



Heli-Brick

Stainless-steel Heli-Brick and setting tools for masonry façade and masonry walls strengthening.

Heli-Brick System	Benefits
 <p>Heli-Brick Connector</p>	 <p>Setting Tube Setting Tool</p> <ul style="list-style-type: none"> - Faster and easier to install with dedicated setting tools - On-site testing service (OST) available – pull tests are available to verify loads after installation - Low aesthetic impact – Heli-Brick can be hidden within the mortar joint

Applications

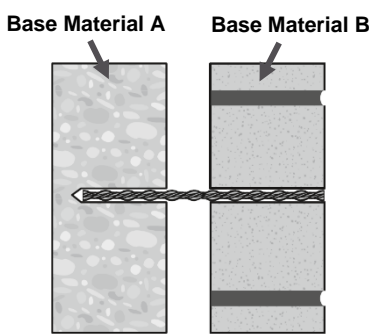


Figure 1

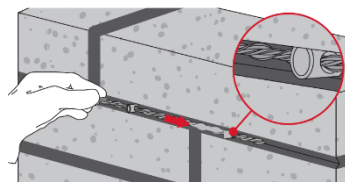

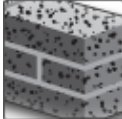
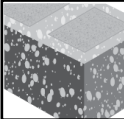



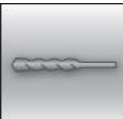

Figure 2

The Heli-Brick mechanical anchor system consists of stainless-steel Heli-Brick rods, connectors, and setting tools. This system can be used in two masonry façade strengthening applications:

- 1. Strengthening of the connection between masonry façades and inner walls:** Once the holes have been drilled through Base Material B and into Base Material A, the dedicated setting tool is used to drive the Heli-Brick into the two base materials (Figure 1). The Heli-Brick transfers the load from Base Material B to Base Material A via keying.
- 2. Strengthening of horizontal joints in masonry facades and inner walls:** In the wall that needs strengthening (Base Material B) the mortar in horizontal joint is removed to allow the positioning of the horizontal rod. In the joint perpendicular to the wall face, holes are prepared in Base Material B and Base Material A as prescribed per the operating instructions. The dedicated setting tool is then used to drive the Heli-Brick into the two base materials (Figure 1), and connectors are attached to the exposed ends of the installed Heli-Brick. Finally, additional Heli-Brick rods are woven through the holes of the connectors (Figure 2). This creates a net that keeps the façade in plane.

For both applications the Heli-Brick can be covered with mortar to mitigate the aesthetic impact. Hilti also offers on-site testing services (OST) to verify the pullout resistance and quality of the installation.

Base material	Load conditions
 <p>Concrete (uncracked)</p>  <p>Solid cement unit</p>  <p>Grout filled hollow brick</p>	 <p>Static/ quasi-static</p>

Installation conditions	Other information
 <p>Hammer drilled holes</p>	 <p>Corrosion resistance</p>

Basic loading data (for a single Heli-Brick) in concrete or solid masonry units

All data in this section applies to Heli-Brick installed in base A (see installation instruction):

- Correct setting (see installation instruction)
- Installation direction: horizontal
- Installation in bricks: no installation in joints
- Base material condition: dry
- Drilling technique: Hammer drilling
- Drill hole cleaning: not required
- No edge distance and spacing influence
- Minimum base material thickness
- Base material properties as stated in the relevant tables

Recommended tension loads

Base material		Heli-Brick 10
Uncracked concrete C20/25	N_{rec} [kN]	1,3
Solid cement brick type: MU15, Class B, GB/T 21144-2007 Size : 190x90x45 [mm], Strength : $f_b \geq 15.3\text{Mpa}$	N_{rec} [kN]	0,4
Grout filled hollow clay brick type: MU10, GB/T 13544-2011 Size : 240x115x90 [mm], Strength : $f_b \geq 14.1\text{Mpa}$ Strength of the grout : $f_c \geq 13\text{Mpa}$	N_{rec} [kN]	0,6







Material properties

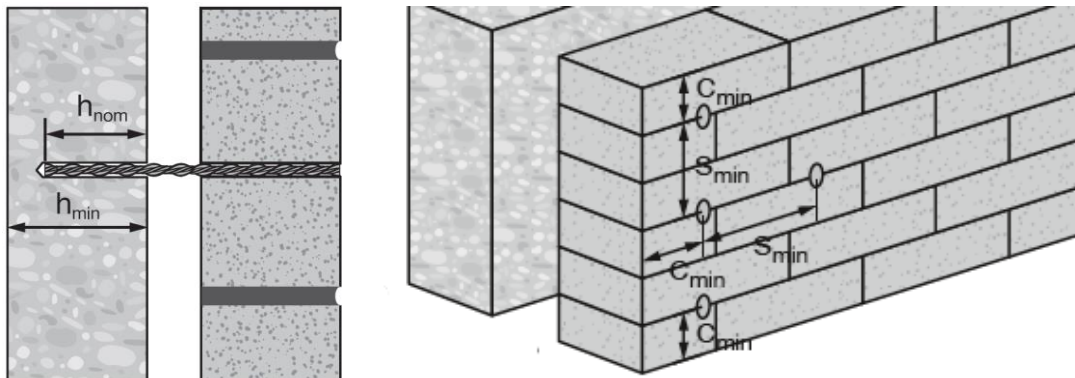
		Heli-Brick 10
Material		Stainless steel, 304
Nominal tensile strength	f_{uk} [N/mm ²]	1240,0
Yield strength	f_{yk} [N/mm ²]	1038,7
Stressed cross-section	A_s [mm ²]	12,9
Elongation	A [%]	5,7

List of Heli-Brick System/Material

Denomination	Length	Article number
Heli-Brick 304 - 10x250	250 mm	2365084
Heli-Brick 304 - 10x300	300 mm	2365085
Heli-Brick 304 - 10x350	350 mm	2365086
Heli-Brick 304 - 6 (10m)	10 m	2369737
Connector 10	N.A.	2365087
Setting Tool TE-C 10 (SDS Plus)		2365088
Setting Tube 150		2365089

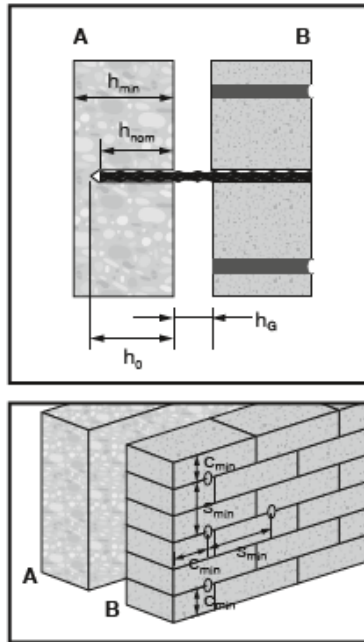
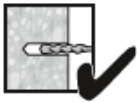
Parameters of drilling and setting tools

Element	Drill (Heli-Brick)		Element	Drill (Connectors)	
	Rotary hammer	Hammer drilling		Rotary hammer	Hammer drilling
Heli-Brick			Connector		
	TE 6	d_0 [mm]		TE 6	d_0 [mm]
Size			Size		
10x250		8	10		12
10x300		8			
10x350	8				

Installation parameters


Heli-Brick installation parameters in concrete		
Setting depth	h_{nom} [mm]	50 to 100
Minimum base material thickness	h_{min} [mm]	150
Minimum edge distance	C_{min} [mm]	150
Minimum spacing (single fastener)	S_{min} [mm]	300
Heli-Brick installation parameters in masonry		
Setting depth	h_{nom} [mm]	50 to 90
Solid cement brick Minimum base material thickness	h_{min} [mm]	90
Grout filled hollow clay brick Minimum base material thickness	h_{min} [mm]	115
Minimum edge distance	C_{min} [mm]	150
Minimum spacing (single fastener)	S_{min} [mm]	300

Heli-Brick installation instruction



For use only for façade strengthening by professionals with support from a structural designer and verification with on site testing.

Follow the local guideline for the design, distance to edge, spacing and on site testing.

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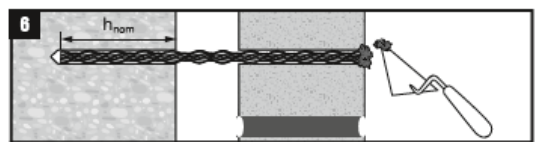
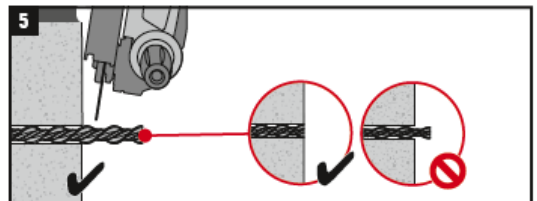
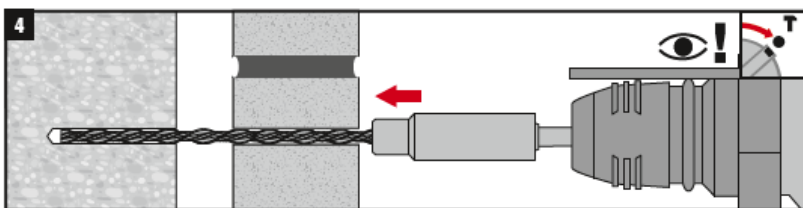
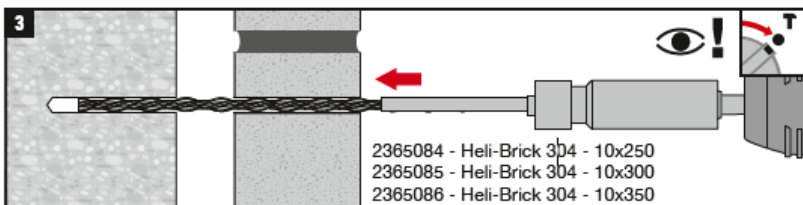
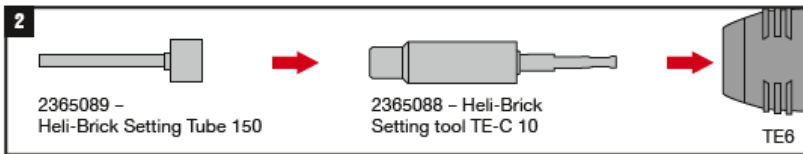
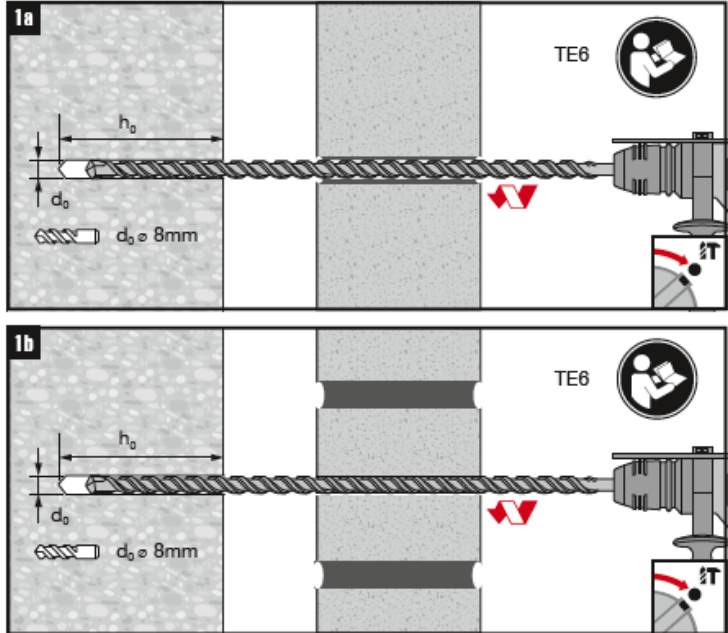
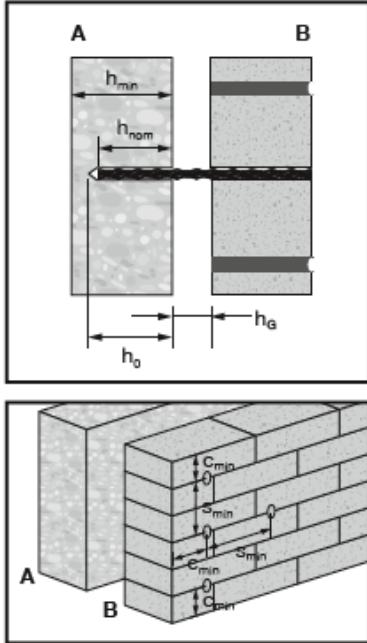
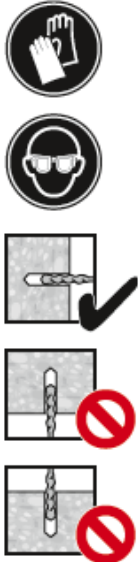
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Configuration 현장 조건	1	2
Base (A) 모재	Concrete / Cement Brick / Clay Brick / Hollow Cement Brick filled with Grout / Hollow Clay Brick filled with Grout 콘크리트 / 시멘트벽돌 / 점토벽돌 / 중공시멘트벽돌(그라우팅) / 중공점토벽돌(그라우팅)	Hollow Cement Brick / Hollow Clay Brick 중공시멘트벽돌 / 중공점토벽돌
Façade (B) 파사드	Clay Brick / Hollow Clay Brick filled with Grout 점토벽돌 / 중공점토벽돌(그라우팅)	Clay Brick / Hollow Clay Brick filled with Grout 점토벽돌 / 중공점토벽돌(그라우팅)
Heli-Brick installation Heli-Brick 단품 설치	✓	✗
Min. base material thickness (h_{min}) 최소 모재 두께	$\geq 150\text{mm}$	-
Setting depth (h_{nom}) 설치 깊이	$\geq 50\text{mm}$	-
Drilling depth (h_0) 천공 깊이	$\geq h_t + 10\text{mm}$	-
Gap between wall and facade (h_g) 벽과 파사드 사이의 틈	50 ... 150mm	-
Distance to Edge (c_{min}) 가장자리까지의 거리	$\geq 100\text{mm}$	-
Spacing (s_{min}) 간격	Follow Local Guideline 현지 지침을 따르십시오	-

Heli-Brick bar installation



Heli-Brick bar installation with coil and connector

