Deutsches Institut für Bautechnik

Public-law institution jointly founded by the federal states and the Federation

European Technical Assessment Body for construction products

Member of EOTA
www.eota.eu

Designated according to Article 29 of Regulation (EU) No 305/2011 and member of EOTA (European Organisation for Technical Assessment)

European Technical Assessment ETA-19/0161 of 22 December 2025

English translation prepared by DIBt - Original version in German language

General Part

Technical Assessment Body issuing the European Technical Assessment:	Deutsches Institut für Bautechnik
Trade name of the construction product	Hilti HIT-HY 170
Product family to which the construction product belongs	Metal Injection anchors for use in masonry
Manufacturer	Hilti Aktiengesellschaft Feldkircherstrasse 100 9494 SCHAAN FÜRSTENTUM LIECHTENSTEIN
Manufacturing plant	Hilti Werke
This European Technical Assessment contains	30 pages including 3 annexes which form an integral part of this assessment
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of	EAD 330076-01-0604, Edition 10/2022
This version replaces	ETA-19/0161 issued on 19 October 2023

The European Technical Assessment is issued by the Technical Assessment Body in its official language. Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and shall be identified as such.

Communication of this European Technical Assessment, including transmission by electronic means, shall be in full. However, partial reproduction may only be made with the written consent of the issuing Technical Assessment Body. Any partial reproduction shall be identified as such.

This European Technical Assessment may be withdrawn by the issuing Technical Assessment Body, in particular pursuant to information by the Commission in accordance with Article 25(3) of Regulation (EU) No 305/2011.

Specific Part

1 Technical description of the product

The injection system Hilti HIT-HY 170 for masonry is a bonded anchor (injection type) consisting of a mortar foil pack with injection mortar Hilti HIT-HY 170, a perforated sieve sleeve and an anchor rod with hexagon nut and washer or an internally threaded sleeve. 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 B7, B8, C1 to C10
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	No performance assessed

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

The system to be applied is: 1

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

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

- EN 10204:2004	Metallic products - Types of inspection documents
- EN ISO 10684:1004+AC:2009	Fasteners - Hot dip galvanized coatings
- EN 1993-1-4:2006+A1:2015	Eurocode 3: Design of steel structures - Part 1-4: General rules - Supplementary rules for stainless steels
- EN 10088-1:2023	Stainless steels - Part 1: List of stainless steels
- TR 053:2022-07	Recommendations for testy of metal injection anchors for use in masonry to be carried out on construction works
- TR 054:2023-12	Design methods for anchorages with metal injection anchors and screw anchors for use in masonry
- EN 772-1:2011+A1:2015	Methods of test for masonry units - Part 1: Determination of compressive strength
- EN 771-1:2011+A1:2015	Specification for masonry units - Part 1: Clay masonry units
- EN 771-2:2011+A1:2015	Specification for masonry units - Part 2: Calcium silicate masonry units
- EN 771-3:2011+A1:2015	Specification for masonry units - Part 3: Aggregate concrete masonry units

Issued in Berlin on 22 December 2025 by Deutsches Institut für Bautechnik

Dipl.-Ing. Beatrix Wittstock
Head of Section

beglaubigt:
Baderschneider

Deutsches Institut für Bautechnik DIBt

Installed condition

Figure A1: **Hollow and solid brick with threaded rod, HAS…, HAS-U…, HIT-V-… and sieve sleeve HIT-SC (see Table B5) or with internally threaded sleeve HIT-IC and sieve sleeve HIT-SC (see Table B6)**

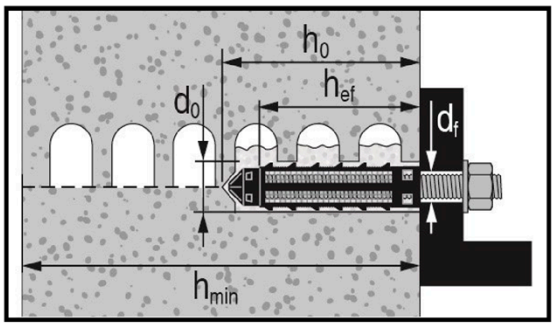


Figure A2: **Solid brick with threaded rod, HAS…, HAS-U…, HIT-V-… (see Table B7)**

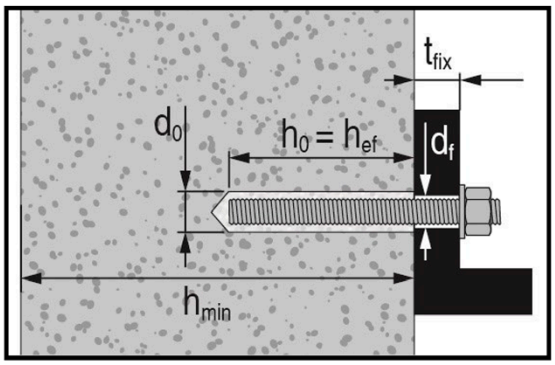
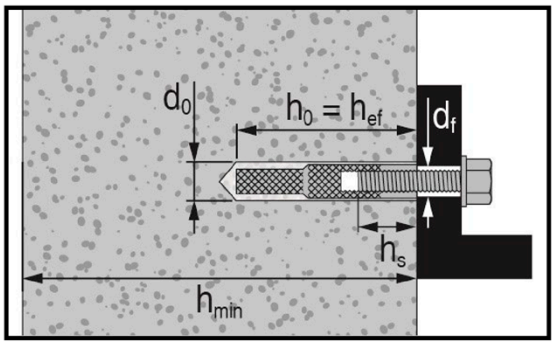


Figure A3: **Solid brick with internally threaded sleeve HIT-IC (see Table B8)**

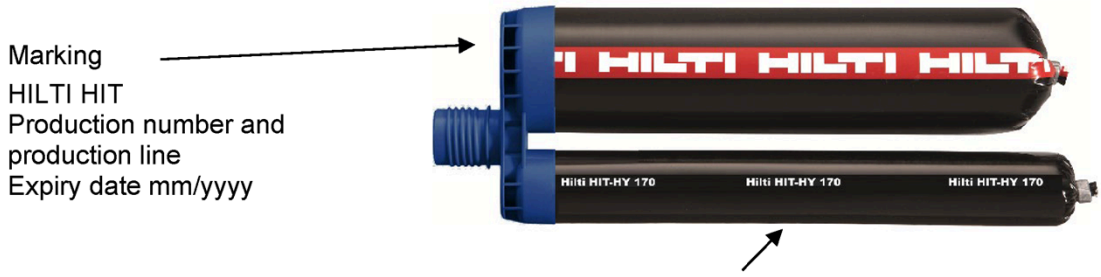


Injection system Hilti HIT-HY 170	Annex A1
Product description Installed condition	

Deutsches Institut für Bautechnik DIBt

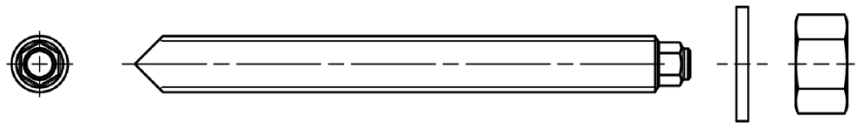
Product description: Injection mortar and steel elements

Injection mortar Hilti HIT-HY 170: hybrid system with aggregate
330 ml and 500 ml

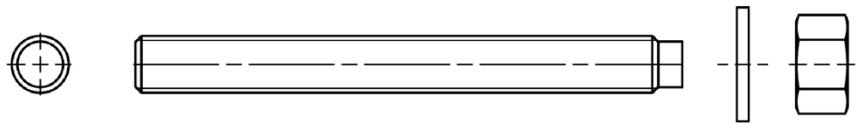


Static mixer Hilti HIT-RE-M

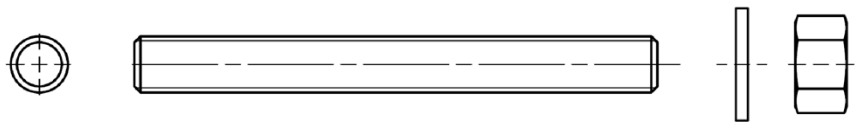
Steel elements



HAS-U-…: M6 to M12 **washer** **nut**

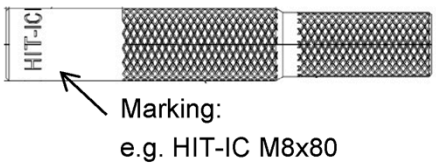


HIT-V-…: M6 to M12 **washer** **nut**

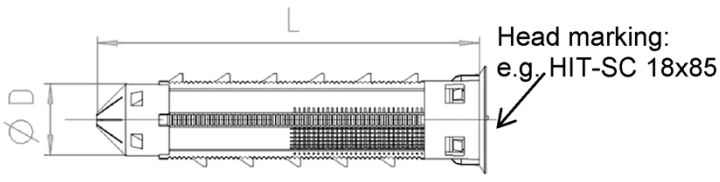


HAS…: M8 to M12 **washer** **nut**
Threaded rod: M8 to M12
Hilti AM 8.8 meter rod electroplated zinc coated: M8 to M12, 1m to 3m
Hilti AM HDG 8.8 meter rod hot dip galvanized: M8 to M12, 1m to 3m

Commercial standard threaded rod with:
- Materials, dimensions and mechanical properties acc. Table A1
- Inspection certificate 3.1 acc. to EN 10204. The document shall be stored.
- Marking of embedment depth
- For hot dip galvanized elements, the requirements of standard EN ISO 10684 shall be considered, especially with regards to the specified selection, e.g. which combination of nuts and rods to be avoided.



Internally threaded sleeve HIT-IC M8 to M12



Sieve sleeve HIT- SC 12 to 22

Injection system Hilti HIT-HY 170	**Annex A2**
Product description Injection mortar / static mixer / steel elements / sieve sleeve	

Table A1: Materials

Steel elements made of zinc coated steel	
Threaded rod 4.6	Strength class 4.6, f_{uk} = 400 N/mm², f_{yk} = 240 N/mm² Elongation at fracture (l_0 = 5d) > 8% ductile Electroplated zinc coated ≥ 5 µm, (HDG) or (F) hot dip galvanized[1)] ≥ 50 µm
Threaded rod 5.6	Strength class 5.6, f_{uk} = 500 N/mm², f_{yk} = 300 N/mm² Elongation at fracture (l_0 = 5d) > 8% ductile Electroplated zinc coated ≥ 5 µm, (HDG) or (F) hot dip galvanized[1)] ≥ 50 µm
HAS 5.8 (HDG), HAS-U 5.8 (HDG), HIT-V 5.8 (F), Threaded rod 5.8	Strength class 5.8, f_{uk} = 500 N/mm², f_{yk} = 400 N/mm², Elongation at fracture (l_0=5d) > 8% ductile Electroplated zinc coated ≥ 5 µm, (HDG) hot dip galvanized[1)] ≥ 50 µm
Threaded rod 6.8	Strength class 6.8, f_{uk} = 600 N/mm², f_{yk} = 480 N/mm², Elongation at fracture (l_0=5d) > 8% ductile Electroplated zinc coated ≥ 5 µm or hot dip galvanized[1)] ≥ 50 µm
HAS 8.8 (HDG), HAS-U 8.8 (HDG), HIT-V 8.8 (F), AM 8.8 (HDG), Threaded rod 8.8	Strength class 8.8, f_{uk} = 800 N/mm², f_{yk} = 640 N/mm², Elongation at fracture (l_0=5d) > 12% ductile Electroplated zinc coated ≥ 5 µm, (HDG) hot dip galvanized[1)] ≥ 50 µm
Internally threaded sleeve HIT-IC	f_{uk} = 490 N/mm², f_{yk} = 390 N/mm² Rupture elongation (l_0 = 5d) (l_0=5d) > 8% ductile Electroplated zinc coated ≥ 5 µm
Washer	Electroplated zinc coated ≥ 5 mm, hot dip galvanized[1)] ≥ 50 µm
Nut	Strength class of nut adapted to strength class of threaded rod Electroplated zinc coated ≥ 5 µm, Hot dip galvanized[1)] ≥ 50 µm
Steel elements made of stainless steel Corrosion resistance class (CRC) II according EN 1993-1-4	
Threaded rod	Strength class 70, f_{uk} = 700 N/mm², f_{yk} = 450 N/mm², Rupture elongation (l_0 = 5d) > 12% ductile Stainless steel 1.4301, 1.4307, 1.4311, 1.4541, 1.4306, 1.4567 EN 10088-1
Washer	Stainless steel 1.4301, 1.4307, 1.4311, 1.4541, 1.4306, 1.4567 EN 10088-1
Nut	Strength class 70, f_{uk} = 700 N/mm², f_{yk} = 450 N/mm², Stainless steel 1.4301, 1.4307, 1.4311, 1.4541, 1.4306, 1.4567 EN 10088-1
Steel elements made of stainless steel Corrosion resistance class (CRC) III according EN 1993-1-4	
HAS A4, HAS-U A4, HIT-V-R	Strength class 70, f_{uk} = 700 N/mm², f_{yk} = 450 N/mm², Rupture elongation (l_0 = 5d) > 12% ductile
Threaded rod	Strength class 70, f_{uk} = 700 N/mm², f_{yk} = 450 N/mm², Rupture elongation (l_0 = 5d) > 12% ductile Stainless steel 1.4401, 1.4404, 1.4578, 1.4571, 1.4439, 1.4362 EN 10088-1
Washer	Stainless steel 1.4401, 1.4404, 1.4578, 1.4571, 1.4439, 1.4362 EN 10088-1
Nut	Strength class 70, f_{uk} = 700 N/mm², f_{yk} = 450 N/mm², Stainless steel 1.4401, 1.4404, 1.4578, 1.4571, 1.4439, 1.4362 EN 10088-1

Injection system Hilti HIT-HY 170

Product description
Materials

Annex A3

Table A1: continued

Steel elements made of high corrosion resistant steel **Corrosion resistance class (CRC) V according EN 1993-1-4**	
HAS-U HCR, HIT-V-HCR	Strength class 80, f_{uk} = 800 N/mm², f_{yk} = 640 N/mm², Rupture elongation (l_0 = 5d) > 12% ductile
Threaded rod	Strength class 80, f_{uk} = 800 N/mm², f_{yk} = 640 N/mm², Rupture elongation (l_0 = 5d) > 12% ductile High corrosion resistant steel 1.4529, 1.4565 EN 10088-1
Washer	High corrosion resistant steel 1.4529, 1.4565 EN 10088-1
Nut	Strength class 80, f_{uk} = 800 N/mm², f_{yk} = 640 N/mm², High corrosion resistant steel 1.4529, 1.4565 EN 10088-1
Plastic parts	
Sieve sleeve HIT-SC	Frame: FPP 20T, Sieve: PA6.6 N500/200

[1] For commercial standard hot dip galvanized threaded rods and nuts, the requirements of the standard EN ISO 10684 shall be considered.

Specifications of intended use

Anchorages subject to:

- Static and quasi-static loadings.

Base materials:

- Solid brick masonry (base material group b) according to Annex B3 and B4.
  Note: The characteristic resistances are also valid for larger brick sizes and larger compressive strengths of the masonry unit.
- Hollow brick masonry (base material group c) according to Annex B3 to B6.
- Mortar strength class of the masonry: M2,5 at minimum according to EN 998-2.
- For masonry made of other solid, hollow or perforated bricks, the characteristic resistance of the anchor may be determined by job site tests according to TR 053:2022-07, under consideration of the β-factor given in Annex C1, Table C1.

Table B1: Overview use categories

		HIT-HY 170 with threaded rod, HAS…, HAS-U…, HIT-V-… or HIT-IC	
		In solid bricks (this covers also bricks with vertical perforation or grip holes of up to 15% cross section or frogs up to 20% based on the volume of the brick)	**In hollow bricks**
Hole drilling		Hammer mode, Rotary mode	Rotary mode
Static and quasi static loading		Annex: C2, C3 (steel), C5, C6	Annex: C2, C3 (steel), C7 to C10
Use condition: dry or wet structure		Condition **d/d:** **Installation** in **dry** base material and **use** in structures subject to **dry,** internal conditions. Condition **w/d:** **Installation** in dry or **wet** base material and **use** in structures subject to **dry** internal conditions. Condition **w/w:** **Installation** in dry or **wet** base material and **use** in structures subject to dry or **wet** environmental conditions. Note: in shear direction all use conditions are allowed for any brick type.	
Installation direction		Horizontal	
Base material group		b (solid masonry)	c (hollow or perforated masonry)
Temperature in the base material at installation		+5 °C to +40 °C (Table B9)	-5 °C to +40 °C (Table B10)
In-service temperature	Temperature range Ta:	-40 °C to +40 °C	(max. long term temperature +24 °C and max. short term temperature +40 °C)
	Temperature range Tb:	-40 °C to +80 °C	(max. long term temperature +50 °C and max. short term temperature +80 °C)

Injection system Hilti HIT-HY 170	**Annex B1**
Intended Use Specifications	

Use conditions (Environmental conditions):

- Structures subject to dry internal conditions
  (zinc coated steel, stainless steel or high corrosion resistant steel).
- For all other conditions according to EN 1993-1-4 corresponding to corrosion resistance classes according to Annex A3, Table A1.

Design:

- Anchorages are designed under the responsibility of an engineer experienced in anchorages and masonry work.
- Verifiable calculation notes and drawings are prepared taking account of the loads to be anchored. The position of the anchor is indicated on the design drawings (e. g. position of the anchor relative to supports).
- Anchorages under static or quasi-static loading are designed in accordance with:
  TR 054:2023-12, Design method A.

  Applies to all bricks, if no other values are specified:
  $N_{Rk,b} = N_{Rk,p} = N_{Rk,b,c} = N_{Rk,p,c}$

  $V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$

  For the calculation of pulling out a brick under tension loading $\mathbf{N_{Rk,pb}}$ or

  pushing out a brick under shear loading $\mathbf{V_{Rk,pb}}$ see EOTA Technical Report TR 054:2023-12.

  $\mathbf{N_{Rk,s}}$, $\mathbf{V_{Rk,s}}$ and $\mathbf{M^0_{Rk,s}}$ see annexes C1 and C2

  Factors for job site tests and displacements see annexes C1, C5 to C10

- In case of an actual brick compressive strength $f_{b,act}$ is smaller than the highest strength stated in the load table, the loads $N_{Rk,act}$ or $V_{Rk,act}$ can be calculated according to the following Equation:

$$N_{Rk,act} = N_{Rk} \cdot (f_{b,act}/f_b)^{\alpha} \quad \text{or} \quad V_{Rk,act} = V_{Rk} \cdot (f_{b,act}/f_b)^{\alpha}$$

with:
- $N_{Rk,act}$ or $V_{Rk,act}$ = Resistance of the fastener in the actual masonry unit
- N_{Rk} or V_{Rk} = Resistance of the fastener in the masonry unit for the relevant f_b, as given in annex C5 to C10
- $f_{b,act}$ = Actual normalized mean compressive strength of the masonry unit according to EN 772-1
- f_b = Normalized mean compressive strength stated in annexes C5 to C10
- α = 0,5 for masonry units of clay or concrete and solid unit of calcium silicate
- α = 0,75 for masonry units of perforated calcium silicate

Installation:

- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.
- In the event of drilling into a cavity (grip hole or frog) in solid bricks, either use sieve sleeve HIT-SC or check loads with on-site testing according to TR 053:2022-07.

Injection system Hilti HIT-HY 170	**Annex B2**
Intended Use Specifications	

Deutsches Institut für Bautechnik DIBt

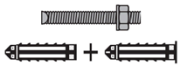
Table B2: Overview brick types and properties

Brick type	Picture	Brick size	Normalized mean Compressive strength f_b	Bulk density	Annex
[-]	[-]	[mm]	[N/mm²]	[kg/dm³]	[-]
Note: The data given in Annex C for solid bricks applies to all brick manufacturers. The characteristic resistances are also valid for larger brick sizes and larger compressive strengths of the masonry unit. Data for lower compressive strength can be calculated according to Annex B2.					
Solid clay brick EN 771-1		≥ 240x115x113	12	2,0	C5
Solid calcium silicate brick EN 771-2		≥ 240x115x113	12 / 28	2,0	C6
Note: The data given in Annex C for hollow bricks applies to all bricks with the same masonry material, properties (compressive strength and density) and geometry (size, geometry of holes, webs and shells). Data for lower compressive strength can be calculated according to Annex B2.					
Hollow clay brick EN 771-1		300x240x238	12 / 20	1,4	C7
Hollow calcium silicate brick EN 771-2		248x240x238	12 / 20	1,4	C8
Hollow lightweight concrete brick EN 771-3		495x240X238	2 / 6	0,8	C9
Hollow normal weight concrete brick EN 771-3		500x200x200	4 / 10	1,0	C10

Injection system Hilti HIT-HY 170	**Annex B3**
Intended Use Overview brick types and properties	

Deutsches Institut für Bautechnik DIBt

Table B3: Overview fastening elements (including sizes) and corresponding brick types. Embedment depth h_{ef} = 80 mm

Brick type	Picture	All anchors		All anchors + HIT-SC		Annex
		Threaded rod, e.g. HAS, HAS-U, HIT-V	Internally threaded sleeve HIT-IC	Threaded rod with sieve sleeve(s) HIT-SC	Internally threaded sleeve HIT-IC with sieve sleeve HIT-SC	
						
Solid clay brick EN 771-1		M8 to M12		M8 to M12		C5
Solid calcium silicate brick EN 771-2		M8 to M12		M8 to M12		C6
Hollow clay brick EN 771-1		-		M8 to M12		C7
Hollow calcium silicate brick EN 771-2		-		M8 to M12		C8
Hollow lightweight concrete brick EN 771-3		-		M8 to M12		C9
Hollow normal weight concrete brick EN 771-3		-		M8 to M12		C10

Injection system Hilti HIT-HY 170

Intended Use
Fastening elements and corresponding brick types

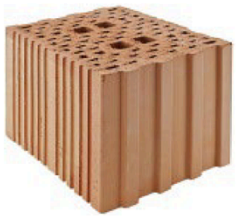
Annex B4

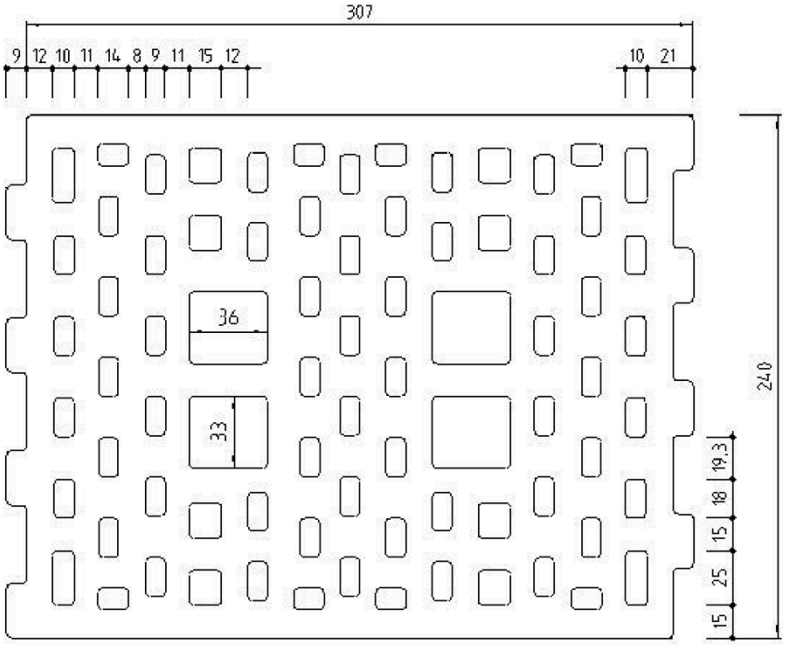
Deutsches Institut für Bautechnik DIBt

Table B4: Details of hollow bricks

Hollow clay brick
EN 771-1

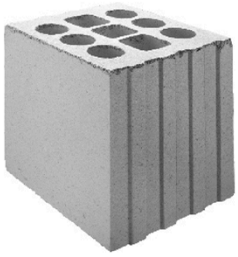
Rapis Ziegel
Hlz 12-1,4-10DF

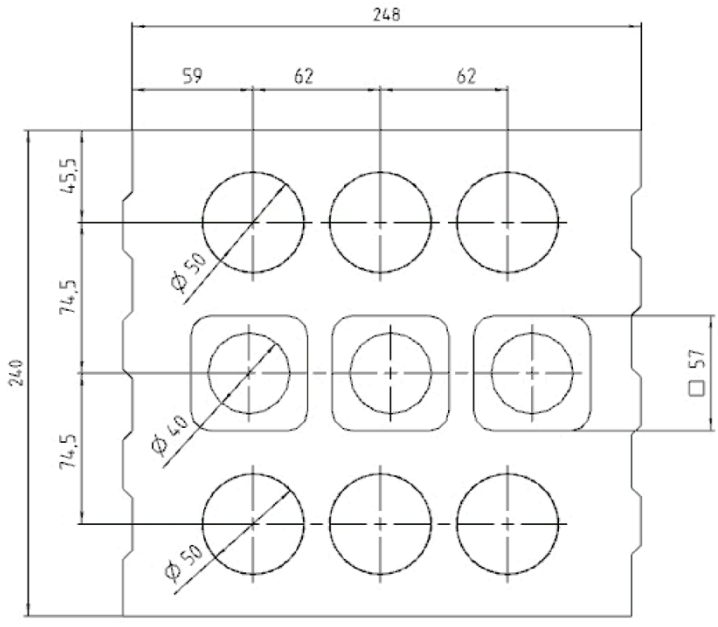




Hollow calcium silicate brick
EN 771-2

KS Südbayern
KSL-R(P) 12-1,4-8DF





Injection system Hilti HIT-HY 170

Intended Use
Details of hollow bricks

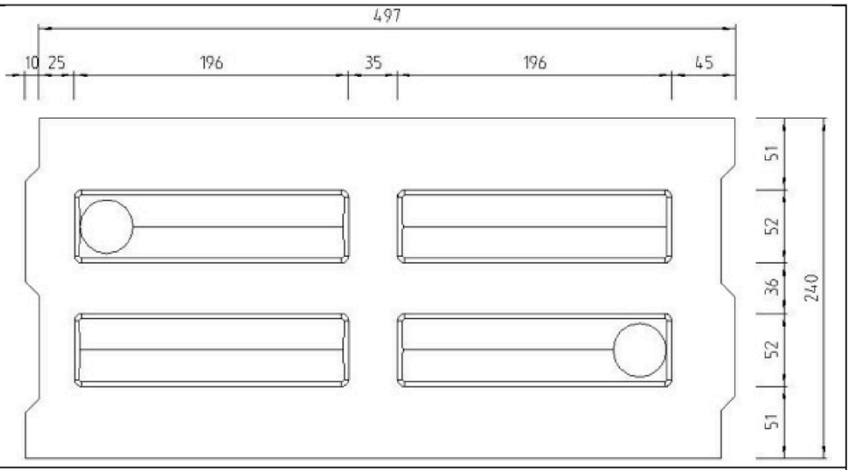
Annex B5

Deutsches Institut für Bautechnik DIBt

Table B4: continued

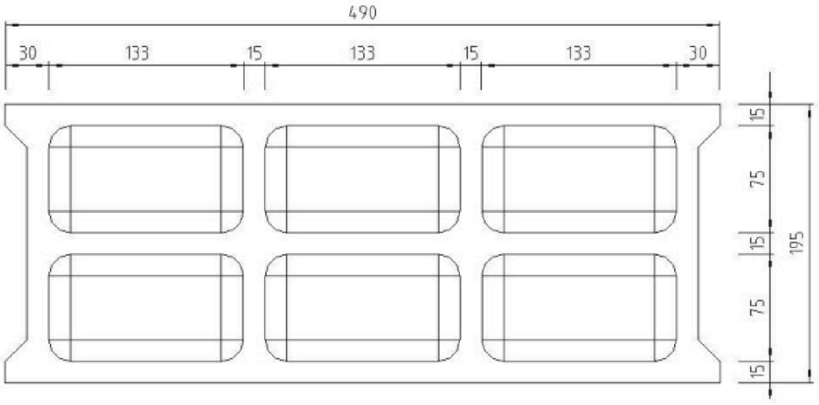
Hollow lightweight concrete brick
EN 771-3

Knobel Betonwerk
Hbl 6-0,8-500x240x238



Hollow normal weight concrete brick
EN 771-3

Parpaing creux
B40



Injection system Hilti HIT-HY 170

Intended Use
Details of hollow bricks

Annex B6

Deutsches Institut für Bautechnik DIBt

Table B5: Installation parameters of threaded rod, HAS…, HAS-U-…, HIT-V-… with sieve sleeve HIT-SC in hollow brick and solid brick (Figure A1)

threaded rod, HAS…, HAS-U…, HIT-V-…			**M8**	**M10**	**M12**
with HIT-SC			**16x85**	**16x85**	**18x85**
Nominal diameter of drill bit	d_0	[mm]	16	16	18
Drill hole depth	h_0	[mm]	95	95	95
Effective embedment depth	h_{ef}	[mm]	80	80	80
Maximum diameter of clearance hole in the fixture	d_f	[mm]	9	12	14
Minimum wall thickness	h_{min}	[mm]	115	115	115
Brush HIT-RB	-	[-]	16	16	18
Maximum torque moment for all brick types except “parpaing creux”	T_{max}	[Nm]	3	4	6
Maximum torque moment for “parpaing creux”	T_{max}	[Nm]	2	2	3
Number of strokes HDM	-	[-]	6	6	8
Number of strokes HDE-500	-	[-]	5	5	6

Table B6: Installation parameters of internally threaded sleeve HIT-IC with HIT-SC in hollow brick and solid brick (Figure A1)

HIT-IC			**M8x80**	**M10x80**	**M12x80**
with HIT-SC			**16x85**	**18x85**	**22x85**
Nominal diameter of drill bit	d_0	[mm]	16	18	22
Drill hole depth	h_0	[mm]	95	95	95
Effective embedment depth	h_{ef}	[mm]	80	80	80
Thread engagement length	h_s	[mm]	8…75	10…75	12…75
Maximum diameter of clearance hole in the fixture	d_f	[mm]	9	12	14
Minimum wall thickness	h_{min}	[mm]	115	115	115
Brush HIT-RB	-	[-]	16	18	22
Maximum torque moment	T_{max}	[Nm]	3	4	6
Number of strokes HDM	-	[-]	6	8	10
Number of strokes HDE-500	-	[-]	5	6	8

Injection system Hilti HIT-HY 170

Intended Use
Installation parameters.

Annex B7

Table B7: Installation parameters of threaded rod, HAS…, HAS-U-…, HIT-V-… in solid brick (Figure A2)

threaded rod, HAS…, HAS-U…, HIT-V-…			**M8**	**M10**	**M12**
Nominal diameter of drill bit	d_0	[mm]	10	12	14
Drill hole depth = Effective embedment depth	$h_0 = h_{ef}$	[mm]	80	80	80
Maximum diameter of clearance hole in the fixture	d_f	[mm]	9	12	14
Minimum wall thickness	h_{min}	[mm]	115	115	115
Brush HIT-RB	-	[-]	10	12	14
Maximum torque moment	T_{max}	[Nm]	5	8	10

Table B8: Installation parameters of internally threaded sleeve HIT-IC in solid brick (Figure A3)

HIT-IC			**M8x80**	**M10x80**	**M12x80**
Nominal diameter of drill bit	d_0	[mm]	14	16	18
Drill hole depth = Effective embedment depth	$h_0 = h_{ef}$	[mm]	80	80	80
Thread engagement length	h_s	[mm]	8…75	10…75	12…75
Maximum diameter of clearance hole in the fixture	d_f	[mm]	9	12	14
Minimum wall thickness	h_{min}	[mm]	115	115	115
Brush HIT-RB	-	[-]	14	16	18
Maximum torque moment	T_{max}	[Nm]	5	8	10

Deutsches Institut für Bautechnik DIBt

Table B9: Maximum working time and minimum curing time for solid bricks [1)]

Temperature in the base material T	Maximum working time t_{work}	Minimum curing time t_{cure}
5 °C to 10 °C	8 min	2,5 h
> 10 °C to 20 °C	5 min	1,5 h
> 20 °C to 30 °C	3 min	45 min
> 30 °C to 40 °C	2 min	30 min

[1)] The curing time data are valid for dry base material only.
In wet base material the curing times must be doubled.

Table B10: Maximum working time and minimum curing time for hollow bricks [1)]

Temperature in the base material T	Maximum working time t_{work}	Minimum curing time t_{cure}
-5 °C to 0 °C	10 min	12 h
> 0 °C to 5 °C	10 min	5 h
> 5 °C to 10 °C	8 min	2,5 h
> 10 °C to 20 °C	5 min	1,5 h
> 20 °C to 30 °C	3 min	45 min
> 30 °C to 40 °C	2 min	30 min

[1)] The curing time data are valid for dry base material only.
In wet base material the curing times must be doubled.

Table B11: Cleaning tools

Manual Cleaning (MC): Hilti hand pump for blowing out drill holes	
Compressed air cleaning (CAC) [1)]: air nozzle with an orifice opening of minimum 3,5 mm in diameter for blowing out drill hole	

[1)] Compressed Air Cleaning (CAC) is also allowed

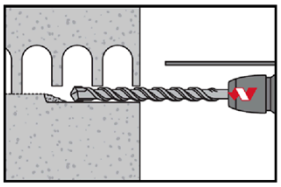
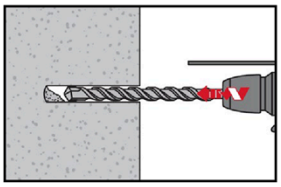
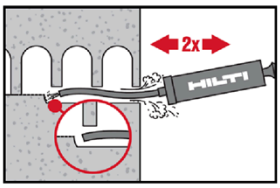
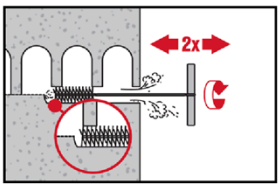
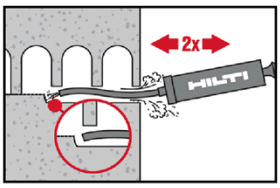
Injection system Hilti HIT-HY 170

Intended Use
Installation parameters

Annex B9

Deutsches Institut für Bautechnik DIBt

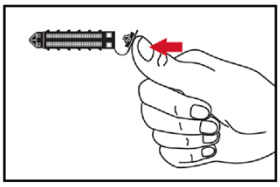
Installation instruction

Hole drilling	If no significant resistance is felt over the entire depth of the hole when drilling (e.g. in unfilled butt joints), the anchor should not be set at this position.
Drilling mode	
	In hollow and solid bricks (base material group c): rotary mode Drill hole to the required embedment depth with a hammer drill set in rotary mode using an appropriately sized carbide drill bit. In the event of drilling into a cavity (grip hole or frog) in solid bricks, either use sieve sleeve HIT-SC or check loads with on-site testing according to TR 053.
	In solid bricks (base material group b): hammer mode Drill hole to the required embedment depth with a hammer drill set in hammer mode using an appropriately sized carbide drill bit. In the event of drilling into a cavity (grip hole or frog), either use sieve sleeve HIT-SC or check loads with on-site testing according to TR 053.
Drill hole cleaning	Just before setting the anchor, the drill hole must be free of dust and debris. Inadequate hole cleaning = poor load values.
Manual Cleaning (MC): For hollow and solid bricks	
	Blow out at least 2 times from the back of the drill hole with the Hilti hand pump until return air stream is free of noticeable dust.
	Brush 2 times with the specified steel brush (tables B5 to B8) by inserting the steel brush Hilti HIT-RB to the back of the hole in a twisting motion and removing it. The brush must produce natural resistance as it enters the drill hole (brush Ø ≥ drill hole Ø) - if not the brush is too small and must be replaced with the proper brush diameter.
	Blow out again with the Hilti hand pump at least 2 times until return air stream is free of noticeable dust.

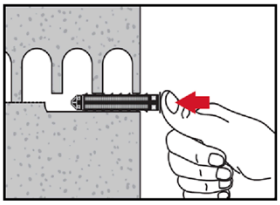
Injection system Hilti HIT-HY 170	
Intended Use Installation instructions	**Annex B10**

Deutsches Institut für Bautechnik DIBt

Injection preparation in masonry with holes or voids: installation with sieve sleeve HIT-SC

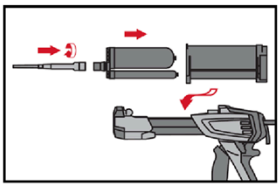


Sieve sleeve HIT-SC
Close lid.

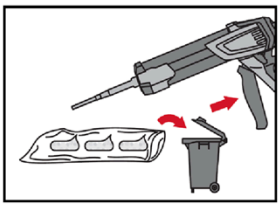


Insert sieve sleeve manually.

For all applications



Tightly attach new Hilti mixing nozzle HIT-RE-M to foil pack manifold (snug fit).
Do not modify the mixing nozzle.
Observe the instruction for use of the dispenser and foil pack.
Check foil pack holder for proper function. Do not use damaged foil packs / holders.
Insert foil pack into foil pack holder and put holder into HIT-dispenser.

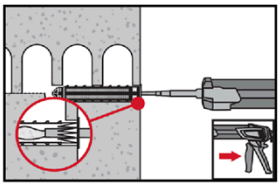


Discard initial adhesive. The foil pack opens automatically as dispensing is initiated. Depending on the size of the foil pack an initial amount of adhesive has to be discarded. Discarded quantities are:

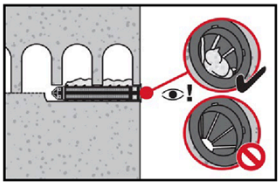
3 strokes	for 330 ml foil pack,
4 strokes	for 500 ml foil pack.

Inject adhesive without forming air voids

Installation with sieve sleeve HIT-SC



Sieve sleeve HIT-SC
Insert mixer approximately 1 cm through the lid. Inject required amount of adhesive (see tables B5 and B6). Adhesive must emerge through the lid.



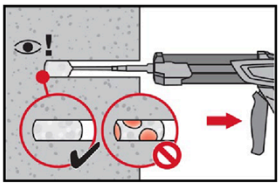
Control amount of injected mortar. Adhesive has to protrude into the lid.

After injection is completed, depressurize the dispenser by pressing the release trigger. This will prevent further adhesive discharge from the mixer.

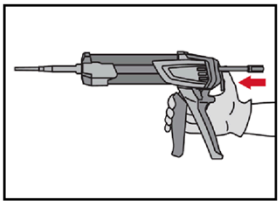
Injection system Hilti HIT-HY 170	
Intended Use Installation instructions	**Annex B11**

Deutsches Institut für Bautechnik DIBt

Solid bricks: installation without sieve sleeve

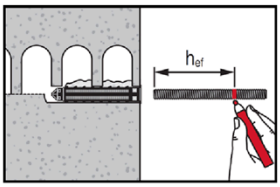


Inject the adhesive starting at the back of the hole, slowly withdrawing the mixer with each trigger pull.
Fill holes approximately 2/3 full to ensure that the annular gap between the anchor and the base material is completely filled with adhesive along the embedment length.

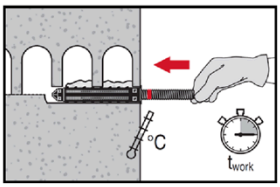


After injection is completed, depressurize the dispenser by pressing the release trigger. This will prevent further adhesive discharge from the mixer.

Setting the element: Before use, verify that the element is dry and free of oil and other contaminants.

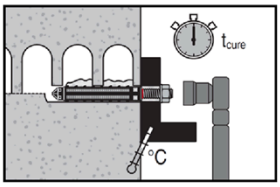


Threaded rods or HIT-IC in hollow and solid bricks:
Pre-setting (Figure A1 to Figure A3)
Mark the element to the required embedment depth h_{ef} acc. to Tables B5 to B8.



Set element to the required embedment depth until working time t_{work} has elapsed.
The working time t_{work} is given in Table B9 and Table B10.

Loading the anchor



After required curing time t_{cure} (see Table B9 and Table B10) the anchor can be loaded.
The applied installation torque shall not exceed the values T_{max} given in Tables B5 to B8.

Injection system Hilti HIT-HY 170	**Annex B12**
Intended Use Installation instructions	

Deutsches Institut für Bautechnik DIBt

Table C1: β-factor for job-site testing under tension loading

Use condition		**w/w and w/d**		**d/d**	
Temperature range		**Ta**	**Tb**	**Ta**	**Tb**
Base material	**Elements**				
Solid clay brick EN 771-2	All anchors or All anchors + HIT-SC	0,97	0,83	0,97	0,83
Solid calcium silicate brick EN 771-2	All anchors	0,96	0,84	0,97	0,84
	All anchors + HIT-SC	0,69	0,62	0,91	0,82
Hollow clay brick EN 771-1	All anchors + HIT-SC	0,97	0,83	0,97	0,83
Hollow calcium silicate brick EN 771-2	All anchors + HIT-SC	0,69	0,62	0,91	0,82
Hollow light weight concrete brick EN 771-3	All anchors + HIT-SC	0,89	0,81	0,97	0,86
Hollow normal weight concrete brick EN 771-3	All anchors + HIT-SC	0,97	0,80	0,97	0,80

Injection system Hilti HIT-HY 170

Performances
β-factors for job-site testing under tension load

Annex C1

Deutsches Institut für Bautechnik DIBt

Table C1: Characteristic resistance to steel failure for HAS… and HAS-U… under tension and shear loading in masonry

Steel failure tension loads				**M8**	**M10**	**M12**
Characteristic resistance – commercial threaded rod 4.6, 5.6, 5.8, 6.8, 8.8, CRC II, III, V		$N_{Rk,s}$	[kN]	$A_s \cdot f_{uk}$		
Characteristic resistance HAS, HAS-U, AM, HIT-V	5.8	$N_{Rk,s}$	[kN]	18,3	29,0	42,1
	5.8 HDG/ F			16,6	26,8	42,1
	8.8			29,3	46,4	67,4
	8.8 HDG/ F			26,5	42,9	67,4
	A4 (70)			25,6	40,6	59,0
	HCR (80)			29,3	46,4	67,4
Partial factor grade 4.6, 5.6		$\gamma_{Ms,N}$	[-]	2,0		
Partial factor grade 5.8, 6.8, 8.8, HAS-U HCR, HIT-V-HCR, threaded rod CRC V		$\gamma_{Ms,N}$	[-]	1,5		
Partial factor HAS A4, HAS-U A4, HIT-V-R, threaded rod CRC II and III		$\gamma_{Ms,N}$	[-]	1,87		
Steel failure shear loads without lever arm						
Characteristic steel resistance grade 4.6, 5.6 and 5.8		$V_{Rk,s}$	[kN]	$0,6 \cdot A_s \cdot f_{uk}$		
Characteristic steel resistance grade 6.8, 8.8, 70 and 80, HAS A4, HAS-U A4, HIT-V-R, threaded rod CRC II and III, HAS-U HCR, HIT-V-HCR, Threaded rod CRC V		$V_{Rk,s}$	[kN]	$0,5 \cdot A_s \cdot f_{uk}$		
Partial factor grade 4.6, 5.6		$\gamma_{Ms,V}$	[-]	1,67		
Partial factor grade 5.8, 6.8, 8.8, HAS-U HCR, HIT-V-HCR, threaded rod CRC V		$\gamma_{Ms,V}$	[-]	1,25		
Partial factor HAS A4, HAS-U A4, HIT-V-R, threaded rod CRC II and III		$\gamma_{Ms,V}$	[-]	1,56		
Steel failure shear loads with lever arm						
Characteristic bending moment – commercial threaded rod 4.6, 5.6, 5.8, 6.8, 8.8, CRC II, III, V		$M^0_{Rk,s}$	[kN]	$1,2 \cdot W_{el} \cdot f_{uk}$		
Characteristic bending moment HAS, HAS-U, AM, HIT-V	5.8	$M^0_{Rk,s}$	[kN]	18,7	37,3	65,4
	5.8 HDG/ F			16,1	33,2	65,4
	8.8			29,9	59,8	104,6
	8.8 HDG/ F			25,9	53,1	104,6
	A4 (70)			26,2	52,3	91,5
	HCR (80)			29,9	59,8	104,6

Injection system Hilti HIT-HY 170

Performances
Characteristic resistances under tension and shear load – steel failure

Annex C2

Deutsches Institut für Bautechnik DIBt

Table C3: Characteristic values of steel resistance for internally threaded sleeve HIT-IC under tension and shear loads in masonry

HIT-HY 170 with HIT-IC			M8	M10	M12
Steel failure tension loads					
Characteristic resistance HIT-IC with commercial screw or threaded rod (grade ≥ 4.6)	$N_{Rk,s}$	[kN]	5,9	7,3	13,8
Partial factor	$\gamma_{Ms,N}$	[-]	1,50		
Steel failure shear loads without lever arm					
Characteristic resistance HIT-IC with commercial screw or threaded rod	$V_{Rk,s}$	[kN]	$0,5 \cdot A_s \cdot f_{uk}$		
Partial factor	$\gamma_{Ms,V}$	[-]	[1)]		
Steel failure shear loads with lever arm					
Characteristic resistance HIT-IC with commercial screw or threaded rod	$M_{Rk,s}$	[kN]	$1,2 \cdot W_{el} \cdot f_{uk}$		

[1)] in absence of national regulations to be determined according to EOTA Technical Report TR 054, 2.2

Injection system Hilti HIT-HY 170

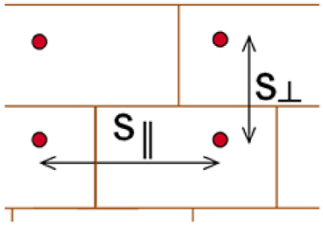
Performances
Characteristic resistances under tension and shear load – steel failure

Annex C3

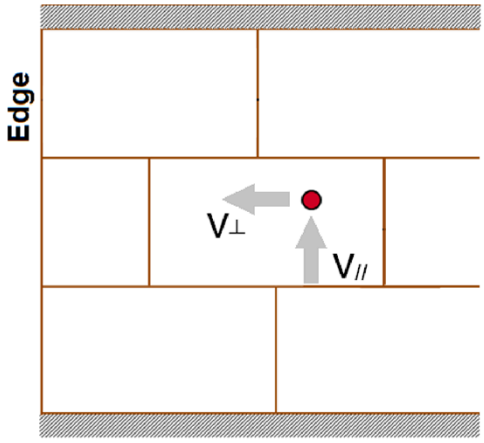
Deutsches Institut für Bautechnik DIBt

Spacing dependent on edge distances for all anchor combinations:

Spacing

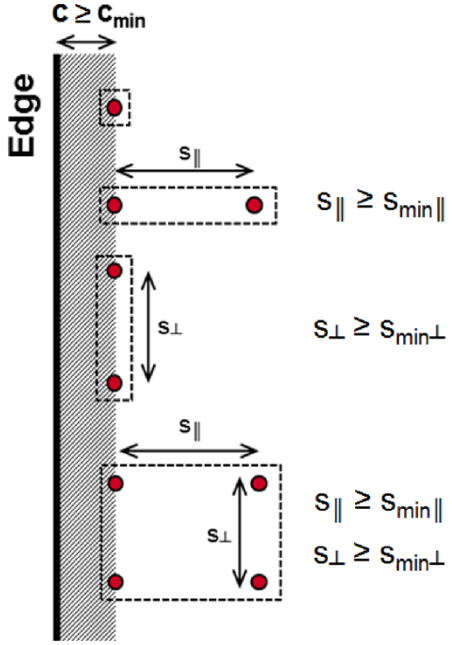


Shear load direction



Shear// (parallel to the free edge)
Shear⊥ (perpendicular to the free edge)

Edge distance [a] and spacing



[a] A vertical joint not filled with mortar is considered an edge and $c \geq c_{min}$ should be observed.

The characteristic values of resistance of an anchor group are calculated by using the related group-factors α_g according to Annexes C5 to C10:

Group of two anchors: $N^g_{Rk,b} = \alpha_{g,N} \cdot N_{Rk,b}$

$V^g_{Rk,b} = \alpha_{g,V} \cdot V_{Rk,b}$; $V^g_{RK,c,II} = \alpha_{g,V,II} \cdot V_{Rk,c,II}$; $V^g_{RK,c,\perp} = \alpha_{g,V,\perp} \cdot V_{Rk,c,\perp}$

Group of four anchors: $N^g_{Rk,b} = \alpha_{g\perp,N} \cdot \alpha_{g\parallel,N} \cdot N_{Rk,b}$

$V^g_{Rk,b} = \alpha_{g\parallel,V} \cdot \alpha_{g\perp,V} \cdot V_{Rk,b}$; $V^g_{RK,c,II} = \alpha_{g\parallel,V\parallel} \cdot \alpha_{g\perp,V\parallel} \cdot V_{Rk,c,II}$; $V^g_{RK,c\perp} = \alpha_{g\parallel,V\perp} \cdot \alpha_{g\perp,V\perp} \cdot V_{Rk,c,\perp}$;

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

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

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

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

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

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

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

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

Injection system Hilti HIT-HY 170	**Annex C4**
Performances Anchor spacing and edge distances	

Deutsches Institut für Bautechnik DIBt

Brick type: Solid clay brick Mz, 2DF

Table C2: Description of brick

Brick type		[-]	Mz, 2DF
Bulk density	ρ	[kg/dm³]	≥ 2,0
Normalized mean compressive strength	f_b	[N/mm²]	≥ 12
Code		[-]	EN 771 - 1
Brick manufacturer			all
Brick dimensions		[mm]	≥ 240 x 115 x 113

Table C3: Installation parameter for all anchor combinations (see Table B3)

Anchor type		see Table B3
Edge distance	$c_{min} = c_{cr}$ [mm]	115
Spacing	$s_{min\,II} = s_{cr\,II}$ [mm]	240
	$s_{min\,\perp} = s_{cr\,\perp}$ [mm]	115

Table C4: Group factor for group fastenings

Group factor	$\alpha_{g,N\,II}$ $\alpha_{g,V\,II}$ $\alpha_{g,N\,\perp}$ $\alpha_{g,V\,\perp}$ [-]	2 at c_{cr} and s_{cr}

Table C5: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading at edge distance c ≥ c_{cr}

Use condition				w/w = w/d		d/d	
Service temperature range				Ta	Tb	Ta	Tb
Anchor type and size		h_{ef} [mm]	f_b [N/mm²]	$N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} = N_{Rk,b,c}$ [kN]			
Threaded rod	M8, M10, M12	≥ 80	≥ 12	3,0	2,5	3,0	2,5
HIT-IC	M8	≥ 80	≥ 12	3,0	2,5	3,0	2,5
	M10, M12	≥ 80	≥ 12	4,0	3,5	4,0	3,5
All anchors + HIT-SC	M8, M10, M12	≥ 80	≥ 12	4,0	3,5	4,0	3,5

Table C6: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading at edge distance c ≥ c_{cr}

Use condition				w/w = w/d		d/d	
Service temperature range				Ta	Tb	Ta	Tb
Anchor type and size		h_{ef} [mm]	f_b [N/mm²]	$V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$ [kN]			
All anchors All anchors + HIT-SC	M8, M10, M12	≥ 80	≥ 12	3,5			

Table C7: Displacements

h_{ef}	N	δ_{N0}	$\delta_{N\infty}$	V	δ_{V0}	$\delta_{V\infty}$
[mm]	[kN]	[mm]	[mm]	[kN]	[mm]	[mm]
80	0,9	0,2	0,4	1,0	1,0	1,5

Injection system Hilti HIT-HY 170

Performances solid clay brick Mz, 2DF
Installation parameters and group factor.
Characteristic values of resistance under tension and shear loads. Displacements

Annex C5

Deutsches Institut für Bautechnik DIBt

Brick type: Solid calcium silicate brick KS, 2DF

Table C8: Description of brick

Brick type		[-]	KS, 2DF
Bulk density	ρ	[kg/dm³]	≥ 2,0
Normalized mean compressive strength	f_b	[N/mm²]	≥ 12 or ≥ 28
Code		[-]	EN 771 - 2
Brick manufacturer			all
Brick dimensions		[mm]	≥ 240 x 115 x 113

Table C9: Installation parameter for all anchor combinations (see Table B3)

Anchor type			see Table B3
Edge distance		$c_{min} = c_{cr}$ [mm]	115
Spacing		$s_{min\,\parallel} = s_{cr\,\parallel}$ [mm]	240
		$s_{min\,\perp} = s_{cr\,\perp}$ [mm]	115

Table C10: Group factor for group fastenings

Group factor	$\alpha_{g,N\,\parallel}$ $\alpha_{g,V\,\parallel}$ $\alpha_{g,N\,\perp}$ $\alpha_{g,V\,\perp}$ [-]	2 at c_{cr} and s_{cr}

Table C11: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading at edge distance c ≥ c_{cr}

Use condition				w/w = w/d		d/d	
Service temperature range				Ta	Tb	Ta	Tb
Anchor type and size		h_{ef} [mm]	f_b [N/mm²]	$N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} = N_{Rk,b,c}$ [kN]			
All anchors	M8, M10, M12	≥ 80	≥ 12	5,5	5,0	6,0	5,0
			≥ 28	8,5	7,5	8,5	7,5
All anchors + HIT-SC	M8, M10, M12	≥ 80	≥ 12	4,0	3,5	5,5	5,0
			≥ 28	6,0	5,5	8,0	7,5

Table C12: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading at edge distance c ≥ c_{cr}

Use condition				w/w = w/d		d/d	
Service temperature range				Ta	Tb	Ta	Tb
Anchor type and size		h_{ef} [mm]	f_b [N/mm²]	$V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$ [kN]			
All anchors All anchors + HIT-SC	M8, M10, M12	≥ 80	≥ 12	4,0			
			≥ 28	6,0			

Table C13: Displacements

h_{ef}	N	δ_{N0}	$\delta_{N\infty}$	V	δ_{V0}	$\delta_{V\infty}$
[mm]	[kN]	[mm]	[mm]	[kN]	[mm]	[mm]
80mm	2,3	0,2	0,4	1,5	1,2	1,8

Injection system Hilti HIT-HY 170

Performances solid silica brick KS, 2DF
Installation parameters and group factor.
Characteristic values of resistance under tension and shear loads. Displacements

Annex C6

Deutsches Institut für Bautechnik DIBt

Brick type: Hollow clay brick Hlz, 10DF

Table C14: Description of brick

Brick type		[-]	Hlz 12-1,4-10 DF
Bulk density	ρ	[kg/dm³]	≥ 1,4
Normalized mean compressive strength	f_b	[N/mm²]	≥ 12 or ≥ 20
Code		[-]	EN 771 - 1
Brick manufacturer		[-]	Rapis (D)
Brick dimensions		[mm]	300 x 240 x 238
Minimum wall thickness	h_{min}	[mm]	≥ 240

Drawing of the brick see Table B4

Table C15: Installation parameter for all anchor combinations (see Table B3)

Anchor type		see Table B3
Edge distance	$c_{min} = c_{cr}$ [mm]	150
Spacing Ac	$s_{min\,II} = s_{cr\,II}$ [mm]	300
	$s_{min\,\perp} = s_{cr\,\perp}$ [mm]	240

Table C16: Group factor for group fastenings

Group factor	$\alpha_{g,N\,II}$ $\alpha_{g,V\,II}$ $\alpha_{g,N\,\perp}$ $\alpha_{g,V\,\perp}$ [-]	2 at c_{cr} and s_{cr}

Table C17: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading at edge distance c ≥ c_{cr}

Use condition				w/w = w/d		d/d	
Service temperature range				Ta	Tb	Ta	Tb
Anchor type and size		h_{ef} [mm]	f_b [N/mm²]	$N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} = N_{Rk,b,c}$ [kN]			
All anchors + HIT-SC	M8, M10, M12	≥ 80	≥ 12	3,0	2,5	3,0	2,5
			≥ 20	3,5	3,0	3,5	3,0

Table C18: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading at edge distance c ≥ c_{cr}

Use condition				w/w = w/d		d/d	
Service temperature range				Ta	Tb	Ta	Tb
Anchor type and size		h_{ef} [mm]	f_b [N/mm²]	$V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$ [kN]			
All anchors + HIT-SC	M8, M10, M12	≥ 80	≥ 12	2,0			
			≥ 20	3,0			

Table C19: Displacements

h_{ef}	N	δ_{N0}	$\delta_{N\infty}$	V	δ_{V0}	$\delta_{V\infty}$
[mm]	[kN]	[mm]	[mm]	[kN]	[mm]	[mm]
80	0,9	0,2	0,3	0,9	1,0	1,5

Injection system Hilti HIT-HY 170

Performances hollow clay brick Hlz, 10DF
Installation parameters and group factor.
Characteristic values of resistance under tension and shear loads. Displacements

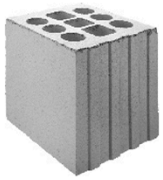
Annex C7

Deutsches Institut für Bautechnik DIBt

Brick type: Hollow calcium silicate brick KSL, 8DF

Table C21: Description of brick

Brick type		[-]	KSL-12-1,4-8 DF
Bulk density	ρ	[kg/dm³]	≥ 1,4
Normalized mean compressive strength	f_b	[N/mm²]	≥ 12 or ≥ 20
Code		[-]	EN 771 – 2
Brick manufacturer		[-]	KS Südbayern (D)
Brick dimensions		[mm]	248 x 240 x 238
Minimum wall thickness	h_{min}	[mm]	≥ 240



Drawing of the brick see Table B4

Table C20: Installation parameter for all anchor combinations (see Table B3)

Anchor type		see Table B3
Edge distance	$c_{min} = c_{cr}$ [mm]	125
Spacing Ac	$s_{min\,II} = s_{cr\,II}$ [mm]	248
	$s_{min\,\perp} = s_{cr\,\perp}$ [mm]	240

Table C21: Group factor for group fastenings

Group factor	$\alpha_{g,N\,II}$ $\alpha_{g,V\,II}$ $\alpha_{g,N\,\perp}$ $\alpha_{g,V\,\perp}$ [-]	2 at c_{cr} and s_{cr}

Table C22: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading at edge distance c ≥ c_{cr}

Use condition				w/w = w/d		d/d	
Service temperature range				Ta	Tb	Ta	Tb
Anchor type and size		h_{ef} [mm]	f_b [N/mm²]	$N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} = N_{Rk,b,c}$ [kN]			
All anchors + HIT-SC	M8, M10, M12	≥ 80	≥ 12	3,0	2,5	3,5	3,0
			≥ 20	4,0	3,5	5,0	4,5

Table C23: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading at edge distance c ≥ c_{cr}

Use condition				w/w = w/d		d/d	
Service temperature range				Ta	Tb	Ta	Tb
Anchor type and size		h_{ef} [mm]	f_b [N/mm²]	$V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$ [kN]			
All anchors + HIT-SC	M8, M10, M12	≥ 80	≥ 12	8,5			
			≥ 20	12,0			

Table C26: Displacements

h_{ef}	N	δ_{N0}	$\delta_{N\infty}$	V	δ_{V0}	$\delta_{V\infty}$
[mm]	[kN]	[mm]	[mm]	[kN]	[mm]	[mm]
80	1,8	0,2	0,3	3,4	2,5	3,8

Injection system Hilti HIT-HY 170

Performances hollow silica brick KSL, 8DF
Installation parameters and group factor.
Characteristic values of resistance under tension and shear loads. Displacements

Annex C8

Deutsches Institut für Bautechnik DIBt

Brick type: Hollow lightweight concrete brick Hbl, 16DF

Table C27: Description of brick

Brick type		[-]	Hbl-4-0,7
Bulk density	ρ	[kg/dm³]	≥ 0,8
Normalized mean compressive strength	f_b	[N/mm²]	≥ 2 or ≥ 6
Code		[-]	EN 771-3
Brick manufacturer		[-]	Knobel (D)
Brick dimensions		[mm]	495 x 240 x 238
Minimum wall thickness	h_{min}	[mm]	≥ 240

Drawing of the brick see Table B4

Table C24: Installation parameter for all anchor combinations (see Table B3)

Anchor type		see Table B3
Edge distance	$c_{min} = c_{cr}$ [mm]	250
Spacing Ac	$s_{min\,\parallel} = s_{cr\,\parallel}$ [mm]	240
	$s_{min\,\perp} = s_{cr\,\perp}$ [mm]	240

Table C25: Group factor for group fastenings

Group factor	$\alpha_{g,N\,\parallel}$ $\alpha_{g,V\,\parallel}$ $\alpha_{g,N\,\perp}$ $\alpha_{g,V\,\perp}$ [-]	2 at c_{cr} and s_{cr}

Table C26: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading at edge distance c ≥ c_{cr}

Use condition				w/w = w/d		d/d	
Service temperature range				Ta	Tb	Ta	Tb
Anchor type and size		h_{ef} [mm]	f_b [N/mm²]	$N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} = N_{Rk,b,c}$ [kN]			
All anchors + HIT-SC	M8, M10, M12	≥ 80	≥ 2	1,2	0,9	1,5	1,2
			≥ 6	2,0	1,5	2,5	2,0

Table C27: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading at edge distance c ≥ c_{cr}

Use condition				w/w = w/d		d/d	
Service temperature range				Ta	Tb	Ta	Tb
Anchor type and size		h_{ef} [mm]	f_b [N/mm²]	$V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$ [kN]			
All anchors + HIT-SC	M8, M10, M12	≥ 80	≥ 2	2,5			
			≥ 6	4,0			

Table C28: Displacements

h_{ef}	N	δ_{N0}	$\delta_{N\infty}$	V	δ_{V0}	$\delta_{V\infty}$
[mm]	[kN]	[mm]	[mm]	[kN]	[mm]	[mm]
80	2,4	0,2	0,4	3,4	1,3	1,9

Injection system Hilti HIT-HY 170

Performances hollow lightweight concrete brick Hbl 16DF
Installation parameters and group factor.
Characteristic values of resistance under tension and shear loads. Displacements

Annex C9

Brick type: Hollow normal weight concrete brick - parpaing creux

Table C29: Description of brick

Brick type		[-]	B40
Bulk density		ρ [kg/dm³]	≥ 1,0
Normalized mean compressive strength		f_b [N/mm²]	≥ 4 or ≥ 10
Code		[-]	EN 771-3
Brick manufacturer		[-]	Fabemi (F)
Brick dimensions		[mm]	500 x 200 x 200
Minimum wall thickness		h_{min} [mm]	≥ 200

Drawing of the brick see Table B4

Table C30: Installation parameter for all anchor combinations (see Table B3)

Anchor type		see Table B3
Edge distance	$c_{min} = c_{cr}$ [mm]	200
Spacing Ac	$s_{min\,II} = s_{cr\,II}$ [mm]	200
	$s_{min\,\perp} = s_{cr\,\perp}$ [mm]	200

Table C31: Group factor for group fastenings

Group factor	$\alpha_{g,N\,II}$ $\alpha_{g,V\,II}$ $\alpha_{g,N\,\perp}$ $\alpha_{g,V\,\perp}$ [-]	2 at c_{cr} and s_{cr}

Table C32: Characteristic resistance to pull-out failure or brick breakout failure of a single anchor under tension loading at edge distance c ≥ c_{cr}

Use condition				w/w = w/d		d/d	
Service temperature range				Ta	Tb	Ta	Tb
Anchor type and size		h_{ef} [mm]	f_b [N/mm²]	$N_{Rk,p} = N_{Rk,b} = N_{Rk,p,c} = N_{Rk,b,c}$ [kN]			
All anchors + HIT-SC	M8, M10, M12	≥ 80	≥ 4	0,9	0,9	0,9	0,9
			≥ 10	1,2	1,2	1,5	1,5

Table C33: Characteristic resistance to local brick failure or brick edge failure of a single anchor under shear loading at edge distance c ≥ c_{cr}

Use condition				w/w = w/d		d/d	
Service temperature range				Ta	Tb	Ta	Tb
Anchor type and size		h_{ef} [mm]	f_b [N/mm²]	$V_{Rk,b} = V_{Rk,c,II} = V_{Rk,c,\perp}$ [kN]			
All anchors + HIT-SC	M8, M10, M12	≥ 80	≥ 4	2,5			
			≥ 10	4,0			

Table C34: Displacements

h_{ef}	N	δ_{N0}	$\delta_{N\infty}$	V	δ_{V0}	$\delta_{V\infty}$
[mm]	[kN]	[mm]	[mm]	[kN]	[mm]	[mm]
80	1,0	0,6	1,2	2,3	0,6	0,9

Injection system Hilti HIT-HY 170

Performances hollow normal weight concrete brick - parpaing creux
Installation parameters and group factor.
Characteristic values of resistance under tension and shear loads. Displacements

Annex C10