			0,	5				_3	3)	
5 / 4 N/mm²	w/w w/d	0	,9			0,	9				0,	5	
5 / 4 N/MM*	d/d	0	,9			1,	2				0,	5	

1,5

1,5

2,0

2,0

2,5

2,5

3,0

0,75

0,75

0,9

0,9

1,2

1,2

1,5

1,5

w/w w/d

d/d

w/w w/d

d/d

w/w w/d

d/d

w/w w/d

1,2

1,5

1,5

2,0

2,0

2,5

2,5

8 / 6 N/mm²

10 / 8 N/mm²

12,5 / 10 N/mm²

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, Characteristic resistance under tension loading	Annex C67

^{15 / 12} N/mm² d/d 3,0 3,5

1) For temperature range 72/120°C: N_{Rk (72/120°C)} = 0,83 · N_{Rk (50/80°C)}.

²⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

³⁾ No performance assessed.



Vertical perforated brick HLz, EN 771-1:2011+A1:2015

Table C68.1: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading

Selkent internal threaded anchor E - M6 M8 - M10 M12 11x85 - 15x85	Anchor rod	ho	or rod	M6	M8	М6	M8	-		M8	M10	-		M12	M16
	Selkent internal threaded anchor E	e	ent internal threaded anchor E		- €	-		84 10 01210-00		-		-		-	
Selkent perforated sleeve H K 12x50 12x85 16x85 20x85	Selkent perforated sleeve H K	е	ent perforated sleeve H K	12	<50	12	x85	162		(85		202	c 85		

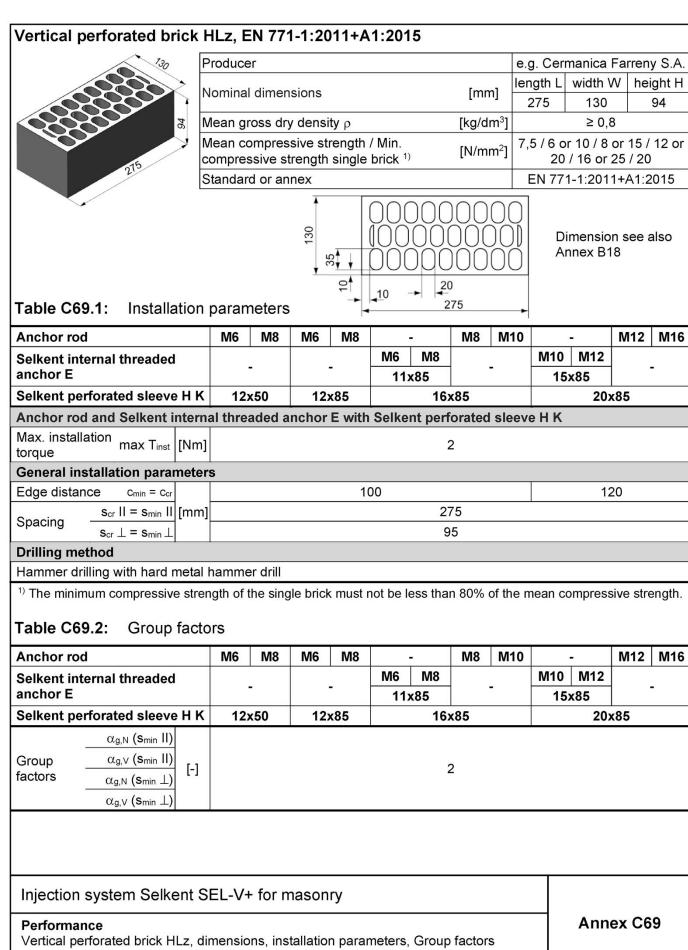
Selkent perforated sleeve H	K		123	<50	12)	c 85	16x85	20x85
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$	(N]; te	emp	eratu	re ranç	ge 50/	80°C a	ind 72/120°C	
Mean compressive strength / Min. compressive strength single brick 1)	Us cor ditio	า-						
2,5 / 2 N/mm²	w/w d/d	_	0,60	0,75	0,60	0,75	0,9	90
5 / 4 N/mm²	w/w		1,20	1,50	1,20	1,50	2,0	00
8 / 6 N/mm²	w/w	_	2,00	2,00	2,00	2,00	2,	50
10 / 8 N/mm²	w/w		2,50	3,00	2,50	3,00	3,4	50
12,5 / 10 N/mm²	w/w		3,00	3,50	3,00	3,50	4,	50
15 / 12 N/mm²	w/w d/d	-	4,00	4,50	4,00	4,50	5,4	50

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, Characteristic resistance under shear loading	Annex C68







Vertical perforated brick HLz, EN 771-1:2011+A1:2015

Table C70.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading

Anchor rod	M6 M8		M6	M8			M8	M10	-		M12	M16
Selkent internal threaded anchor E		•	-		M6 M8 11x85		-		M10 M12 15x85			•
Selkent perforated sleeve H K	12:	x50	12	x85		1 1100 100		x85		20:		

$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} = I$	N _{Rk,b,c} [kN	l]; temperatı	ure range 50/80°C ²⁾	
Mean compressive strength / Min. compressive strength	Use con-			
single brick 1)	ditions			
7,5 / 6 N/mm ²	w/w w/d	0,40	0,90	
7,576 14/11111	d/d	0,40	0,90	
10 / 8 N/mm²	w/w w/d	0,50	1,20	
	d/d	0,60	1,20	
15 / 12 N/mm²	w/w w/d	0,75	1,50	
137 12 14/11111	d/d	0,90	2,00	
20 / 16 N/mm ²	w/w w/d	0,90	2,00	
20 / 10 10/11111	d/d	1,20	2,50	
25 / 20 N/mm ²	w/w w/d	1,20	3,00	
25 / 20 14/111111	d/d	1,50	3,00	

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, Characteristic resistance under tension loading	Annex C70

²⁾ For temperature range 72/120°C: $N_{Rk (72/120^{\circ}C)} = 0.83 \cdot N_{Rk (50/80^{\circ}C)}$.



Vertical perforated brick HLz, EN 771-1:2011+A1:2015

Table C71.1: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading

Anchor rod	M6 M8		M6	M8	-		M8	M10	-		M12	M16
Selkent internal threaded anchor E				-	M6 M8 11x85		-		M10 M12 15x85			-
Selkent perforated sleeve H K	12:	x50	12	x85	16x		k85			20>	(85	

Ocikent periorated dicever		12,00	12,00	1000	20,00
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$	kN]; temp	erature ran	ge 50/80°C aı	nd 72/120°C	
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions				
7,5 / 6 N/mm²	w/w w/d d/d	1,2		1,2	
10 / 8 N/mm²	w/w w/d d/d	1,5		1,5	
15 / 12 N/mm²	w/w w/d d/d	2,0		2,5	
20 / 16 N/mm²	w/w w/d d/d	3,0		3,0	
25 / 20 N/mm²	w/w w/d d/d	4,0		4,0	

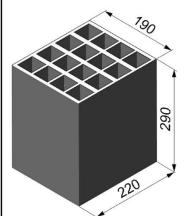
¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, Characteristic resistance under tension loading	Annex C71



Vertical perforated brick HLz, EN 771-1:2011+A1:2015



Producer	e.g. Perceram					
Nominal dimensions	[mm]	length L	width W	height H		
	Liiiiii	220	190	290		
Mean gross dry density ρ	[kg/dm ³]		≥ 0,7			
Mean compressive strength / Min. compressive strength single brick 1)	[N/mm ²]	7,5 / 6 oı	10 / 8 or	12,5 / 10		
Standard or annex		EN 771	-1:2011+ <i>A</i>	1:2015		

9 42 - 220

Dimension see also Annex B18

Table C72.1: Installation parameters

(Pre-positioned installation with Selkent perforated sleeve H K)

Anchor rod	M6	M8	M6	M8	-		M8	M10	M8	M10	-		M12	M16	M12 M16
Selkent internal threaded anchor E		-		-	M6 112	M8 (85	22	-		- 8		M12 x85	-		-
Selkent perforated sleeve H K	12:	x50	12)	k 85	5 16x		x85		16x	130	20:		x85		20x130

Anchor rod and Selkent internal threaded anchor E with Selkent perforated sleeve H K

Max. installation	mov T	[MIM]	2
torque	IIIaX Tinst	[[IMITI]	_

General installation parameters

Edge distan	ice C _{min} = C _{cr}	110
Coosina	s _{min} II = s _{cr} II [m	n] 220
Spacing	s _{min} ⊥ = s _{cr} ⊥	290

Drilling method

Hammer drilling with hard metal hammer drill

Table C72.2: Group factors

Anchor rod	M6	M8	M6 M8		-		M8	M10	M8	M8 M10		-	M12	M16	M12	M16
Selkent internal threaded anchor E		-		•	M6 M8		-		-		M10 M12			-		-
Selkent perforated sleeve H K	12	12x50 12x		(85		16>	x85		16x130		20		x85		20x	130

		 	2 22 22	2 8 88	
Group factors	$\frac{\alpha_{g,N} (s_{min} II)}{\alpha_{g,V} (s_{min} II)} \frac{\alpha_{g,V} (s_{min} II)}{\alpha_{g,V} (s_{min} \bot)} [-]$			2	

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, dimensions, installation parameters, Group factors	Annex C72

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.



Vertical perforated brick HLz, EN 771-1:2011+A1:2015

Table C73.1: Installation parameters

(Push through installation with Selkent perforated sleeve H K)

Anchor rod			M10	M12	M16
Selkent perforated	d sleeve	HK	18x13	0/200	22x130/200
Anchor rod with S	Selkent	perfor	ated sleeve H K		
Max. installation m	nax T _{inst}	[Nm]			2
General installation	on parai	meters	3		
Edge distance	C _{min} = C _{cr}			1	10
Smin I	I = s _{cr} II	[mm]		2	20
Spacing s _{min} \(\perp\)	L = s cr ⊥			2	90
Drilling method					
Hammer drilling wit	th hard r	netal h	nammer drill		

Table C73.2: Group factors

Anchor ro	d	M10	M12	M16					
Selkent pe	erforated sleeve H K	18x13	30/200	22x130/200					
Group factors	$\frac{\alpha_{g,N} (s_{min} II)}{\alpha_{g,V} (s_{min} II)} \frac{\alpha_{g,V} (s_{min} II)}{\alpha_{g,V} (s_{min} \bot)} [-]$;	2					

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, dimensions, installation parameters, Group factors	Annex C73



Vertical perforated brick HLz, EN 771-1:2011+A1:2015

Table C74.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Pre-positioned installation)

Anchor rod	М6	M8	М6	M8	M8 -		M8	M10	M8	M10		-	M12	M16	M12	M16
Selkent internal threaded anchor E		-			M6 112	M8 <85	⊣ -		-			M10 M12 15x85		-	13	-
Selkent perforated sleeve H K		x50	12x85		16x85			162	c130	20		x85		20x	130	

1-0							
$\mathbf{N}_{Rk} = \mathbf{N}_{Rk,p} = \mathbf{N}_{Rk,b} = \mathbf{N}_{Rk,p,c} = \mathbf{I}$	N _{Rk,b,c} [kN	l]; tempe	rature ra	ange 50/80°C ²⁾			
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions						
7,5 / 6 N/mm²	w/w w/d	0,3	1,2	1,2	1,5	1,2	1,5
7,576 N/IIIII	d/d	0,4	1,5	1,5	1,5	1,5	1,5
10 / 8 N/mm²	w/w w/d	0,5	1,5	1,5	2,0	1,5	2,0
10 / 8 14/111111	d/d	0,5	2,0	2,0	2,5	2,0	2,5
12,5 / 10 N/mm²	w/w w/d	0,6	2,0	2,0	2,5	2,0	2,5
	d/d	0,6	2,5	2,5	3,0	2,5	3,0

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C74.2: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Push through installation)

Anchor rod			M10	M12	M16
Selkent perforated sleeve H	ΙK		18x13	0/200	22x130/200
$\mathbf{N}_{\mathrm{Rk}} = \mathbf{N}_{\mathrm{Rk,p}} = \mathbf{N}_{\mathrm{Rk,b}} = \mathbf{N}_{\mathrm{Rk,p,c}} = \mathbf{N}_{\mathrm{Rk,p,c}}$	N _{Rk,b,}	c [kN	l]; temperature rar	ige 50/80°C ²⁾	
Mean compressive strength / Min. compressive strength single brick 1)	cc	se on- ons			
7,5 / 6 N/mm²	w/w	w/d		1	,5
7,576 N/IIIII	d.	/d		1	,5
10 / 8 N/mm²	w/w	w/d		2	.,0
10 / 8 14/111111	d.	/d		2	2,5
12,5 / 10 N/mm ²	w/w	w/d		2	2,5
12,57 10 14/111111	d	/d		3	,0

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, Characteristic resistance under tension loading	Annex C74

²⁾ For temperature range 72/120°C: N_{Rk} (72/120°C) = 0,83 · N_{Rk} (50/80°C).

²⁾ For temperature range 72/120°C: $N_{Rk (72/120^{\circ}C)} = 0.83 \cdot N_{Rk (50/80^{\circ}C)}$.



Vertical perforated brick HLz, EN 771-1:2011+A1:2015

Table C75.1: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Pre-positioned installation)

Anchor rod	М6	M8	М6	M8	-		M8	M10	M8	M10	-		M12	M16	M12	M16
Selkent internal threaded anchor E		-			M6 M8				-		M10 M12 15x85			-	13	-
Selkent perforated sleeve H K	12	x50	12)	(85	16		6x85		16x130		0 20		k 85		20x	130

ocikent periorated siceve i	1 17	12700	IZAUU	10200	107100	2000	20X 100		
V _{Rk} = V _{Rk,b} = V _{Rk,c,II} = V _{Rk,c,⊥} [kN]; temperature range 50/80°C and 72/120°C									
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions								
7,5 / 6 N/mm²	w/w w/d d/d	1,5	1,5	1,5	2,5	1,5	2,0		
10 / 8 N/mm²	w/w w/d d/d	2,0	2,0	2,0	3,5	2,0	3,0		
12,5 / 10 N/mm²	w/w w/d d/d	2,5	3,0	3,0	4,5	3,0	3,5		

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C75.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Push through installation)

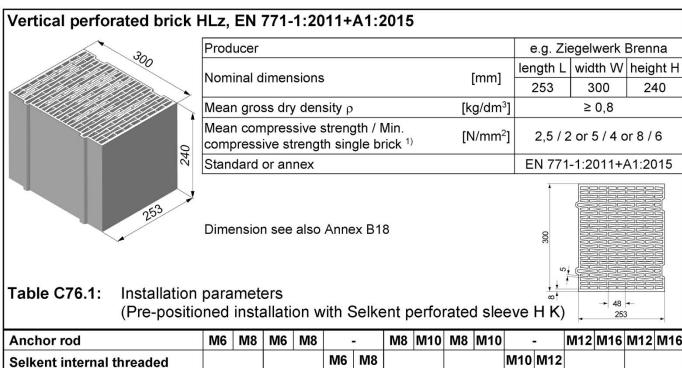
Anchor rod		M10	M12	M16
Selkent perforated sleeve h	ł K	18	8x130/200	22x130/200
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$	kN]; temp	perature range	e 50/80°C and 72/120°C	
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions			
7,5 / 6 N/mm²	w/w w/d d/d		2	,0
10 / 8 N/mm²	w/w w/d d/d		3	,0
12,5 / 10 N/mm²	w/w w/d d/d		3	,5

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, Characteristic resistance under shear loading	Annex C75





anchor E	-	-	11x85	-	-	15x85	-	-
Selkent perforated sleeve H K	12x50	12x85	16>	16x85		20x85		20x130
Anchor rod and Selkent internal threaded anchor E with Selkent perforated sleeve H K								
Max. installation max T _{inst} [Nm]	2							
General installation parameter	General installation parameters							
Edge distance c _{min} = c _{cr}	60							
Species Smin II = Scr II [mm]	255							
Spacing $s_{min} \perp = s_{cr} \perp$	240							
Drilling method								

Anchor rod

Hammer drilling with hard metal hammer drill

M6

M8

M6 **M8** M8 M10 M8 M10

M12 M16 M12 M16

Table C76.2: Group factors

Selkent inte	ernal threaded	-	-	M6 N	V18	-	-	M10 M12 15x85	-	-
Selkent per	forated sleeve H K	12x50	12x85	1	16x85 16x130 20x85		20x130			
Group factors	$\frac{\alpha_{\text{g,N}} (\text{s}_{\text{min}} \text{ II})}{\alpha_{\text{g,V}} (\text{s}_{\text{min}} \text{ II})} = \frac{\alpha_{\text{g,V}} (\text{s}_{\text{min}} \text{ II})}{\alpha_{\text{g,V}} (\text{s}_{\text{min}} \bot)}$					2	2			

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, dimensions, installation parameters, Group factors	Annex C76

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.



Vertical perforated brick HLz, EN 771-1:2011+A1:2015

Table C77.1: Installation parameters

(Push through installation with Selkent perforated sleeve H K)

Anchor rod	nchor rod			M12	M16			
Selkent perforated	sleeve	HK	18x130/200 22x130/200					
Anchor rod with Selkent perforated sleeve H K								
Max. installation torque	T _{inst}	[Nm]	2					
General installation parameters								
Edge distance c	min = Ccr		60					
$s_{min} I = s_{cr} I [mm] $ 255				55				
Spacing s _{min} \(\preceq \)	= s _{cr} ⊥		240					
Drilling method								
Hammer drilling with hard metal hammer drill								

Table C77.2: Group factors

Anchor roo	k	M10	M12	M16	
Selkent pe	rforated sleeve H K	18x13	18x130/200 22x130/200		
Group factors	$\frac{\alpha_{g,N} \text{ (s_{min} II)}}{\alpha_{g,N} \text{ (s_{min} II)}}$ $\frac{\alpha_{g,N} \text{ (s_{min} \bot)}}{\alpha_{g,V} \text{ (s_{min} \bot)}}$ [-]		;	2	

Injection system Selkent SEL-V+ for masonry

Performance
Vertical perforated brick HLz, dimensions, installation parameters, Group factors

Annex C77



Vertical perforated brick HLz, EN 771-1:2011+A1:2015

Table C78.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Pre-positioned installation)

Anchor rod	M6	M8	M6	6 M8 -		M8	M10	M8	M10	-		M12	M16	M12	M16	
Selkent internal threaded anchor E		•			M6 11>	The section of the se)	-		-		M12 x85	l .	•	0	-
Selkent perforated sleeve H K	12	x50	12)	(85	16		x85		16)	(130		20:	k 85		20x	130

$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} = I$	N _{Rk,b,c} [kN	l]; tempe	erature ra	ange 50/80°C ²⁾			
Mean compressive strength /	Use						
Min. compressive strength	con-						
single brick 1)	ditions						
2,5 / 2 N/mm ²	w/w w/d	_3)	0,50	0,50	0,40	0,50	0,40
2,3 / 2 14/11111	d/d	0,30	0,50	0,50	0,50	0,50	0,50
5 / 4 N/mm ²	w/w w/d	0,50	0,90	0,90	0,90	0,90	0,90
5 / 4 N/IIIII	d/d	0,60	0,90	0,90	0,90	0,90	0,90
8 / 6 N/mm ²	w/w w/d	0,75	1,50	1,50	1,20	1,50	1,20
0 / O N/IIIII	d/d	0,90	1,50	1,50	1,50	1,50	1,50

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C78.2: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Push through installation)

Anchor rod			M10	M12	M16
Selkent perforated sleeve H	K		18>	130/200	22x130/200
$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} = N_{Rk,p,c}$	N _{Rk,b,}	c [kN	l]; temperatur	e range 50/80°C ²⁾	
Mean compressive strength / Min. compressive strength single brick 1)	U: co ditio	25001 K			
2,5 / 2 N/mm ²	w/w	A CONTROL OF			0,4
0.000 ₹ 0000.0000 900 9000000000000000000000000	d/	'd			0,5
5 / 4 N/mm ²	w/w	w/d			0,9
37414/111111	d/	′d			0,9
8 / 6 N/mm ²	w/w	w/d			1,2
0 / 0 N/IIIII	d/	′d			1,5

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, Characteristic resistance under tension loading	Annex C78

²⁾ For temperature range 72/120°C: $N_{Rk (72/120^{\circ}C)} = 0.83 \cdot N_{Rk (50/80^{\circ}C)}$.

³⁾ No performance assessed.

²⁾ For temperature range 72/120°C: N_{Rk} (72/120°C) = 0,83 · N_{Rk} (50/80°C).



Vertical perforated brick HLz, EN 771-1:2011+A1:2015

Table C79.1: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Pre-positioned installation)

Anchor rod	М6	M8	М6	M8	-	M8	M10	M8	M10	-	M12	M16	M12	M16
Selkent internal threaded anchor E		-			M6 M		•		-	M10 M12 15x85	-		19	-
Selkent perforated sleeve H K	12	x50	12>	12x85 16		6x85	1	16x	130	20	x85		20x	130

$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$	κN]; temp	perature range 50/80°C and 72/120°C	•
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions		
2,5 / 2 N/mm²	w/w w/d d/d	0,5	0,6
5 / 4 N/mm²	w/w w/d d/d	0,9	1,2
8 / 6 N/mm²	w/w w/d d/d	1,5	1,5

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C79.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Push through installation)

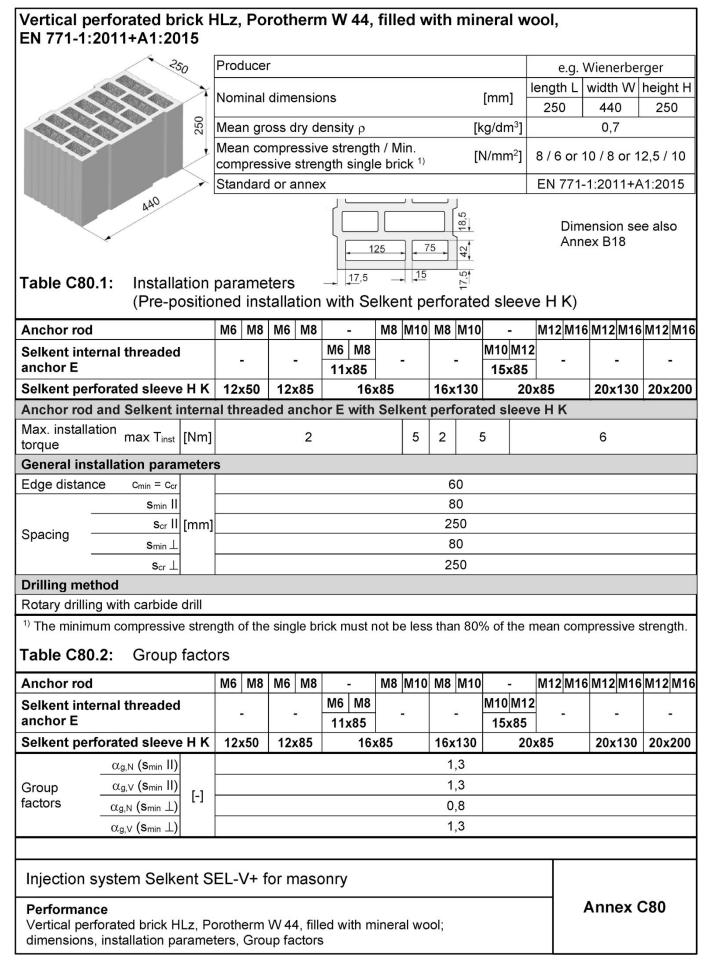
Anchor rod		M10	M12	M16						
Selkent perforated sleeve H	IK	18x13	30/200	22x130/200						
$V_{Rk} = V_{Rk,b} = V_{Rk,c,ll} = V_{Rk,c,\perp}$ [kN]; temperature range 50/80°C and 72/120°C										
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions									
2,5 / 2 N/mm²	w/w w/d d/d	0	,5	0,6						
5 / 4 N/mm²	w/w w/d d/d	0	,9	1,2						
8 / 6 N/mm²	w/w w/d d/d	1,	,5	1,5						

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, Characteristic resistance under shear loading	Annex C79







Vertical perforated brick HLz, Porotherm W 44, filled with mineral wool, EN 771-1:2011+A1:2015

Table C81.1: Installation parameters

(Push through installation with Selkent perforated sleeve H K)

Anchor rod			M10	M12	M16						
Selkent perfo	rated sleev	HK	18x13	18x130/200 22x130/200					18x130/200 22x130/200		
Anchor rod w	ith Selkent	perfor	ated sleeve H K								
Max. installation torque	max T _{inst}	[Nm]	5		6						
General insta	llation para	meter	S								
Edge distance	C _{min} = C _{cr}			60)						
55	s _{min} II			80)						
	s _{cr} II	[mm]		25	0						
Spacing —	s _{min} ⊥			80)						
	s _{cr} ⊥			25	0						
Drilling metho	od										
Rotary drilling	with carbide	drill									

Table C81.2: Group factors

Anchor ro	d	M10	M10 M12 M16								
Selkent pe	rforated sleeve H K	18x13	22x130/200								
	α _{g,N} (s _{min} II)		1,	3							
Group factors	α _{g,V} (S _{min} II)		3								
factors	$\alpha_{g,N}$ (Smin \perp) [-]	0,8									
	α _{g,} ∨ (S _{min} ⊥)		1,3								

Injection system Selkent SEL-V+ for masonry

Performance
Vertical perforated brick HLz, Porotherm W 44, filled with mineral wool; dimensions, installation parameters, Group factors

Annex C81



Vertical perforated brick HLz, Porotherm W 44, filled with mineral wool, EN 771-1:2011+A1:2015

Table C82.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Pre-positioned installation)

Anchor rod		M6	M8	М6	M8	-	M8	M10	M8	M10	-	M12	M16	M12	M16	M12	M16
Selkent internal threaded anchor E			•		-	M6 M8	-	-		-	M10 M12 15x85	10	-	7.	•		•
Selkent perforated sleeve H K		12	(50	12	x85	16:	ĸ85		16>	(130	20:	x85		20x	130	20x	200
N _{Rk} = N _{Rk,p} = N _{Rk,p,c} = N _{Rk,p,c} [kN]; temperature range 50/80°C ²⁾																	
Mean compressive strength /	Use																

$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} = N_{Rk,p,c}$	Rk,b,c [KN	ij; tempe	rature r	ange 50/80°C ²	1	
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions	;				
8 / 6 N/mm ²	w/w w/	d 0,75	1,50	1,20	1,50	2,50
8 / 8 14/111111	d/d	0,90	1,50	1,20	1,50	2,50
10 / 8 N/mm²	w/w w/	d 0,90	1,50	1,20	1,50	2,50
10 / 6 N/IIIII	d/d	0,90	2,00	1,50	2,00	3,00
12,5 / 10 N/mm ²	w/w w/	d 0,90	2,00	1,50	2,00	3,00
12,37 10 14/111111	d/d	1,20	2,00	1,50	2,00	3,50

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C82.2: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Push through installation)

Anchor rod			M10	M12	M16
Selkent perforated sleeve H I	K		18x13	0/200	22x130/200
$\mathbf{N}_{Rk} = \mathbf{N}_{Rk,p} = \mathbf{N}_{Rk,b} = \mathbf{N}_{Rk,p,c} = \mathbf{N}_{Rk}$	[kN]	; temperature ran	ge 50/80°C ²⁾		
Mean compressive strength / Min. compressive strength single brick 1)	CC	se n- ons			
8 / 6 N/mm ²	w/w	w/d		1	,5
8 / 6 N/IIIII	d.	/d		1	,5
10 / 8 N/mm ²	w/w	w/d		1	,5
10 / 8 14/111111	d.	/d		2	,0
12,5 / 10 N/mm²	w/w	w/d		2	,0
12,37 10 14/111111	d.	/d		2	,0

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, Porotherm W 44, filled with mineral wool, Characteristic resistance under tension loading	Annex C82

²⁾ For temperature range 72/120°C: N_{Rk} (72/120°C) = 0,83 · N_{Rk} (50/80°C).

²⁾ For temperature range 72/120°C: $N_{Rk (72/120^{\circ}C)} = 0.83 \cdot N_{Rk (50/80^{\circ}C)}$.



Vertical perforated brick HLz, Porotherm W 44, filled with mineral wool, EN 771-1:2011+A1:2015

Table C83.1: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Pre-positioned installation)

Selkent internal threaded M6 M8	_	_	M10 M12			
anchor E 11x85	_	_	15x85	-	-	-
Selkent perforated sleeve H K 12x50 12x85 16x	x85	16x130	20x	85	20x130	20x200

$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_R$	k,c,⊥ [kN];	temperature rang	ge 50/80°C and 7	2/120°C			
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions						
8 / 6 N/mm²	w/w w/d d/d	0,	9	1,2	0,9	1,2	1,2
10 / 8 N/mm²	w/w w/d d/d	0,	9	1,5	0,9	1,5	1,2
12,5 / 10 N/mm²	w/w w/d d/d	1,	2	1,5	1,2	1,5	1,5

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C83.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Push through installation)

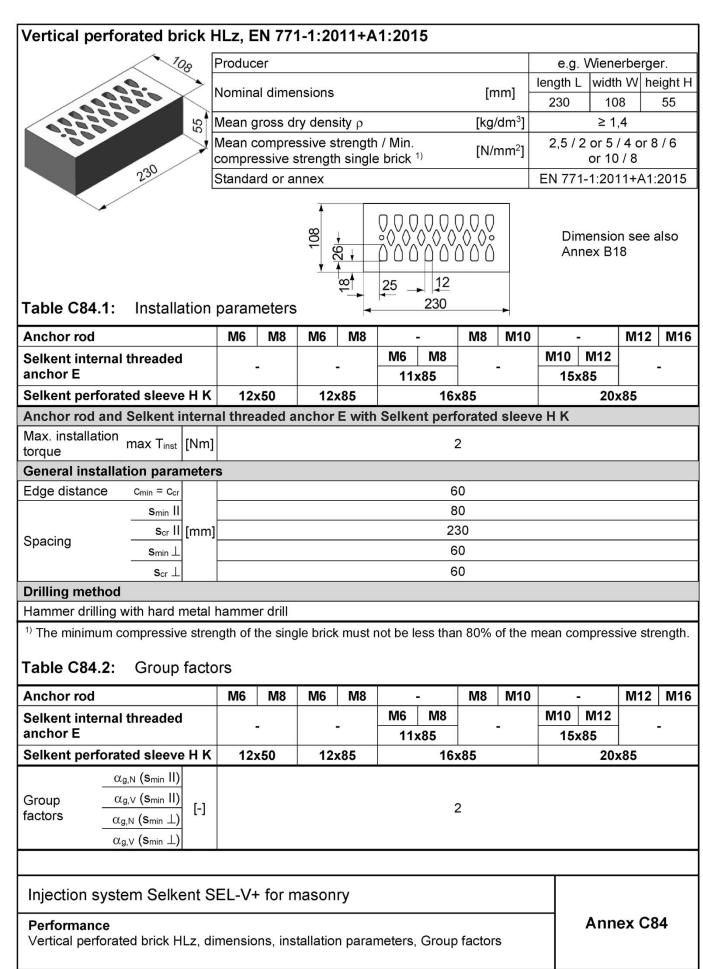
Anchor rod		M10	M12	M16		
Selkent perforated sle	eve H K	18x13	18x130/200 22x130/200			
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_R$	_{k,c,⊥} [kN];	temperature range	50/80°C and 72/12	0°C		
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions					
8 / 6 N/mm ²	w/w w/d d/d	1,	2	1,2		
10 / 8 N/mm²	w/w w/d d/d	1,	5	1,5		
12,5 / 10 N/mm²	w/w w/d d/d	1,	5	1,5		

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, Porotherm W 44, filled with mineral wool; Characteristic resistance under shear loading	Annex C83







Vertical perforated brick HLz, EN 771-1:2011+A1:2015

Table C85.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading ¹⁾

Anchor rod	M6	M8	M6	M8	100	-	M8	M10	0	-	M12	M16
Selkent internal threaded anchor E			2	-	M6	M8 x85		-	M10 15	M12 <85	9	
Selkent perforated sleeve H K	12	x50	12	x85		16:	x85			20:	(85	

			1.—								
$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} =$	$I_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} = N_{Rk,b,c}$ [kN]; temperature range 50/80°C ³⁾										
Mean compressive strength / Min. compressive strength single brick ²⁾	Use con- ditions										
2,5 / 2 N/mm²	w/w w/d	0,30	0,90	0,75	0,50						
	d/d	0,30	0,90	0,90	0,60						
5 / 4 N/mm²	w/w w/d	0,60	1,50	1,50	0,90						
	d/d	0,75	2,00	1,50	1,20						
8 / 6 N/mm²	w/w w/d	0,90	2.50	2,50	1,50						
	d/d	0,90	3,00	2,50	1,50						
10 / 8 N/mm²	w/w w/d	1.20	3.50	3.00	2.00						
	d/d	1,50	4,00	3,50	2,50						

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

Table C85.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading

Anchor rod	М6	M8	M6	M8		-	M8	M10	1.0	-	M12	M16
Selkent internal threaded anchor E		_			M6	M8		_	M10	M12		
		- -		112	11x85		-	15x85		2.	-3	
Selkent perforated sleeve H K	12:	x50	12	(85		162	6x85			20>	(85	

1000			L.						
V _{Rk} = V _{Rk,b} = V _{Rk,c,II} = V _{Rk,c,⊥} [kN]; temperature range 50/80°C and 72/120°C									
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions								
2,5 / 2 N/mm ²	w/w w/d d/d	0,6	0,4						
5 / 4 N/mm²	w/w w/d d/d	1,2	0,9						
8 / 6 N/mm²	w/w w/d d/d	1,5	1,2						
10 / 8 N/mm²	w/w w/d d/d	2,5	1,5						

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength. Factor for job site tests and displacements see annex C123.

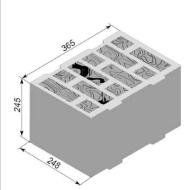
Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, Characteristic resistance under tension and shear loading	Annex C85

²⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

³⁾ For temperature range 72/120°C: N_{Rk} (72/120°C) = 0,83 · N_{Rk} (50/80°C).



Vertical perforated brick HLz filled with mineral wool, EN 771-1:2011+A1:2015



Producer	e.g. Wienerberger			
Nominal dimensions	[mm]	length L	height H	
Norminal differsions	[mm]	≥ 365	≥ 248	≥ 245
Mean gross dry density ρ	[kg/dm ³]		0,6	
Mean compressive strength / Min. compressive strength single brick 1)	[N/mm ²]	10 / 8		
Standard or annex		EN 771-1:2011+A1:2015		

128 97 04 7,5 8,0 9

Dimension see also Annex B19

Table C86.1: Installation parameters

(Pre-positioned installation with Selkent perforated sleeve H K)

Anchor rod	M6	M8	33	-	M8	M10	M8	M10			M12	M16	M12	M16
Selkent internal threaded anchor E	,	-	M6	M8 <85		-		-	M10 15x		,	•	,	•
Selkent perforated sleeve H K	12	x85		162	x85		16x	130		20	x85		20x	130

Anchor rod and Selkent internal threaded anchor E with Selkent perforated sleeve H K

Max.			
installation	max T _{inst} [Nm]	2	4
torque			

General installation parameters

die in partameter e	
C _{min} = C _{cr}	100
s _{min} II s _{cr} II [mm]	250
s _{min} ⊥ s _{cr} ⊥	245
	C _{min} = C _{cr} S _{min} II S _{cr} II [mm] S _{min} ⊥

Drilling method

Hammer drilling with hard metal hammer drill

Table C86.2: Group factors

Anchor r	M6	M8	M8	M10	M8	M10	M12	M16	M12	M16	
Selkent p	Ikent perforated sleeve H K		k 85	162	x85	16x	130	20:	x85	20x	130
Group factors	$\frac{\alpha_{g,N} (s_{min} II) =}{\alpha_{g,V} (s_{min} II)}$ $\frac{\alpha_{g,N} (s_{min} \bot) =}{\alpha_{g,V} (s_{min} \bot)}$ [-]					;	2				

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz filled with mineral wool, dimensions, installation parameters, Group factors	Annex C86

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.



Table C87.1: Installation parameters

(Push through installation with Selkent perforated sleeve H K)

	·				·				
Anchor rod			M10	M16					
Selkent perforat	perforated sleeve H K 18x130/200 22x130/200								
Anchor rod with	n Selkent	perforate	d sleeve H K						
Max. installation torque	max T _{inst}	[Nm]		4					
General installa	tion para	meters							
Edge distance	c _{min} = c _{cr}		100						
Chasina	Smin II	[mm]	250						
Spacing	S _{min} ⊥		245						
Drilling method									
Hammer drilling	with hard i	netal han	nmer drill						

Table C87.2: Group factors

Anchor roo	d	M10	M12	M16				
Selkent pe	rforated sleeve H K	18x13	30/200	22x130/200				
Group factors	$\frac{\alpha_{g,N} (s_{min} I)}{\alpha_{g,V} (s_{min} I)}$ $\frac{\alpha_{g,N} (s_{min} \bot)}{\alpha_{g,V} (s_{min} \bot)}$ [-]		:	2				

Injection system Selkent SEL-V+ for masonry

Performance
Vertical perforated brick HLz filled with mineral wool, dimensions, installation parameters, Group factors

Annex C87



Vertical perforated brick HLz filled with mineral wool, EN 771-1:2011+A1:2015

Table C88.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Pre-positioned installation)

Anchor rod	M6	M8		•	M8	M10	M8	M10		•	M12 M	16	M12	M16	M12	M16
Selkent internal threaded anchor E		•	M6 11>	M8 85		-	9	-	peace source	M12 <85	-			•		-
Selkent perforated sleeve H K	12)	(85		16x	85		16x	130		20x	85		20x	130	20x	200

$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} = N_{Rk,b,c}$ [kN]; temperature range 50/80°C ²⁾								
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions							
10 / 8 N/mm ²	w/w	2,0	1,5	2,5	2,0	2,0	3,0	
10 / 0 14/111111	d/d	2,0	2,0	3,0	2,0	2,0	3,0	

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C88.2: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Push through installation)

Anchor rod		M10	M12	M16
Selkent perforated sleeve H	18x13	30/200	22x130/200	
$\mathbf{N}_{Rk} = \mathbf{N}_{Rk,p} = \mathbf{N}_{Rk,b} = \mathbf{N}_{Rk,p,c} = \mathbf{N}_{Rk,p,c}$	N _{Rk,b,c} [kN	l]; temperature ra	nge 50/80°C ²⁾	
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions			
10 / 8 N/mm²	w/w d/d		,5 ,0	2.0 2,0

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz filled with mineral wool, Characteristic resistance under tension loading	Annex C88

²⁾ For temperature range 72/120°C no performance assessed.

²⁾ For temperature range 72/120°C no performance assessed.



Vertical perforated brick HLz filled with mineral wool, EN 771-1:2011+A1:2015

Table C89.1: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Pre-positioned installation)

Anchor rod	M6	M8			M8	M10	M8	M10		•	M12	M16	M12	M16	M12	M16
Selkent internal threaded anchor E		•	M6	M8 85		-		-	M10	M12						•
Selkent perforated sleeve H K	12	(85		16>	(85		16x	130		20x	85		20x	130	20x	200

$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$ [I	$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$ [kN]; temperature range 50/80°C ²⁾											
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions											
10 / 8 N/mm ²	w/w	2,5	3,0	3,0	3,0	1,5	1,5	1,5	1,5			
10 / 0 14/111111	d/d	2,5	3,0	3,0	3,0	1,5	1,5	1,5	1,5			

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C89.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Push through installation)

Anchor rod		M10	M12	M16				
Selkent perforated sleeve H	IK	18x13	30/200	22x130/200				
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$ [1	kN]; temp	nperature range 50/80°C ²⁾						
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions							
10 / 8 N/mm²	w/w d/d		,0 ,0	1.5 1,5				

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

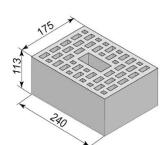
Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz filled with mineral wool, Characteristic resistance under shear loading	Annex C89

²⁾ For temperature range 72/120°C no performance assessed.

²⁾ For temperature range 72/120°C no performance assessed.



Vertical perforated brick HLz, EN 771-1:2011+A1:2015



Producer	e.g. Wienerberger				
Nominal dimensions	[mm]	length L	width W	height H	
Norminal difficults	[mm]	≥ 240	≥ 175	≥ 113	
Mean gross dry density ρ	[kg/dm ³]	0,9			
Mean compressive strength / Min. compressive strength single brick 1)	[N/mm ²]	12,5 / 10			
Standard or annex		EN 771	-1:2011+	1:2015	

Dimension see also Annex B19

Table C90.1: Installation parameters

(Pre-positioned installation with Selkent perforated sleeve H K)

M6	M8	10	-	M8	M10	M8	M10		-	M12	M16	M12	M16
	-	M6	M8		-		-	20020-000	Sexumer 1		-0		-
12	, O E	112		, O E		16	120	15)		V 0 E		20.4	120
		-	- M6	- M6 M8 11x85	_ M6 M8 11x85	M6 M8 11x85	M6 M8	M6	M6 M8	M6 M8	M6 M8	M6 M8	M6 M8

Anchor rod and Selkent internal threaded anchor E with Selkent perforated sleeve H K

Max.				
installation	max T _{inst}	[Nm]	2	4
torque				

General installation parameters

Edge distance	C _{min} = C _{cr}	100
Sansian	s _{min} II s _{cr} II [mm]	240
Spacing	Smin ⊥	115

Drilling method

Hammer drilling with hard metal hammer drill

Table C90.2: Group factors

Anchor r	od	M6	M8	M8	M10	M8	M10	M12	M16	M12	M16
Selkent p	perforated sleeve H K	12:	x85	16x85 16x130 20x85 20x		130					
Group factors	$\frac{\alpha_{g,N} (s_{min} II) = \alpha_{g,V} (s_{min} II)}{\alpha_{g,N} (s_{min} \perp) = \alpha_{g,V} (s_{min} \perp)} [-]$:	2				

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, dimensions, installation parameters, Group factors	Annex C90

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.



Table C91.1: Installation parameters

(Push through installation with Selkent perforated sleeve H K)

					·				
Anchor rod			M10 M12 M16						
Selkent perforat	ted sleev	HK	18x130/200 22x130/200						
Anchor rod with Selkent perforated sleeve H K									
Max. installation torque	max T _{inst}	[Nm]	4						
General installa	tion para	meters							
Edge distance	c _{min} = c _{cr}			100					
Chasina	Smin II	[mm]							
Spacing	s _{min} ⊥			115					
Drilling method		•							
Hammer drilling	with hard	netal han	nmer drill						

Table C91.2: Group factors

Anchor roo	d	M10	M12	M16			
Selkent perforated sleeve H K		18x13	30/200	22x130/200			
Group factors	$\frac{\alpha_{g,N} (s_{min} I)}{\alpha_{g,V} (s_{min} I)}$ $\frac{\alpha_{g,N} (s_{min} \bot)}{\alpha_{g,V} (s_{min} \bot)}$ [-]		:	2			

Injection system Selkent SEL-V+ for masonry

Performance
Vertical perforated brick HLz, dimensions, installation parameters, Group factors

Annex C91



Vertical perforated brick HLz, EN 771-1:2011+A1:2015

Table C92.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Pre-positioned installation)

Anchor rod	M6	M8	-	M8	M10	M8	M10	15	-	M12	M16	M12	M16
Selkent internal threaded anchor E		-	M6 M		-			(Account to the Control of the Contr	M12 x85		•	-	
Selkent perforated sleeve H K	12	x85		6x85		16x	130		20	x85		20x	130

$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c}$	$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} = N_{Rk,b,c}$ [kN]; temperature range 50/80°C ²⁾										
Mean compressive strength/ Min. compressive strength single brick 1)	Use con- ditions										
12,5 / 10 N/mm²	w/w	3,5	4,0	4,5	4,5	4,0					
12,3 / 10 14/11111	d/d	4,0	4,5	5,0	5,0	4,0					

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C92.2: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Push through installation)

Anchor rod		M10	M12	M16					
Selkent perforated sleeve	HK	18x	130/200	22x130/200					
$N_{Rk} = N_{Rk,p} = N_{Rk,b,c} = N_{Rk,p,c} = N_{Rk,b,c}$ [kN]; temperature range 50/80°C ²⁾									
Mean compressive strength/ Min. compressive strength single brick 1)	Use con- ditions								
12,5 / 10 N/mm²	w/w d/d		4,5 5,0	4,0 4,0					

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Vertical perforated brick HLz, Characteristic resistance under tension loading	Annex C92

²⁾ For temperature range 72/120°C no performance assessed.

²⁾ For temperature range 72/120°C no performance assessed.



Vertical perforated brick HLz, EN 771-1:2011+A1:2015

Table C93.1: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Pre-positioned installation)

Anchor rod	M6	M8	-	•11	M8	M10	M8	M10	U	-	M12	M16	M12	M16
Selkent internal threaded anchor E		•	M6 11x	M8 85				-		M12 x85		•	-	
Selkent perforated sleeve H K	12	k 85		16	x85		16x	130		20	x85		20x	130

$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,.}$	V _{Rk} = V _{Rk,b} = V _{Rk,c,II} = V _{Rk,c,⊥} [kN]; temperature range 50/80°C ²⁾														
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions														
12,5 / 10 N/mm²	w/w	4,0	5,5	4,0	5,5	5,5	7,0	5,5	7,0	7,0	6,0	6,0	8,0	6,0	8,0
12,57 10 14/11111	d/d	4,0	5,5	4,0	5,5	5,5	7,0	5,5	7,0	7,0	6,0	6,0	8,0	6,0	8,0

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C93.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Push through installation)

Anchor rod		M10	M12	M16				
Selkent perforated sleev	e H K	18x1	130/200	22x130/200				
$V_{Rk} = V_{Rk,b} = V_{Rk,c,ll} = V_{Rk,c,\perp}$ [kN]; temperature range 50/80°C ²⁾								
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions							
12,5 / 10 N/mm ²	w/w	7,0	6,0	8,0				
12,5 / 10 N/IIIII	d/d	7,0	6,0	8,0				

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123

Injection system Selkent SEL-V+ for masonry

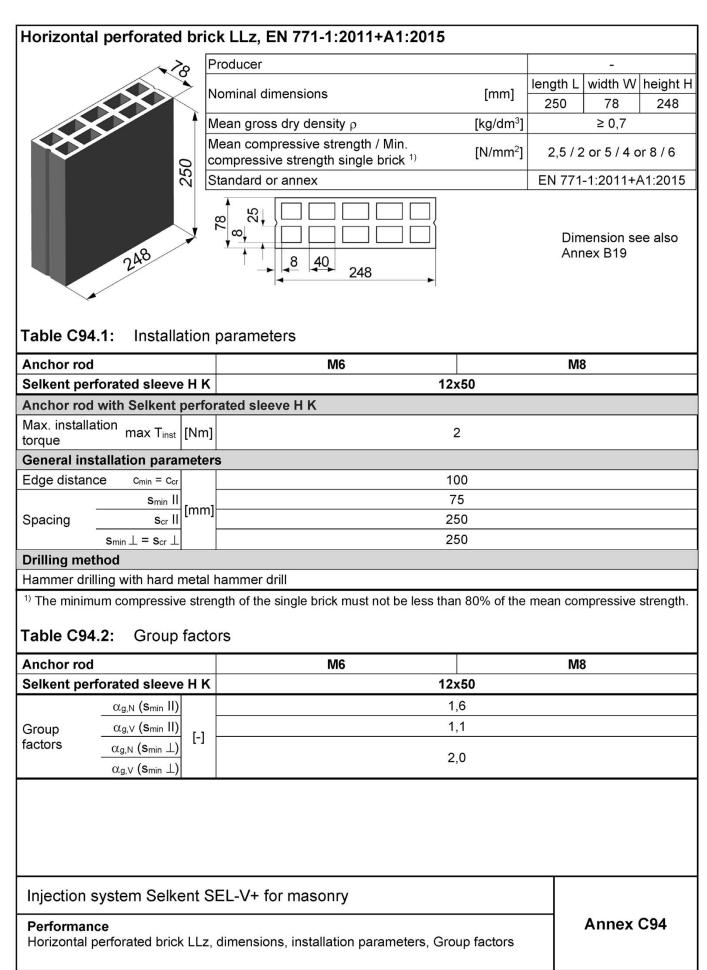
Performance
Vertical perforated brick HLz, Characteristic resistance under shear loading

Annex C93

²⁾ For temperature range 72/120°C no performance assessed.

²⁾ For temperature range 72/120°C no performance assessed.







Horizontal perforated brick LLz, EN 771-1:2011+A1:2015

Table C95.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading

Anchor rod		М6	M8					
Selkent perforated sleeve H	K		12x50					
$N_{Rk} = N_{Rk,p} = N_{Rk,b,c} = N_{Rk,b,c}$ [kN]; temperature range 50/80°C ²⁾								
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions							
2,5 / 2 N/mm ²	w/w w/c		0,5					
2,5 / 2 14/111111	d/d		0,6					
5 / 4 N/mm ²	w/w w/c		0,9					
574 N/IIIII	d/d		1,2					
8 / 6 N/mm ²	w/w w/c		1,5					
6 / 6 N/MM-	d/d		1.5					

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength...

Table C95.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading

Anchor rod		M6	M8			
Selkent perforated sleeve	HK	12x50				
V _{Rk} = V _{Rk,b} = V _{Rk,c,II} = V _{Rk,c,⊥} [kN]; temperature range 50/80°C and 72/120°C						
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions					
2,5 / 2 N/mm²	w/w w/d d/d	0,	,5			
5 / 4 N/mm²	w/w w/d d/d	0,	.9			
8 / 6 N/mm²	w/w w/d d/d	1,	,5			

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

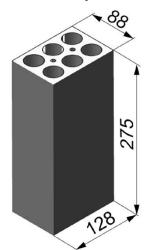
Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Horizontal perforated brick LLz, Characteristic resistance under tension and shear loading	Annex C95

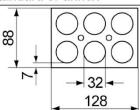
²⁾ For temperature range 72/120°C: N_{Rk} (72/120°C) = 0,83 · N_{Rk} (50/80°C).



Horizontal perforated brick LLz, EN 771-1:2011+A1:2015



Draducar	e.g. Cermanica Farreny S.A.				
Producer	e.g. Cermanica Farreny S.A.				
Nominal dimensions	[mm]	length L	width W	height H	
Norminal differisions	[IIIIII]	275	88	128	
Mean gross dry density ρ	[kg/dm³]		≥ 0,8		
Mean compressive strength / Min. compressive strength single brick 1)	[N/mm ²]		2,5 / 2		
Standard or annex		EN 771	-1:2011+	1:2015	



Dimension see also Annex B19

Table C96.1: Installation parameters

Anchor rod			M6 M8					
Selkent perforat	ed sleeve	ΗK	12x50					
Anchor rod with Selkent perforated sleeve H K								
Max. installation torque	maxT _{inst}	[Nm]	2	2				
General installat	ion parai	meter	S					
Edge distance	$c_{min} = c_{cr}$		6	0				
	s _{min} II		7	5				
Cassina	s _{cr} II	[mm]	27	75				
Spacing	$s_{min} \perp$		7	5				
	s _{cr} ⊥		13	30				

Drilling method

Hammer drilling with hard metal hammer drill

Table C96.2: Group factors

Anchor ro	od	M6	M8				
Selkent pe	erforated sleeve H K	12x50					
	α _{g,N} (s _{min} II)	1	,3				
Group factors	α _{g,V} (s _{min} II)	1	,5				
factors	$\alpha_{g,N}$ (Smin \perp) [-]	1	,3				
	α _{g,V} (s _{min} ⊥)	1	,5				

Injection system Selkent SEL-V+ for masonry	
Performance Horizontal perforated brick LLz, dimensions, installation parameters, Group factors	Annex C96

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.



Horizontal perforated brick LLz, EN 771-1:2011+A1:2015

Table C97.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading

Anchor rod		M6 M8					
Selkent perforated sleeve H	K	12x50					
$\mathbf{N}_{Rk} = \mathbf{N}_{Rk,p} = \mathbf{N}_{Rk,b} = \mathbf{N}_{Rk,p,c} = \mathbf{N}_{Rk,p,c}$	Rk,b,c [kN]; temperature range 50/80°C ²⁾					
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions						
2,5 / 2 N/mm²	w/w w/d d/d		5				

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C97.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading

Anchor rod		М6	M8					
Selkent perforated sleeve H	K	12x50						
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$ [k	Rk,b = V _{Rk,c,II} = V _{Rk,c,⊥} [kN]; temperature range 50/80°C and 72/120°C							
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions							
2,5 / 2 N/mm²	w/w w/d d/d		2					

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Horizontal perforated brick LLz, Characteristic resistance under tension and shear loading	Annex C97

²⁾ For temperature range 72/120°C: $N_{Rk (72/120^{\circ}C)} = 0.83 \cdot N_{Rk (50/80^{\circ}C)}$.



Light-weight concrete h	oll	low blo	ck Hbl	FN 771	I-3:201	1+Δ1:2	015					
	_	roducer			0.201							
240							[mm]	length L	width W	height H		
	N	ominal d	imension	S	362	240	240					
	M	lean gros	s dry dei	nsity ρ		[1	kg/dm³]	'	≥ 1,0			
240				strength th single		[N/mm ²]	2,5	i / 2 or 5 /	4		
	S	tandard o	or annex					EN 771-	3:2011+	A1:2015		
Table C98.1: Installatio	n į	oarame	ters	240	76 362				ension se ex B19	e also		
(Pre-posit	tio	ned inst	tallation	with Se	elkent pe	erforate	d sleev	re H K)				
Anchor rod		M6 M8	M6 M8	-	M8 M10	M8 M10	-	M12 M16	M12 M16	M12 M16		
Selkent internal threaded anchor E		-	-	M6 M8		-	M10 M1 15x85		-	-		
Selkent perforated sleeve H	ĸ	12x50	12x85	16>	(85	16x130)x85	20x130	20x200		
Anchor rod and Selkent inte	rna	al thread	ed anch	or E with	Selkent	perforat	ed sleev	ve H K	·			
Max. installation max T _{inst} [Nr	m]					2						
General installation paramet	ers	3				No. of the						
Edge distance c _{min} = c _{cr}	-					60						
Smin II [mi	m]					100 362						
Spacing $s_{cr} II$ $s_{min} \perp = s_{cr} \perp$	ŀ					240						
Drilling method						240						
Hammer drilling with hard meta	al h	nammer o	drill									
1) The minimum compressive strable C98.2: Group fac			single br	ick must r	ot be less	s than 80º	% of the	mean com	pressive	strength.		
Anchor rod		M6 M8	M6 M8	-	M8 M10	M8 M10			M12 M16	M12 M16		
Selkent internal threaded anchor E		#	-	M6 M8 11x85		-	M10 M1 15x85	-	-	=		
Selkent perforated sleeve H	K	12x50	12x85	16)	(85	16x130	20)x85	20x130	20x200		
_ α _{g,N} (s _{min} II)						1,2						
Group $\alpha_{g,V}$ (s_{min} II)	1					1,1						
factors $\alpha_{g,N} (s_{min} \perp)$ $\alpha_{g,V} (s_{min} \perp)$						2,0						
Injection system Selkent SEL-V+ for masonry												
Performance Light-weight concrete hollow factors	Light-weight concrete hollow block Hbl, dimensions, installation parameters, Group											



Light-weight concrete hollow block Hbl, EN 771-3:2011+A1:2015

 Table C99.1:
 Installation parameters

(Push through installation with Selkent perforated sleeve H K)

Anchor rod		M10	M12	M16					
Selkent perforated sleev	e H K	18x13	22x130/200						
Anchor rod with Selkent perforated sleeve H K									
$\begin{array}{ll} \text{Max. installation} & \text{max T}_{\text{inst}} \\ \text{torque} & \end{array}$	[Nm]	2							
General installation para	meter	S							
Edge distance c _{min} = c _{cr}			6	0					
S _{min} I	[mama]	100							
Spacing s _{cr} I	[mm]	362							
$s_{min} \perp = s_{cr} \perp$		240							

Drilling method

Hammer drilling with hard metal hammer drill

Table C99.2: Group factors

Anchor roo	k	M10 M12 M16						
Selkent pe	rforated sleeve H K	18x130/200 22x130/200						
	α _{g,N} (s _{min} II)	1,2						
Group factors	α _{g,V} (s _{min} II)	1,1						
factors	$\frac{\alpha_{g,N} (S_{min} \perp)}{\alpha_{g,N} (S_{min} \perp)} [-]$		2,0					

Injection system Selkent SEL-V+ for masonry

Performance
Light-weight concrete hollow block Hbl, dimensions, installation parameters, Group factors

Annex C99



Light-weight concrete hollow block Hbl, EN 771-3:2011+A1:2015

Table C100.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Pre-positioned installation)

Anchor rod	M6	M8	М6	M8	-		M8	M10	M8	M10	-	1	M12	M16	M12	M16	M12 M16
Selkent internal threaded anchor E		•		-	M6 11x	5000000		-		-	M10 15x		7-	•	-		•
Selkent perforated sleeve H K	12>	(50	12	x85		16>	(85		16>	(130		20>	(85		20x	130	20x200

$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} = N_{Rk,b,c}$ [kN]; temperature range 50/80°C ²⁾										
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions									
2,5 / 2 N/mm ²	w/w w/d	1,2	1,5	2,5						
2,5 / 2 N/IIIII	d/d	1,2	1,5	2,5						
F / 4 N/2	w/w w/d	2,0	3,0	5,0						
5 / 4 N/mm²	d/d	2,5	3,0	5,5						

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C100.2: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Push through installation)

Anchor rod			M10	M12	M16		
Selkent perforated sleeve H	K		18x13	0/200	22x130/200		
$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} = N_{Rk,p,c}$							
Mean compressive strength / Min. compressive strength single brick 1)	se on- ons						
2,5 / 2 N/mm ²		w/d		1	,5		
2,5 / 2 N/IIIII	d	/d	1,5				
5 / 4 N/mm²		w/d		3	,0		
		/d		3	,0		

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Light-weight concrete hollow block Hbl, Characteristic resistance under tension loading	Annex C100

²⁾ For temperature range 72/120°C: $N_{Rk (72/120^{\circ}C)} = 0.83 \cdot N_{Rk (50/80^{\circ}C)}$.

²⁾ For temperature range 72/120°C: N_{Rk} (72/120°C) = 0,83 · N_{Rk} (50/80°C).



Light-weight concrete hollow block Hbl, EN 771-3:2011+A1:2015

Table C101.1: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Pre-positioned installation)

Anchor rod	M6	M8	М6	M8	-	N	18 M10	M8	M10	-	93	M12	M16	M12	M16	M12 M16
Selkent internal threaded anchor E		•		-	M6 N	24000	-		-	M10 15x			•	-	•	-
Selkent perforated sleeve H K	12	(50	12	x85	1	6x8	5	162	c130		20>	(85		20x	130	20x200

V _{Rk} = V _{Rk,b} = V _{Rk,c,II} = V _{Rk,c,⊥} [kN]; temperature range 50/80°C and 72/120°C											
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions										
2,5 / 2 N/mm²	w/w w/d d/d				0,9						
5 / 4 N/mm²	w/w w/d d/d				2,0						

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C101.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Push through installation)

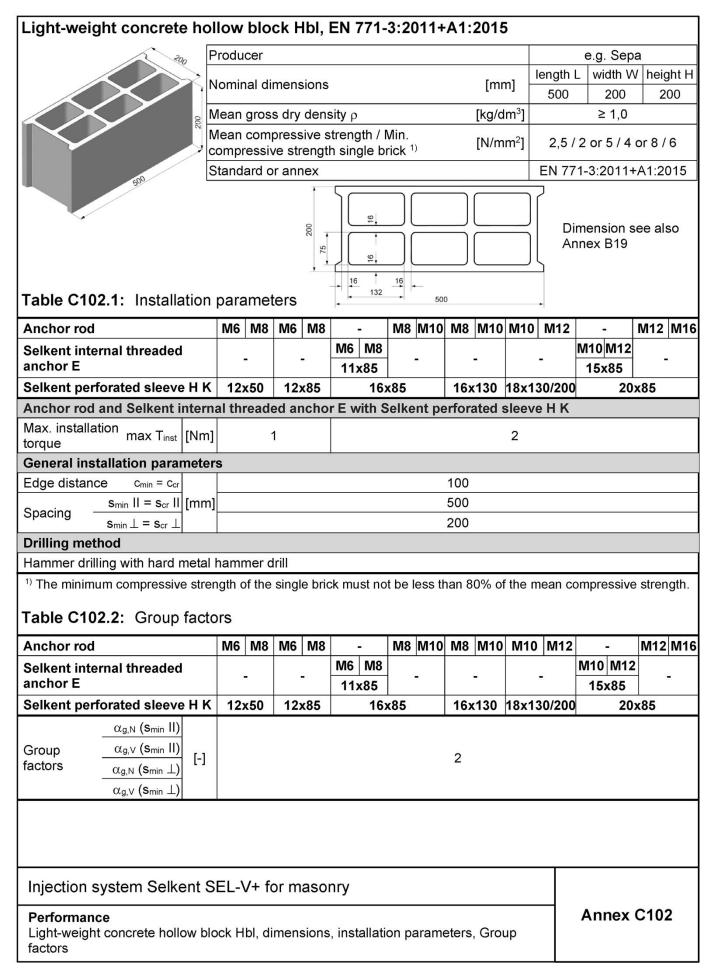
Anchor rod		M10	M12	M16			
Selkent perforated sleeve H I	K	18x13	30/200	22x130/200			
V _{Rk} = V _{Rk,b} = V _{Rk,c,II} = V _{Rk,c,⊥} [kN]; temperature range 50/80°C and 72/120°C							
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions						
2,5 / 2 N/mm²	w/w w/d d/d		0,	9			
5 / 4 N/mm²	w/w w/d d/d		2,	0			

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Light-weight concrete hollow block Hbl, Characteristic resistance under shear loading	Annex C101







Light-weight concrete hollow block Hbl, EN 771-3:2011+A1:2015

Table C103.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading

Anchor rod	M6	M8	M6	M8		-	M8	M10	M8	M10	M10	M12	-	M12 M1
Selkent internal threaded	8			223	M6	M8				_			M10 M12	8220
anchor E	-		- -		112	k 85			-		-		15x85	-
Perforated sleeve Selkent H K	12	x50	12:	x85		162	k 85		16x	130	18x13	0/200	20:	x85

$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} = N_{Rk,b,c}$ [kN]; temperature range 50/80°C ²⁾									
Mean compressive strength / Min. compressive strength single brick 1)	use con- ditions								
2,5 / 2 N/mm ²	w/w w/d		0.4						
2,5 / 2 14/111111	d/d		0,5						
5 / 4 N/mm²	w/w w/d		0,9						
5 / 4 N/IIIIII	d/d		0,9						
8 / 6 N/mm ²	w/w w/d		1,2						
6 / 6 N/MM-	d/d		1,5						

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C103.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading

Anchor rod	M6	M8	М6	M8		-	M8	M10	M8	M10	M10	M12	-	M12 M16
Selkent internal threaded anchor E		-		-	M6	M8 x85				-			M10 M12 15x85	-
Selkent perforated sleeve H K	12	x50	12:	k 85		16:	x85		16x	130	18x13	0/200	20:	x85

$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,}$	/ _{Rk} = V _{Rk,b} = V _{Rk,c,II} = V _{Rk,c,⊥} [kN]; temperature range 50/80°C and 72/120°C										
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions										
2,5 / 2 N/mm²	w/w w/d d/d	0,9									
5 / 4 N/mm²	w/w w/d d/d	1,5									
8 / 6 N/mm²	w/w w/d d/d	2,5									

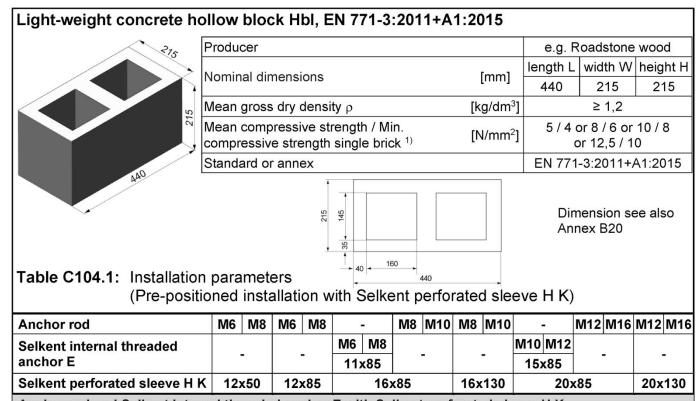
¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Light-weight concrete hollow block Hbl, Characteristic resistance under tension and shear loading	Annex C103

²⁾ For temperature range 72/120°C: $N_{Rk (72/120^{\circ}C)} = 0.83 \cdot N_{Rk (50/80^{\circ}C)}$.





-	Anchor rod and	Selkent in	iternal threa	aded anchor	E with S	Selkent perf	orated s	sleeve H M	
									_

Max. installation	max T _{inst}	[NIm]	2
torque	IIIax I inst		

General installation parameters

Contrai inotana	tion parameter	<u> </u>
Edge distance	C _{min} = C _{cr}	110
0	s _{min} II	100
	s _{cr} II [mm]	440
Spacing	S _{min} ⊥	100
	s _{cr} ⊥	215

Drilling method

Hammer drilling with hard metal hammer drill

Table C104.2: Group factors

Anchor roo	M6	M8	M6	M8	-		M8	M10	M8 M10		-		M12	M16	M12	M16	
Selkent internal threaded anchor E			_			M6	M8	0	_		_	M10	M10 M12			_	
		_				112	k 85						x85			_	
Selkent pe	12:	x50	12:	c 85	16x85				16x	130	20x85			20x	20x130		
	α _{g,N} (s _{min} II)	1,4															
Group	αg,ν (s _{min} II)								2	,0							
factors									1	,4							
	α _{g,} ∨ (s _{min} ⊥)								1	,2							

Injection system Selkent SEL-V+ for masonry	
Performance Light-weight concrete hollow block Hbl, dimensions, installation parameters, Group factors	Annex C104

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.



Light-weight concrete hollow block Hbl, EN 771-3:2011+A1:2015

Table C105.1: Installation parameters

(Push through installation with Selkent perforated sleeve H K)

Anchor rod			M10	M12	M16								
Selkent perfo	rated sleeve	HK	18x13	0/200	22x130/200								
Anchor rod with Selkent perforated sleeve H K													
Max. installation torque	max T _{inst}	[Nm]	2										
General installation parameters													
Edge distance	$c_{min} = c_{cr}$		110										
	s _{min} II		100										
Cassina —	s _{cr} II	[mm]		44	40								
Spacing —	$s_{min} \perp$		100										
	s _{cr} ⊥			2	15								
Drilling metho	od												

Table C105.2: Group factors

Hammer drilling with hard metal hammer drill

Anchor rod	l	M10	M12	M16								
Selkent per	rforated sleeve H K	18x130/200 22x130/200										
	αg,N (Smin II)		1,4									
Group	α _{g,V} (s _{min} II)	2,0										
Group factors	$\alpha_{g,N}$ ($s_{min} \perp$) [-]	1,4										
	α _{g,} ∨ (S _{min} ⊥)		1,2									

Injection system Selkent SEL-V+ for masonry	
Performance Light-weight concrete hollow block Hbl, dimensions, installation parameters, Group factors	Annex C105

12,5 / 10 N/mm²



Light-weight concrete hollow block Hbl, EN 771-3:2011+A1:2015

Table C106.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Pre-positioned installation)

ū		3 ()															
Anchor rod		M6	M8	M6	M8		-		M10	M8	M10	M10	M12	-	M12 M1		
Selkent internal threaded						M6	M8							M10 M12	Sept.		
anchor E			-		-	11	x85		-		-		-	15x85	-		
Perforated sleeve Selkent H K			x50	12	x85		16:	x85		16x130 1		18x13	30/200	20x85			
$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} = N_{Rk,b,c}$ [kN]; temperature range 50/80°C ²																	
Mean compressive	Use																
strength / Min. comp.	con-																
strength single blick 7	ditions																
5 / 4 N/mm²	w/w w/c	1	(9,0		1,2							2,0				
37414/111111	d/d		1	1,2			1,5						2,0				
8 / 6 N/mm²	w/w w/d	1	1	1,5			2,0						3,0				
0 / 0 N/IIIII-	d/d		1,5				2,0						3,0				
10 / 8 N/mm²	w/w w/d	1	2,0			2.5							3.5				
IU / O IN/ITIITI	d/d		2	2,0			3,0						4,0				

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

3.0

3,5

4.5

5,0

w/w w/d

d/d

Table C106.2: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Push through installation)

2.5

3,0

Anchor rod		M10	M12	M16			
Selkent perforated sleev	e H K	18x	130/200	22x130/200			
$\mathbf{N}_{Rk} = \mathbf{N}_{Rk,p} = \mathbf{N}_{Rk,b} = \mathbf{N}_{Rk,p,o}$	= N _{Rk,b,c}	[kN]; temperatur	e range 50/80°C ²⁾				
Mean compressive strength / Min. comp. strength single brick 1)	Use con- ditions						
5 / 4 N/mm²	w/w w/d d/d		1,2 1,5	2.0 2,0			
8 / 6 N/mm²	w/w w/d d/d		2,0	3,0 3,0			
10 / 8 N/mm²	w/w w/d d/d		2.5 3,0	3,5 4,0			
12,5 / 10 N/mm²	w/w w/d d/d		3.0 3,5	4.5 5,0			

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Light-weight concrete hollow block Hbl, Characteristic resistance under tension loading	Annex C106

²⁾ For temperature range 72/120°C: N_{Rk} (72/120°C) = 0,83 · N_{Rk} (50/80°C).

²⁾ For temperature range 72/120°C: $N_{Rk (72/120^{\circ}C)} = 0.83 \cdot N_{Rk (50/80^{\circ}C)}$.



Light-weight concrete hollow block Hbl, EN 771-3:2011+A1:2015

Table C107.1: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Pre-positioned installation)

Anchor rod	M6 M8		M6	M8		-	M8	M10	M8	M10	-		M12	M16	M12	M16
Selkent internal threaded						M8			100		M10	M12	(de)			_
anchor E	-		-		11x85				-		15	x85	•			
Selkent perforated sleeve H K	12>	12x50 12x85		16x85			16x130 20			x85		20x	130			

$V_{Rk} = V_{Rk b} = V_{Rk c l } = V_{Rk c l }$	V _{Rk} = V _{Rk,b} = V _{Rk,c,II} = V _{Rk,c,⊥} [kN]; temperature range 50/80°C and 72/120°C										
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions										
5 / 4 N/mm²	w/w w/d d/d	0,75	1,20	0,75	1,20	0,75	1,20				
8 / 6 N/mm²	w/w w/d d/d	1,20	2,00	1,20	2,00	1,20	2,00				
10 / 8 N/mm²	w/w w/d d/d	1,50	2,50	1,50	2,50	1,50	2,50				
12,5 / 10 N/mm²	w/w w/d d/d	2,00	3,00	2,00	3,00	2,00	3,00				

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C107.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Push through installation)

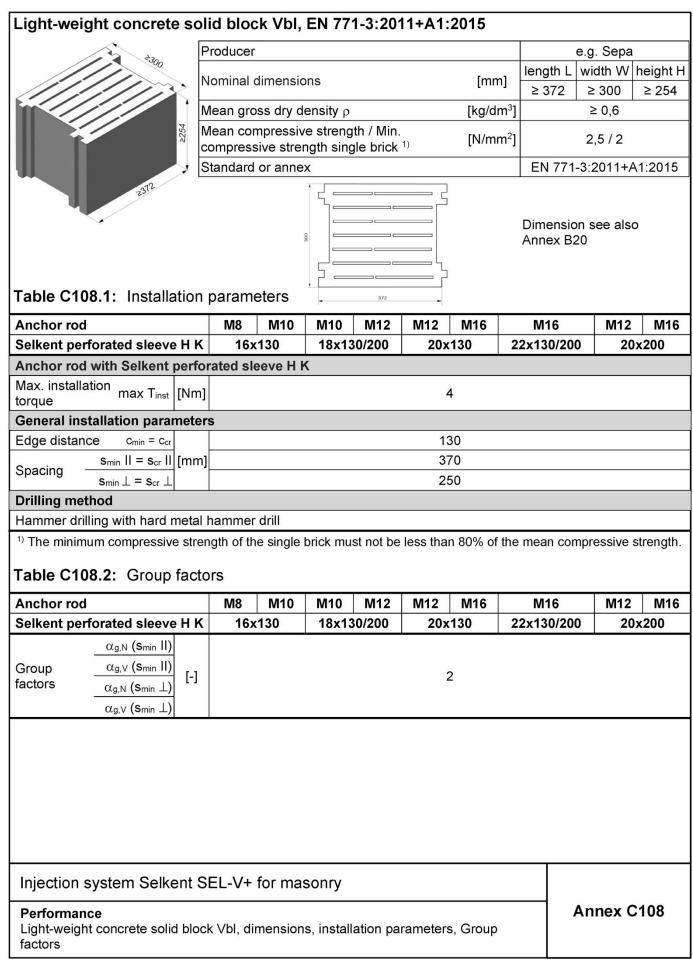
Anchor rod		M10	M12	M16					
Selkent perforated sl	eeve H K	18x1	30/200	22x130/200					
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,II}$	/ _{Rk,c,⊥} [k N]	; temperature ran	temperature range 50/80°C and 72/120°C						
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions								
5 / 4 N/mm²	w/w w/d d/d	1,2							
8 / 6 N/mm²	w/w w/d d/d		;	2,0					
10 / 8 N/mm²	w/w w/d d/d		:	2,5					
12,5 / 10 N/mm²	w/w w/d d/d		;	3,0					

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Light-weight concrete hollow block Hbl, Characteristic resistance under shear loading	Annex C107







Light-weight concrete solid block Vbl, EN 771-3:2011+A1:2015

Table C109.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading

Anchor rod	Anchor rod				M10	M12	M12	M16	M16	M12	M16	
Selkent perforated sleeve H K			16x	130	18x13	30/200	20x	130	22x130/200	20x200		
$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c}$	Rk,b,c	[kN]; ten	nperatu	re range	e 50/80°	C 2)		-				
Mean compressive strength / Min. compressive strength single brick 1)	cc	se n- ons										
2,5 / 2 N/mm ²	w/w	w/d		2,0)			2,	,5	3,	,0	
2,5 / Z N/IIIII	/d		2,0)			3,	3,0		,0		

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C109.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading

Anchor rod		M8	M10	M10	M12	M12	M16	M16	M12	M16		
Selkent perforated sleeve	sleeve H K		16x130		18x130/200		130	22x130/200	20x	200		
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,}$	∟ [kN]; tei	mperatu	ıre rang	e 50/80°	°C and	72/120°	С					
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions											
2,5 / 2 N/mm²	w/w w/d			4,	5			6	6,5			

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

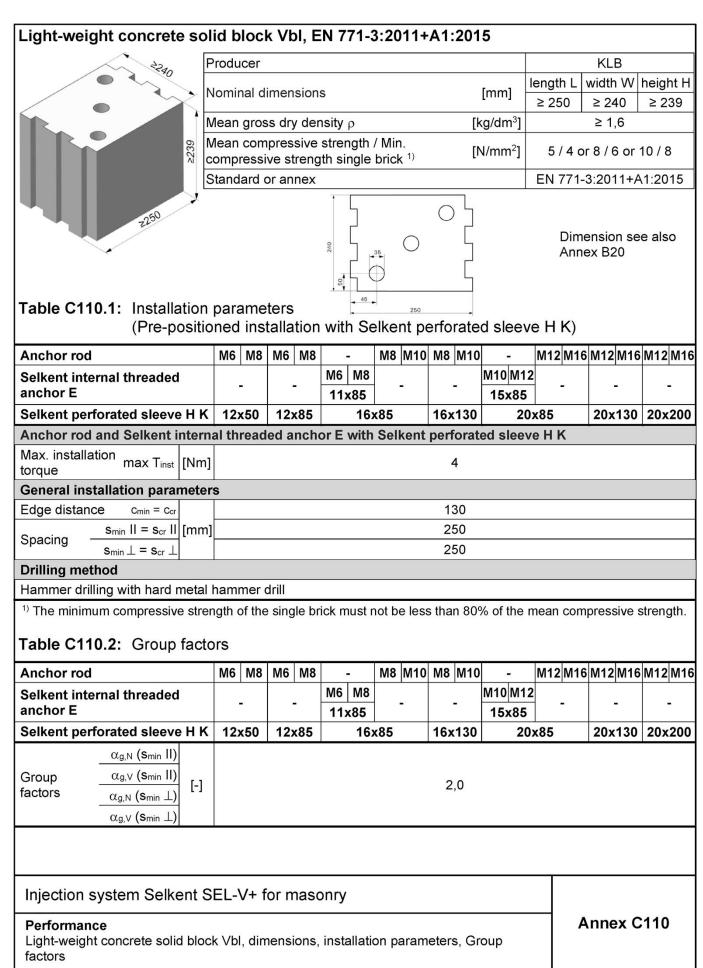
Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry

Performance
Light-weight concrete solid block Vbl,
Characteristic resistance under tension and shear loading

²⁾ For temperature range 72/120°C: $N_{Rk (72/120^{\circ}C)} = 0.83 \cdot N_{Rk (50/80^{\circ}C)}$.







Liaht-weiaht	t concrete solid block	Vbl.	EN 771-	-3:2011+A1:2015
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Table C111.1: Installation parameters

(Push through installation with Selkent perforated sleeve H K)

Anchor rod	M10	M12	M16
Selkent perforated sleeve H K	18x13	0/200	22x130/200
Anchor rod with Selkent perfor	ated sleeve H K		
Max. installation max T _{inst} [Nm]		2	0
General installation parameters			
Edge distance c _{min} = c _{cr}		10	30
Smin II = Scr II [mm]		25	50
Spacing $s_{min} \perp = s_{cr} \perp$		25	50
Drilling method			

Hammer drilling with hard metal hammer drill

Table C111.2: Group factors

Anchor rod		M10	M12	M16 22x130/200					
Selkent per	forated sleeve H K	18x130/200 22x130/200							
Group factors	$ \frac{\alpha_{\text{g,N}} \text{ (s_{min} II)}}{\alpha_{\text{g,N}} \text{ (s_{min} II)}} $ $ \frac{\alpha_{\text{g,N}} \text{ (s_{min} \bot)}}{\alpha_{\text{g,V}} \text{ (s_{min} \bot)}} $ $ [-]$		2	,0					

Injection system Selkent SEL-V+ for masonry

Performance

Annex C111

PerformanceLight-weight concrete solid block Vbl, dimensions, installation parameters, Group factors



Light-weight concrete solid block Vbl, EN 771-3:2011+A1:2015

Table C112.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Pre-positioned installation)

Anchor rod	M6 I	M8	М6	M8		-	M8	M10	M8	M10	-	M12	M16	M12	M16	M12 M16
Selkent internal threaded anchor E	-		-		M6	M8 <85		-		-	M10 M12 15x85	-		-	•	
Selkent perforated sleeve H K	12x	50	12x	(85		16	(85		16x	130	202	x85		20x	130	20x200

beikent periorated sieeve	1111	12730	12703	10.00	107130	20,000	20X 130	201200
$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c}$	= N _{Rk,b,c} [kN]; te	mperat	ure range 50/80°C	2)			
Mean compressive strength/ Min. compressive strength single brick 1)	Use con- ditions							
5 / 4 N/mm ²	w/w w/d	1,2	2,0	2,5		3	,0	
5 / 4 N/IIIII	d/d	2,0	3,5	4,0		5	,0	
8 / 6 N/mm ²	w/w w/d	1,5	3,0	4,0		5	,0	
O / O IN/IIIIII	d/d	3,0	5,0	6,5		7	,5	
10 / 8 N/mm ²	w/w w/d	2,0	4,0	5,0		6	,5	
10 / 6 14/111111	d/d	4,0	7,0	8,5		9	,0	

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C112.2: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading (Push through installation)

Anchor rod		M10	M12	M16
Selkent perforated sleeve	HK	18x	130/200	22x130/200
$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c}$	= N _{Rk,b,c} [l	kN]; temperatur	e range 50/80°C ²⁾	
Mean compressive strength/ Min. compressive strength single brick 1)	Use con- ditions			
5 / 4 N/mm²	w/w w/d d/d		2,5 4,0	3,0 5,0
8 / 6 N/mm²	w/w w/d d/d		4,0 6,5	5,0 7,5
10 / 8 N/mm²	w/w w/d d/d		5,0 8,5	6,5 9,0

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Light-weight concrete solid block Vbl, Characteristic resistance under tension loading	Annex C112

²⁾ For temperature range 72/120°C: N_{Rk} (72/120°C) = 0,83 · N_{Rk} (50/80°C).

²⁾ For temperature range 72/120°C: $N_{Rk (72/120^{\circ}C)} = 0.83 \cdot N_{Rk (50/80^{\circ}C)}$.



Light-weight concrete solid block Vbl, EN 771-3:2011+A1:2015

Table C113.1: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Pre-positioned installation)

Anchor rod	М6	M8 M6 M8			-	M8	M10	M8	M10	-	M12 M16	M12 M16	M12 M16	
Selkent internal threaded anchor E	,	•		•	M6	M8 (85	,	•	,	-	M10 M12 15x85	•	-	-
Selkent perforated sleeve H K	12	2x50 12x85		16x		(85		16x	130	20>	(85	20x130	20x200	

ocikent periorated sice	VCIIIX	1.2	700	12	100		1000	107100	2000	20X 100	LUXLUU
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,}$	c,⊥ [kN];	tem	pera	ture	ran	ge 5	0/80°C and 7	2/120°C			
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions										
5 / 4 N/mm²	w/w w/d d/d	2,0	3,0	2,0	3,0	2,0	3,5		4	,5	
8 / 6 N/mm²	w/w w/d d/d	3,0	4,5	3,0	4,5	3,0	5,5		6	,5	
10 / 8 N/mm²	w/w w/d d/d	4,0	6,0	4,0	6,0	4,0	7,0		8	,5	

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C113.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading (Push through installation)

Anchor rod		M10	M12	M16	
Selkent perforated sleeve H K		18x130/200		22x130/200	
V _{Rk} = V _{Rk,b} = V _{Rk,c,II} = V _{Rk,c,⊥} [kN]; temperature range 50/80°C and 72/120°C					
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions				
5 / 4 N/mm²	w/w w/d d/d	3	,5	4,5	
8 / 6 N/mm²	w/w w/d d/d	5	,5	6,5	
10 / 8 N/mm²	w/w w/d d/d	7	7,0	8,5	

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Light-weight concrete solid block VbI, Characteristic resistance under shear loading	Annex C113

English translation prepared by DIBt



Light-weight concrete solid block Vbl, EN 771-3:2011+A1:2015											
2700	Producer	Roa	Roadstone wood								
	Nominal dimensions	[mm]	length L	width W	height H						
	Norminal difficulties	firmin	≥ 440	≥ 100	≥ 215						
2215	Mean gross dry density $ ho$	[kg/dm ³]	~								
	Mean compressive strength / Min. compressive strength single brick 1)	[N/mm ²]	5 / 4 or 8 / 6 or 10 / 8 or 12,5 / 10								
140	Standard or annex		EN 771-3:2011+A1:2015								
2440											

Table C114.1: Installation parameters

Anchor rod		M6		M8		M10		M12		M16	
Anchor rod without perforated sleeve											
Effective anchorage depth hef	[mm]	50	70	50	70	50	70	50	70	50	70
Max. installation max T _{inst}	[Nm]	4	1				1	0			

General installation parameters

Ochiora: mio	canación param	L. C. C. L. K										
Edge distance	ce c _{min} = c _{cr}		100									
	s _{min} II		75									
Cassina	s _{cr} II [r	[mm]	[mm]	[mm]	mm]	[mm]	[mm]	[mm]	mm]	[mm]	mm]	3x h _{ef}
Spacing	S _{min} ⊥		75									
	S _{cr} ⊥				3x h _{ef}							

Drilling method

Hammer drilling with hard metal hammer drill

Table C114.2: Group factors

Anchor rod			M6	М8	M10	M12	M16						
Group factors	α _{g,N} (s _{min} II)			1,6									
	α _{g,V} (s _{min} II)	., [1,3										
	αg,N (Smin ⊥)	[-]			1,4								
	α _{g,} ∨ (S _{min} ⊥)				1,3								

Injection system Selkent SEL-V+ for masonry

Performance
Light-weight concrete solid block Vbl, dimensions, installation parameters, Group factors

Annex C114

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.



Light-weight concrete solid block Vbl, EN 771-3:2011+A1:2015

Table C115.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading

Anchor rod		M6	M8	M10	M12	M16					
$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c}$	= N _{Rk,b,c}	[kN]; temperati	ire range 50/80)°C ²⁾							
Mean compressive	Use		Effective anchorage depth hef [mm]								
strength / Min. compressive strength single brick 1)	con- ditions	≥ 50									
5 / 4 N/mm²	w/w w/c	1,2		1	,2						
	d/d	2,0	2,0								
8 / 6 N/mm ²	w/w w/c	1,5	2,0								
0 / 6 N/MM-	d/d	3,0	3,0 3,5								
40 / 0 N/mama ²	w/w w/c	2,0		2	,5						
10 / 8 N/mm²	d/d	4,0		4	,5						
40.5 / 40 N/mana?	w/w w/c	3,0		3	,5						
12,5 / 10 N/mm ²	d/d	5,0		5	,5						

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C115.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading

Anchor rod		М6	M8	M10	M12	M16			
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\underline{I}}$	⊥ [kN]; te	mperature ran	ge 50/80°C and	72/120°C					
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions	Effective anchorage depth h _{ef} [mm] ≥ 50							
5 / 4 N/mm²	w/w w/d d/d	1,2	1,5	1,5	1,5	1,5			
8 / 6 N/mm²	w/w w/d d/d	2,0	2,0	2,5	2,5	2,5			
10 / 8 N/mm²	w/w w/d d/d	2,5	2,5	3,0	3,0	3,5			
12,5 / 10 N/mm²	w/w w/d d/d	3,0	3,5	4,0	4,0	4,5			

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Light-weight concrete solid block Vbl, Characteristic resistance under tension and shear loading	Annex C115

²⁾ For temperature range 72/120°C: N_{Rk (72/120°C)} = 0,83 · N_{Rk (50/80°C)}.



Light-weight concrete solid block Vbl, EN 771-3:2011+A1:2015 Producer Tramac width W height H length L Nominal dimensions [mm] ≥ 440 ≥ 95 ≥ 215 Mean gross dry density ρ [kg/dm³] ≥ 2,0 Mean compressive strength / Min. 7,5 / 6 or 10 / 8 or 12,5 / 10 $[N/mm^2]$ compressive strength single brick 1) or 15 / 12 EN 771-3:2011+A1:2015 Standard or annex

Table C116.1: Installation parameters

Anchor rod		M6		M8		M10		M12		M16		
Anchor rod without perforated sleeve												
Effective anchorage depth	h _{ef}	[mm]	50	70	50	70	50	70	50	70	50	70
Max. installation r	nax T _{inst}	[Nm]	4	4	10							
Conoral installati	on nara	motor	_									

General installation parameters

Edge distance	ce C _{min} = C _{cr}		60																																				
Spacing –	s _{min} II	[mm]	75																																				
	S _{cr} II		1 1	[mm]	3x h _{ef}																																		
	S _{min} ⊥			75																																			
	scr⊥																																						

Drilling method

Hammer drilling with hard metal hammer drill

Table C116.2: Group factors

Anchor rod			М6	М8	M10	M12	M16						
Group factors	α _{g,N} (s _{min} II)			1,9									
	α _{g,V} (s _{min} II)	r 1			1,4								
	α _{g,N} (S _{min} ⊥)	[-]			1,9								
	α _{g,V} (S _{min} ⊥)				1,4								

Injection system Selkent SEL-V+ for masonry	
Performance Light-weight concrete solid block Vbl, dimensions, installation parameters, Group factors	Annex C116

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.



Light-weight concrete solid block Vbl, EN 771-3:2011+A1:2015

Table C117.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading

Anchor rod			M6 M8		M	M10		M12		M16		
$\mathbf{N}_{Rk} = \mathbf{N}_{Rk,p} = \mathbf{N}_{Rk,b} = \mathbf{N}_{Rk,p,c} = \mathbf{N}_{Rk,p,c}$	Rk = NRk,p = NRk,b = NRk,p,c = NRk,b,c [kN]; temperature range 50/80°C 2)											
Mean compressive strength /	Us	se		Effective anchorage depth h _{ef} [mm]								
Min. compressive strength single brick 1)	con- ditions		50	70	50	70	50	70	50	70	50	70
7,5 / 6 N/mm ²	w/w	w/d	1,5	2,0	1,5	2,0	1,5	2,0	1,5	2,0	1,5	2,0
7,5 / 6 N/IIIII-	d/	ď	2,5	3,5	2,5	3,5	2,5	3,5	2,5	3,5	2,5	3,5
10 / 8 N/mm ²	w/w	w/d	2,0	2,5	2,0	2,5	2,0	3,0	2,0	3,0	2,0	3,0
10 / 8 N/MM-	d/	ď	3,5	4,5	3,5	4,5	3,5	5,0	3,5	5,0	3,5	5,0
42 F / 40 N/mm²	w/w	w/d	2,5	3,5	2,5	3,5	2,5	3,5	2,5	3,5	2,5	3,5
12,5 / 10 N/mm²	d/	ď	4,5	6,0	4,5	6,0	4,5	6,0	4,5	6,0	4,5	6,0
15 / 12 N/mm²	w/w	w/d	3,0	4,0	3,0	4,0	3,0	4,5	3,0	4,5	3,0	4,5
15 / 12 N/MM-	d/	ď	5,0	7,0	5,0	7,0	5,0	7,5	5,0	7,5	5,0	7,5

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C117.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading

Anchor rod		М6	M8	M10	M12	M16					
$V_{Rk} = V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$ [kN]; temp	erature range	50/80°C and 7	2/120°C							
Mean compressive strength / Min. compressive strength single brick 1)	Use con- ditions		Effective anchorage depth h _{ef} [mm] ≥ 50								
Siligle blick											
7,5 / 6 N/mm²	w/w w/d	2,0	2,0	2,0	1,5	1,5					
10 / 8 N/mm²	w/w w/d d/d	2,5	2,5	3,0	2,5	2,5					
12,5 / 10 N/mm²	w/w w/d d/d	3,5	3,5	4,0	3,0	3,0					
15 / 12 N/mm²	w/w w/d d/d	4,0	4,0	4,5	3,5	3,5					

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Light-weight concrete solid block Vbl, Characteristic resistance under tension and shear loading	Annex C117

²⁾ For temperature range 72/120°C: $N_{Rk (72/120^{\circ}C)} = 0.83 \cdot N_{Rk (50/80^{\circ}C)}$.

English translation prepared by DIBt



Autoclaved aerated concrete (cylindrical drill hole), EN 771-4:2011+A1:2015



Producer	e.g. Ytong					
Mean gross dry density ρ	[kg/dm³]	0,35	0,5	0,65		
Mean compressive strength / Min. compressive strength single brick 1)	[N/mm²]	2,5 / 2	5/4	8/6		
Standard or annex		EN 771-4:2011+A1:2015				

Table C118.1: Installation parameters

Anchor ro	od		IV	16	IV	18	M	10	М	12	M	16	0-	,		
Selkent in	nternal threaded												M6 M8		M10	M12
anchor E			•	•		•		-				•	11x85		15x85	
Anchor ro	od and Selkent i	nterna	al thre	eaded	anch	or E v	vithou	ıt per	forate	d sle	eve					
Effective anchorage	e depth h _{ef}	[mm]	100	200	100	200	100	200	100	200	100	200		8	5	
Max. insta torque	Illation max T _{inst}	[Nm]	1	4	1	8	2	12	2	16	2	20	1		2	2
General in	nstallation para	meter	s					20) -			Me	
Edge dista	ance $c_{min} = c_{cr}$								10	00						
	$s_{cr} \parallel = s_{min} \parallel$								2	50						
	h _{ef} =200mm								8	0						
	s _{min} II															
	h _{ef} =200mm								3x	h _{ef}						
Spacing		[mm]														
	$s_{cr} \perp = s_{min} \perp$								2	50						
	h _{ef} =200mm s _{min} ⊥			80												
8	h _{ef} =200mm s _{cr} ⊥								3x	h _{ef}						

Drilling method

Hammer drilling with hard metal hammer drill

Injection system Selkent SEL-V+ for masonry

Performance
Autoclaved aerated concrete (cylindrical drill hole), dimensions, installation parameters

Annex C118

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.



Table C119.1: Group factors for autoclaved aerated concrete (Min. compressive strength single brick = 2 N/mm²)

Anchor	rod		M6 M8 M10 M12 M16					-	-
Selkent	internal threaded							M6 M8	M10 M12
anchor	E		-	-	-	•	-	11x85	15x85
	h _{ef} =200 α _{g,N} (s _{min} II)				_1)	_1)			
	h _{ef} =200 α _{g,V} (s _{min} II)				_1)	_1)			
Group	$\alpha_{g,N}$ II, $\alpha_{g,V}$ (s_{min} II)	r 1							
factors	hef=200 $lpha_{ m g,N}$ ($s_{ m min}$ \perp)	[-]			_1)	_1)			
	h _{ef} =200 α _{g,V} (s _{min} ⊥)				_1)	_1)			
	$\alpha_{g,N} \perp, \alpha_{g,V} (s_{min} \perp)$								

¹⁾ No performance assessed.

Table C119.2: Group factors for autoclaved aerated concrete (Min. compressive strength single brick = 4 N/mm²)

Anchor	rod	l	M6 M8 M10 M12 M16						-	-	
Selkent	internal threaded			_	_		_	M6	M8	M10	M12
anchor	E		-	_	-	-	-	11)	11x85		k 85
	h _{ef} =200 α _{g,N} (s _{min} II)				0,7			_	1)	-	1)
	h _{ef} =200 α _g ν (s _{min} II)		2,0						1)	_1)	
Group	α _{g,N} II, α _{gV} (S _{min} II)	,				2,0					
factors	h _{ef} =200 α _{g,N} (\$ _{min} ⊥)	-] 🗀			0,7			_	1)	-	1)
	h _{ef} =200 α _{g,V} (\$ _{min} ⊥)		1,2							_1)	
	$\alpha_{g,N} \perp, \alpha_{gV} (s_{min} \perp)$		2,0								

¹⁾ No performance assessed.

Table C119.3: Group factors for autoclaved aerated concrete (Min. compressive strength single brick = 6 N/mm²)

Anchor	rod	M6	M8 M10 M12 M16					•	-		
Selkent	internal threaded						M6	M8	M10	M12	
anchor	E	-	•	-	•	-	11x85		15>	k 85	
	h _{ef} =200 α _{g,N} (s _{min} II)			0,7				1)		1)	
	h _{ef} =200 α _{g,V} (\$ _{min} II)	2,0						1)	_1)		
Group	$\alpha_{g,N}$ II, $\alpha_{g,V}$ (\mathbf{s}_{min} II)				2,0						
factors	$\frac{\log_{3}(N_{1} + \log_{3}(N_{2}))}{\ln_{ef} = 200 \alpha_{g,N} (s_{min} \perp)} [-]$			0,7				1)	-	1)	
	h _{ef} =200 α _{g,V} (s _{min} ⊥)	1,2						_1)			
	$\alpha_{g,N} \perp, \alpha_{g,V}(s_{min} \perp)$				2,0		•		•		

¹⁾ No performance assessed.

Injection system Selkent SEL-V+ for masonry	
Performance Autoclaved aerated concrete (cylindrical drill hole), Group factors	Annex C119



Autoclaved aerated concrete (cylindrical drill hole), EN 771-4:2011+A1:2015

Table C120.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading

Anchor rod	M6	M8	M10	M12	M16			-		
Selkent internal threaded anchor E	-	-9		-	-	M6			M12 x85	

								- 4				11700	1000
$\mathbf{N}_{Rk} = \mathbf{N}_{Rk,p} = \mathbf{N}_{Rk,b} = \mathbf{N}_{Rk,p,c}$	= N _{Rk,b,c}	[kN];	tem	pera	ture ra	ange	50/80	°C 3)		1.50		-2	
Mean compressive strength / Min. compressive strength single brick ²⁾	Use con- ditions	100	Effective anchorage depth h _{ef} [mm] 100 200 100 200 100 200 100 200 85								5		
2,5 / 2 N/mm²	w/w w/d d/d	1,2 1,5	1,2 3,0	1,5 1,5	2,0 3,0	1,5 1,5	3,0 3,5	1,5 2,0	3,0 4,0	2,0	3,0 4,0	1,5 1,5	1,5 1,5
5 / 4 N/mm²	w/w w/d d/d	1,2 1,5	_1) _1)	2,0 2,0	1,5 3,0	2,5 3,0	3,5 5,0	2,5 2,5	3,5 5,0	2,0 2,0	3,5 5,0	2,0 2,0	1,5 1,5
8 / 6 N/mm²	w/w w/d d/d	1,5 1,5	3 3973	3,0 3,5	2,5 4,0	4,5 5,0	5,0 7,0	4,5 5,0	7,0 9,0	3,0 3,0	8,5 11,5	3,5 3,5	2,5 2,5

¹⁾ No performance assessed.

Anchor rod

M6

Table C120.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading

M10

M12

M16

M8

Selkent internal threaded	t		_		_		_		_	-		M6	M8	M10	M12
anchor E												11x85		15x85	
V _{Rk} = V _{Rk,b} = V _{Rk,c,II} = V _{Rk,c,⊥} [kN]; temperature range 50/80°C and 72/120°C															
Mean compressive	Use		Effective anchorage depth h								f [mm]			
strength / Min. compressive strength single brick ²⁾	con- ditions	100	200	100	200	100	200	100	200	100	200	85			
2,5 / 2 N/mm²	w/w w/d d/d	1,2	1,2	1,2	1,2	1,2	1,2	1,5	1,2	1,2	1,2		1,2		1,5
5 / 4 N/mm²	w/w w/d d/d	2,0	_1)	2,5	2,0	2,0	2,0	2,5	2,0	2,0	2,0	10	2,0		2,5
8 / 6 N/mm²	w/w w/d d/d	2,5	_1)	3,0	2,5	3,0	3,0	3,5	4,0	4,5	4,5		2,5		3,5

¹⁾ No performance assessed.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Autoclaved aerated concrete (cylindrical drill hole), Characteristic resistance under tension and shear loading	Annex C120

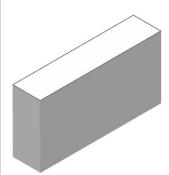
²⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

³⁾ For temperature range 72/120°C: $N_{Rk (72/120^{\circ}C)} = 0.83 \cdot N_{Rk (50/80^{\circ}C)}$.

²⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength



Autoclaved aerated concrete (conical drill hole with special drill bit PBB), EN 771-4:2011+A1:2015



Producer	e.g. Ytong						
Mean gross dry density ρ	[kg/dm³]	0,35	0,5	0,65			
Mean compressive strength / Min. compressive strength single brick 1)	[N/mm²]	2,5 / 2	5/4	8/6			
Standard or annex EN 771-4:2011							

Table C121.1: Installation parameters

Anchor rod			M	18	M	10	M	M12					
Selkent internal threaded anchor E				-	-	•	•	-	M6 M8				
Anchor rod and Selkent internal threaded anchor E without perforated sleeve													
Effective anchorage dept	h h _{ef}	[mm]	75	75 95 75 95 75 95									
Max. installation torque	max T _{inst}	[Nm]		2									
General install	ation para	meter	S										
Edge distance	C _{min} = C _{cr}		120	150	120	150	120	150	15	50			
Specing	cr II = s _{min} II	[mm]	240	300	240	300	240	300	30	00			
Spacing $s_{cr} \perp = s_{min} \perp$			240	250	240	250	240	250	250				

Drilling method

Hammer drilling with hard metal hammer drill

Table C121.2: Group factors

Anchor rod			M	18	M10 M12					•
Selkent internal threaded anchor E			•	I	-	•	-	-	M6	M8 (85
Group factors	$\begin{array}{c} \alpha_{\text{g,N}} \left(\textbf{s}_{\text{min}} \ \textbf{II} \right) \\ \hline \alpha_{\text{g,V}} \left(\textbf{s}_{\text{min}} \ \textbf{II} \right) \\ \hline \alpha_{\text{g,N}} \left(\textbf{s}_{\text{min}} \ \bot \right) \\ \hline \alpha_{\text{g,V}} \left(\textbf{s}_{\text{min}} \ \bot \right) \end{array}$	-]				2				

Injection system Selkent SEL-V+ for masonry	
Performance Autoclaved aerated concrete (conical drill hole with special drill bit PBB), dimensions, installation parameters, Group factors	Annex C121

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.



Autoclaved aerated concrete (conical drill hole with special drill bit PBB), EN 771-4:2011+A1:2015

Table C122.1: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading

Anchor rod		N	18	M	10	М	12	-					
Selkent internal threaded ar	ochor F	_	_		_		7-2	M6 M8					
Selkent internal tilleaded af	iciioi L	(- 	.=	11x85					
$N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,b,c} = N_{Rk,b,c} [kN]$; temperature range 50/80°C ²⁾													
Mean compressive strength /	Use												
Min. compressive strength single brick 1)	con- ditions	75	95	75	95	75	95	8	5				
2,5 / 2 N/mm ²	w/w w/d	2,0	2,5	2,0	2,5	2,0	2,5	2,	0				
2,5 / 2 N/MM-	d/d	2,0	2,5	2,0	2,5	2,0	2,5	2,	0				
5 / 4 N/mm²	w/w w/d	3,0	3,5	3,0	3,5	3,0	3,5	3,	0				
5 / 4 N/MM ⁻	d/d	3,0	3,5	3,0	3,5	3,0	3,5	3,	0				
8 / 6 N/mm ²	w/w w/d	3,5	4,0	3,5	4,0	3,5	4,0	3,	5				
6 / 6 N/mm-	d/d	4,0	4,5	4,0	4,5	4,0	4,5	4,	0				

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C122.2: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading

Anchor rod		IV	12	-								
Selkent internal threaded a	nchor E	·-	-		-	-	-	M6 11x	M8 85			
V _{Rk} = V _{Rk,b} = V _{Rk,c,II} = V _{Rk,c,⊥} [kN]; temperature range 50/80°C and 72/120°C												
Mean compressive strength /	Use	Jse Effective anchorage depth h _{ef} [mm]										
Min. com-pressive strength single brick 1)	con- ditions	75	95	75	95	75	95	85				
2,5 / 2 N/mm²	w/w w/d d/d		2,5									
5 / 4 N/mm²	w/w w/d d/d		4,5									
8 / 6 N/mm²	w/w w/d d/d		6,0									

¹⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Factor for job site tests and displacements see annex C123.

Injection system Selkent SEL-V+ for masonry	
Performance Autoclaved aerated concrete (conical drill hole with special drill bit PBB), Characteristic resistance under tension and shear loading	Annex C122

²⁾ For temperature range 72/120°C: $N_{Rk (72/120^{\circ}C)} = 0.83 \cdot N_{Rk (50/80^{\circ}C)}$.



β -factors for job site tests; displacements

Table C123.1: β-factors for job site tests

use conditions		w/w ai	nd w/d	d/d					
temperature range [°C]		50/80	72/120	50/80	72/120				
Material	Size	β-factors							
	M6	0,55	0,46						
	M8	0,57	0,51						
	M10	0,59	0,52						
solid units	M12 Selkent E 11x85	0,60	0,54	0,96	0,80				
	M16 Selkent E 15x85	0,62	0,52						
	Selkent H 16x85 K	0,55	0,46						
hollow units	all sizes	0,86	0,72	0,96	0,80				
Autoclaved aerated concrete cylindrical drill hole	all sizes	0,73	0,73	0,81	0,81				
Autoclaved aerated concrete conical drill hole	all sizes	0,66	0,59	0,73	0,66				

Table C123.2: Displacements

Material	N [kN]	δ N o [mm]	δ N ∞ [mm]	V [k N]	δ V 0 [mm]	δV∞ [mm]
solid units and autoclaved aerated concrete h _{ef} =100mm	NRk 1,4 * γννπ	0,03	0,06		0,82	0,88
hollow units	NRk 1,4 * γмm	0,48	0,06	V _{Rk} 1,4 * γ _{Mm}	1,71	2,56
solid brick Mz NF Annex C4 - C7	N _{Rk} 1,4 * γ _{Mm}	0,74	1,48	V _{Rk} 1,4 * γ _{Mm}	1,23	1,85
solid brick KS NF Annex C14 / C15	N _{Rk} 1,4 * γ _{Mm}	0,20	0,40	V _{Rk} 1,4 * γ _{Mm}	0,91	1,37
AAC h _{ef} =200 mm Annex C118 - C120	N _{Rk} 1,4 * γ _{Mm}	1,03	2,06	V _{Rk} 1,4 * γ _{Mm}	1,25	1,88
brick Annex C102 / C103	NRk 1,4 * γ мm	0,03	0,06	V _{Rk} 1,4 * γ _{Mm}	6,44	9,66

For anchorage in autoclaved aerated concrete (AAC), the partial factor γ_{MAAC} shall be used instead of γ_{Mm} .

Injection system Selkent SEL-V+ for masonry	
Performance β-factors for job site tests; displacements	Annex C123



Chracteristic values under tension and shear loading under fire exposure (single anchor)

Table C124.1: Chracteristic values under tension and shear loading under fire exposure; considering all failure modes

		51101	4011	9 -	IG	11410	1110														
		Solid brick Mz, NF, acc. to Annex C4			silic KS,	ate b	rick acc.	calcii brick	calcium silicate brick KSL, acc. l			perforated			perforated			Autoclaved aerate concrete, acc. to Annex C118			
		≥ 1	5/≥	12	≥ 1	5/≥	12	Ν	10 / ≥	: 8	2	5/≥	4	≥ 7,5 / ≥ 6			≥ 2,5 / ≥ 2				
		M8	M10	M12	M8	M10	M12	M8	M10	M12	M8	M10	M12	M8	M10	M12	M8	M10	M12	M16	
Sleeve			-			77 .3		16x	130	20x 130	16x	130	20x 130	16	k 85	20x 85		,	-		
erforated Sleeve or bridging of nbearing layer			-			=:		,	3 0	20x 200	,-	7.1	20x 200	16x	130	20x 130		,	-		
[mn	ո]		≥ 80			≥ 50			≥ 130)		≥ 130	130 ≥ 85				≥ 100				
istic re	sist	tanc	e to	failu	re ur	ider i	tensi	on lo	adin	g											
30			0,82			0,32		1,07	1,09	1,10		0,31		0,28	0,30	0,35	0,84	0,82	0,80	0,80	
06	, [0,73			0,31		0,66	0,61	0,56		0,22		0,19	0,22	0,22	0,71	0,67	0,63	0,63	
90 [KIN	יין ניי		0,64		0,29		0,25	0,13	_ 1)		0,13		0,10	0,10	0,10	0,58	0,51	0,45	0,45		
20			0,59		0,28		0,28		_ 1)	_ 1)	- ¹⁾		_ 1)		_ 1)	_ 1)	_ 1)	_ 1)	_ 1)	_ 1)	_ 1)
istic re	sist	tanc	e to	failu	re ur	nder:	shea	r loa	ding	2)											
ver arn	1																				
30			0,82			0,32		1,07	1,09	1,10		0,31		0,28	0,30	0,35	1,10	1,75	2,54	4,74	
50	, [0,73			0,31		0,66	0,61	0,56		0,22		0,19	0,22	0,22	0,86	1,37	1,99	3,71	
90 [KIN	ן ני		0,64			0,29		0,25	0,13	_ 1)		0,13		0,10	0,10	0,10	0,62	0,99	1,44	2,68	
20			0,59			0,28		_ 1)	_ 1)	_ 1)		_ 1)		_ 1)	_ 1)	_ 1)	_ 1)	_ 1)	_ 1)	_ 1)	
arm						10															
30	C),83	1,05	1,27	0,33	0,42	0,50	1,09	1,40	1,71	0,32	0,40	0,48	0,29	0,39	0,54	1,12	2,26	3,95	10,0	
06),74	0,93	1,13	0,31	0,39	0,47	0,67	0,78	0,86	0,22	0,28	0,34	0,19	0,28	0,34	0,87	1,77	3,20	7,87	
OF LINU	וו),65	0,82	0,99	0,29	0,37	0,44	0,26	0,17	_ 1)	0,13	0,16	0,20	0,10	0,12	0,15	0,63	1,28	2,24	5,69	
20	C),60	0,76	0,92	0,28	0,35	0,43	_ 1)	_ 1)	_ 1)	_ 1)	_ 1)	_ 1)	_ 1)	_ 1)	_ 1)	_ 1)	_ 1)	_ 1)	_ 1)	
stallati	on	Par	amet	ters																	
cr,fi	,1		100			60		80			80			100			200				
[mm]								00													
	Sleeve Sleeve G of layer [mn istic res 30 60 20 istic res ver arm 30 60 20 [kN	Sleeve Sleeve G of layer [mm] istic resis 00 00 100 100 100 100 100 100 100 100	Sole	Solid bri Mz, NF acc. to Annex (oressive strength 3) M8 M10	Solid brick Mz, NF, acc. to Annex C4 Pressive strength $\Rightarrow 15 / \Rightarrow 12$ M8 M10 M12 Sleeve - Sleeve - Sleeve - Imm] $\Rightarrow 80$ istic resistance to failure Imm] $\Rightarrow 80$ istic resistance to failure Imm] $\Rightarrow 80$ istic resistance to failure Imm] $\Rightarrow 80$ $\Rightarrow 80$	Solid brick Solid silic Mz, NF, acc. to KS, Annex C4 to An oressive	Solid brick Mz, NF, acc. to Annex C4 to Annex C5 C5 C5 C5 C5 C5 C5 C5	Solid brick Mz, NF, acc. to Annex C14	Solid brick Mz, NF, acc. to Annex C4 Solid calcium silicate brick KS, NF, acc. to Annex C14 to Annex C	Solid brick Mz, NF, acc. to Annex C4 Solid calcium Silicate brick KS, NF, acc. to Annex C14 Ann	Solid brick Mz, NF, acc. to Annex C4 Solid calcium silicate brick KS, NF, acc. to Annex C24 Strength (3)	Solid brick Solid calcium Silicate brick KS, NF, acc. to Annex C4 to Annex C24 to A	Solid brick Mz, NF, acc. to Annex C4 to Annex C14 to Annex C24 to An	Solid brick Mz, NF, acc. to Annex C4 Solid calcium Silicate brick KS, NF, acc. to Annex C24 to Annex C28 to Annex C24 to Annex C28 to Annex C24 to Annex C28 to Annex C24 to Annex C24 to Annex C28 to Annex C28 to Annex C24 to Annex C28 to Annex C24 to Annex C28 to Annex C24 to Annex C28 to Annex C28 to Annex C24 to Annex C24 to Annex C28 to Annex C24 to Annex C28 to Annex C28 to Annex C28 to Annex C24 to Annex C24 to Annex C28 to Annex C24 to Annex C28 to Annex C28 to Annex C28 to Annex C24 to Annex C24 to Annex C28 to Annex C28 to Annex C28 to Annex C24 to Annex C24 to Annex C24 to Annex C28 to Annex C28 to Annex C28 to Annex C28 to Annex C24 to Annex C28 to Annex C28 to Annex C24 to Annex C28 to Annex C24 to Annex C28 to Annex C24 to Annex C28 to Annex C28 to Annex C28 to Annex C28 to Annex C24 to Annex C28 to Annex C24 to Annex C24 to Annex C28 to	Solid brick Mz, NF, acc. to Annex C4 Solid calcium silicate brick KS, NF, acc. to Annex C4 to Annex C24 to Annex C24 to Annex C24 to Annex C28 to An	Solid brick Mz, NF, acc. to KS, NF, acc. to KS, NF, acc. to Annex C14 KS, NF, acc. to Annex C24 brick KSL, acc. to Annex C28 brick KILz, acc. to Annex C28 to Annex C28	Solid brick Mz, NF, acc. to Annex C4 Solid calcium Solid calcium Solid calcium Solid calcium Solid calcium Solid calcium Solicate Derforated Defforated Defforat	Solid brick Mz, NF, acc. to Annex C4 Solid calcium Solid calcium	Solid brick Mz, NF, acc. to Annex C4 Solid calcium silicate brick CKS, NF, acc. to Annex C4 Solid brick KS, NF, acc. brick KSL, acc. brick brick KSL, acc. brick KSL, acc. brick KSL, acc. brick brick KSL, acc. brick brick KSL, acc. brick brick brick KSL, acc. brick Brick	Solid brick MZ, NF, acc. to Annex C14 Solid calcium So	

¹⁾ No performance assessed.

In absence of national regulations, the recommended partial factor $\gamma_{M,fi} = 1,0$.

Injection system Selkent SEL-V+ for masonry	
Performance Characteristic values under tension and shear loading under fire exposure (single anchor)	Annex C124

²⁾ $V_{Rk,b,fi} = N_{Rk,b,fi}$

³⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.



Chracteristic values under tension loading under fire exposure (anchor group)

Table C125.1: Characteristic values under tension loading under fire exposure; brick breakout failure ³⁾

	Di Caltoat i	anarc	1															
					N	18			М	10			M	12			M1	16
Brick	Mean compressive strength / Min. comp. strength single brick ²⁾	h _{ef}	Spacing	5	N ^e Rk,b,ff(90)	3	N ⁹ Rk,b,fl(120)	3	N [⊛] Rk, b,fi(90)		N°Rk,b,fi(120)		N °Rk, b, fi(90)	34	N ⁹ Rk,b,ff(120)	Ng _{Pr} 4 vagN	• KK, D, III(90)	N ^g Rk,b,fi(120)
No. of anchors in a group:			2	4	2	4	2	4	2	4	2	4	2	4	2	4	2 4	
[-]	[N/mm²]	[mm]	[-]		•		•				[k	N]				•	•	•
Solid brick MZ, NF acc.	≥ 15 /≥ 12	≥ 80	Scr,fi II	1,1	2,1	0,8	1,7	1,3	2,5	1,0	2,0	1,5	2,9	1,2	2,4			1)
to Annex C4			Scr,fi ⊥	1,4		1,1	′	1,7	,	1,3	′	2,0	,	1,6	,			
Solid calcium silicate brick	≥ 15 /≥ 12	≥ 50	S _{cr,fi} II	0,3		0,2	0,5	0,3	0,6	0,2	0,5	0,3	0,6	0,2	0,5			I)
KS, NF, acc. to Annex C14	2 10/2 12	2 30	Scr,fi ⊥	0,9		0,7	0,0	0,9	0,0	0,7	0,5	0,9	0,0	0,7	0,5	- <i>'</i>		
Perforated calcium silicate		≥ 130	s _{cr,fi} II	1,4	2,7	1,1	2,2	1,4	2,7	1,1	2,2	1,4	2,7	1,1	2,2		_ 1)	
brick KSL, acc. to Annex C24	210720	_ 100	S _{cr,fi} ⊥	1,8		1,5	2,2	1,8	2,7	1,5	2,2	1,8	2,1	1,5	2,2			
Vertical perforated	≥ 7,5 / ≥ 6	≥ 85	S _{cr,fi} II	0,4	0,9	0,4	0,7	0,4	0,9	0,4	0,7	0,5	1,1	0,4	0.9		_	1)
brick HLz, acc. to Annex C30	- 1,0 / - 0		S _{cr,fi} ⊥	0,4	0,0	0,4	1 '		0,0	0,4		0,5	•,•	0,4	0,0			
Vertical perforated	≥5/≥4	≥ 130	S _{cr,fi}	0,4	0.4	0,3	0,3	0,4	0,4	0,3	0,3	0,5	0,5	0,4	0.4			I)
brick HLz, acc. to Annex C28	20724	_ 100	S _{cr,fi} ⊥	1 1 '		0,3	0,0	0,4	0,4	0,3	0,0	0,5	0,0	0,4	0,4	- '/		
	Ancho	r rod		M		18			M10			M12				M1	6	
Autoclaved aerated	≥ 2,5 / ≥ 2	≥ 100	Scr,fi	1,1 1,1	2,1	0,8 0,8	1,7	1,1 1,1	2,1	0,8 0.8	1,7	1,1 1,1	2,1	0,8	1,7	1,4 1,4	2,8	1,1 1,1
concrete acc. to Annex C118		sent internal threaded anchor E		L	11x8		8	Ϊ́	15x85 M10		0	15x85 M12		<u> </u>		1,1		
10110			Scr,fi	0,9	1	0,7		0,9	4.0	0,7		0,9	4.0	0,7			_	1)
	≥ 2,5 / ≥ 2	≥ 85	S _{cr,fi} ⊥	0,9	1,8	0,7	1,4	0,9	1,8	0,7	1,4	0,9	1,8	0,7	1,4		-	''

¹⁾ No performance assessed.

In absence of national regulations, the recommended partial factor $\gamma_{\rm M,fi}$ = 1,0.

Injection system Selkent SEL-V+ for masonry	
Performance Chracteristic values under tension loading under fire exposure (anchor group)	Annex C125

²⁾ The minimum compressive strength of the single brick must not be less than 80% of the mean compressive strength.

³⁾ All other proofs have to be conducted with the single anchor in accordance with TR 054.



Spacing and edge distance under fire exposure (anchor group)

Table C126.1: Spacing and Edge distance under fire exposure, brick breackout failure

Solid brick MZ, NF acc. to Annex C4

mean compressive strength / Min. compressive strength single brick ≥ 15 / ≥ 12 N/mm²

Anchor rod	hor rod			18	м	10	M12		
Effective anchorage depth	h _{ef}		80	200	80	200	80	200	
Characteristic spacing	Scr,fi II	[mm]	80	320	80	320	80	320	
Characteristic spacing	Scr,fi ⊥	[mm]	100	100	100	100	100	100	
Edge distance	C _{cr,fi}		160	400	160	400	160	400	

Solid calcium silicate brick KS, NF, acc.to Annex C14

mean compressive strength / Min. compressive strength single brick ≥ 15 / ≥ 12 N/mm²

Anchor rod			N	18	М	10	M12		
Effective anchorage depth	h _{ef}		50	100	50	200	50	200	
Characteristic spacing	S _{cr,fi} II	[mm]	107	107	107	107	107	107	
Characteristic spacing	S _{cr,fi} \perp	[mm]	200	400	200	800	200	800	
Edge distance	C _{cr,fi}]	100	200	100	400	100	400	

Perforated calcium silicate brick KSL, acc. to Annex C24

mean compressive strength / Min. compressive strength single brick ≥ 10 / ≥ 8 N/mm²

Anchor rod / perforated	l sleev	e	M8 / 16x130	M10 / 16x130	M12 / 20x130
Effective anchorage depth	h _{ef}		130	130	130
Characteristic spacing	S _{cr,fi} II	[133	133	133
Characteristic spacing	ng s _{cr,fi} ⊥	[mm]	153	153	153
Edge distance	C _{cr,fi}		260	260	260

Vertical perforated brick HLz, acc. to Annex C30

mean compressive strength / Min. compressive strength single brick ≥ 7,5 / ≥ 6 N/mm²

Anchor rod / perforated	d sleev	е	M8 / 16x85	M10 / 16x85	M12 / 20x85
Effective anchorage depth	hef		85	85	85
Characteristic engains	Scr,fi II	[] _{[1}	320	320	320
Characteristic spacing	Scr,fi ⊥	[mm]	153	153	153
Edge distance	C _{cr,fi}		170	170	170

Vertical perforated brick HLz, acc. to Annex C28

mean compressive strength / Min. compressive strength single brick ≥ 5 / ≥ 4 N/mm²

Anchor rod / perforated	d sleev	e	M8 / 16x130	M10 / 16x130	M12 / 20x130
Effective anchorage depth	h _{ef}		130	130	130
Characteristic spacing	Scr,fi II	[mm]	133	133	133
Characteristic spacing	Scr,fi ⊥	[mm]	133	133	133
Edge distance	C _{cr,fi}		260	260	260

Injection system Selkent SEL-V+ for masonry

Performance

Spacing and edge distance under fire esposure (anchor group)

Annex C126

English translation prepared by DIBt



Spacing and edge distance under fire exposure (anchor group)

Table C127.1: Spacing and Edge distance under fire exposure, brick breackout failure

Autoclaved aerated concrete acc. to Annex C118

mean compressive strength / Min. compressive strength single brick ≥ 2,5 / ≥ 2 N/mm²

Anchor rod			M8		M10		M12		M16	
Effective anchorage depth	h _{ef}		100	200	100	200	100	200	100	200
Characteristic spacing	S _{cr,fi} II	[mm]	333	107	333	107	333	107	333	107
	Scr,fi ⊥	[mm]	333	107	333	107	333	107	333	107
Edge distance	C _{cr,fi}]	200	400	200	400	200	400	200	400

Autoclaved aerated concrete acc. to Annex C118

mean compressive strength / Min. compressive strength single brick ≥ 2,5 / ≥ 2 N/mm²

ancho	or E	11x85 M8	15x85 M10	15x85 M12
h _{ef}		85	85	85
Scr,fi	[mm]	333	333	333
S _{cr,fi} ⊥	l firmini	333	333	333
C cr,fi		170	170	170
	hef Scr,fi II Scr,fi 上	Scr,fi II Scr,fi I	h _{ef} 85	hef scr,fi II scr,fi ⊥ 85 85 333 333 333 333

Injection system Selkent SEL-V+ for masonry

Performance
Spacing and edge distance under fire esposure (anchor group)

Annex C127