



## Designated according to The Construction Products (Amendment etc.) (EU Exit) Regulations 2020

UK Technical Assessment	UKTA-0836-23/6691 of 05/07/2023
Technical Assessment Body issuing the UK Technical Assessment:	British Board of Agrément
Trade name of the construction product:	Hilti push-in anchor HKD
Product family to which the construction product belongs:	Mechanical fastener for non-structural applications in concrete
Manufacturer:	Hilti Aktiengesellschaft Feldkircherstrasse 100 9494 SCHAAN FÜRSTENTUM LIECHTENSTEIN
Manufacturing plant(s):	Hilti plants
This UK Technical Assessment contains:	20 pages including 3 Annexes which form an integral part of this assessment.
This UK Technical Assessment is issued in accordance with The Construction Products (Amendment etc.) (EU Exit) Regulations 2020 on the basis of:	UKAD 330747-00-0601 Fasteners for use in concrete in redundant for non-structural systems

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**1. Technical description of the product**

The Hilti push-in anchor HKD is a fastener made of galvanized or stainless steel which is placed into a drilled hole and anchored by deformation-controlled expansion.

The fastener consists of an anchor body and an internal plug.

The fixture shall be anchored with a fastening screw or threaded rod according to Annex B2.

The product description is given in Annex A.

**2. Specification of the intended use(s) in accordance with the applicable UK Assessment Document (hereinafter UKAD)**

The performances given in Section 3 are only valid if the anchor is used in compliance with the specifications and conditions given in Annex B.

The verifications and assessment methods on which this UK Technical Assessment is based lead to the assumption of a working life of the anchor of at least 50 years.

The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

**3. Performance of the product and references to the methods used for its assessment**

**3.1. Mechanical resistance and stability (BWR 1)**

Not relevant.

**3.2. Safety in case of fire (BWR 2)**

Essential characteristic	Performance
Reaction to fire	Class A1
Resistance to fire	See Annex C4

**3.3. Health, hygiene and the environment (BWR 3)**

Not relevant.

**3.4. Safety and accessibility in use (BWR 4)**

Essential characteristic	Performance
Characteristic resistance for all load directions and modes of failure for simplified design	See Annexes C1 to C3

**3.5. Protection against noise (BWR 5)**

Not relevant.

**3.6. Energy economy and heat retention (BWR 6)**

Not relevant.

**3.7. Sustainable use of natural resources (BWR 7)**

No performance assessed.

#### **4. Assessment and verification of constancy of performance (hereinafter AVCP) system applied**

##### **4.1. System of assessment and verification of constancy of performance**

According to UKAD No. 330747-00-0601 and Annex V of the Construction Products Regulation (Regulation (EU) 305/2011) as brought into UK law and amended, the system of assessment and verification of constancy of performance (AVCP) 2+ applies.

#### **5. Technical details necessary for the implementation of the AVCP system, as provided for in the applicable UKAD**

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with the British Board of Agrément and made available to the UK Approved Bodies involved in the conformity attestation process.

##### **5.1. UKCA marking for the product/ system must contain the following information:**

- Identification number of the Approved Body
- Name/registered address of the manufacturer of the product/ system
- Marking including date of Marking and the intended use as stated in the Designated technical specification
- Unique identification code of the product type
- The reference number of the Declaration of Performance
- The level or class of the performance declared
- The reference to the Designated technical specification applied
- UKTA number

On behalf of the British Board of Agrément



Date of Issue: 5 July 2023

**Hardy Giesler**  
Chief Executive Officer



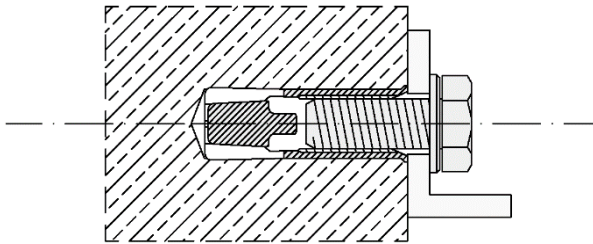
**British Board of Agrément,**  
1<sup>st</sup> Floor Building 3,  
Hatters Lane,  
Croxley Park  
Watford  
WD18 8YG

**ANNEX A1**  
**Product description**  
**Installed condition.**

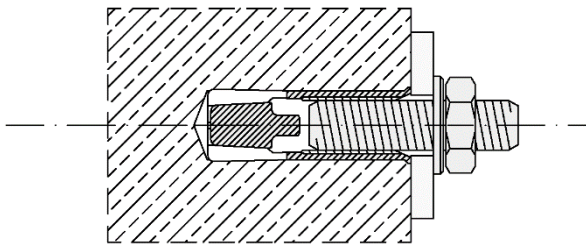
This annex applies to the product described in the main body of the UK Technical Assessment.

**Installed condition, multiple use for non-structural applications only**

**Figure A1:**  
**Hilti push-in anchor HKD with screw**

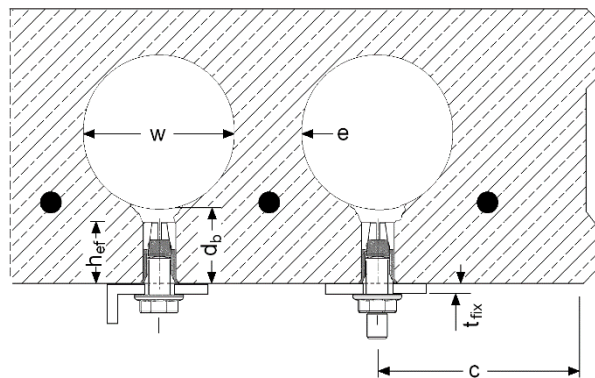


**Figure A2:**  
**Hilti push-in anchor HKD with threaded rod, washer and nut**



**Figure A3:**  
**Hilti push-in anchor HKD in precast prestressed hollow core slabs ( $w/e \leq 4,2$ )**

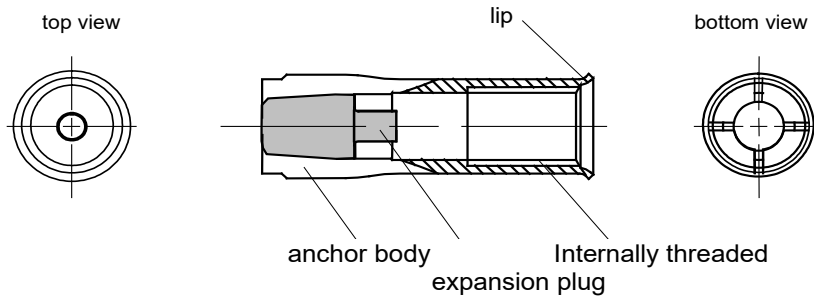
- w Core width
- e Web thickness
- $d_b$  Bottom flange thickness  
 $\geq 35 \text{ mm}$  for M6x25 and M8x25  
 $\geq 40 \text{ mm}$  for M10x25
- $h_{ef}$  Embedment depth
- $t_{fix}$  Thickness of fixture
- c Edge distance



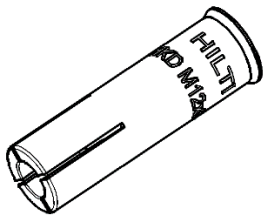
**ANNEX A2**  
**Product description**  
**Anchor types / Marking**

This annex applies to the product described in the main body of the UK Technical Assessment.

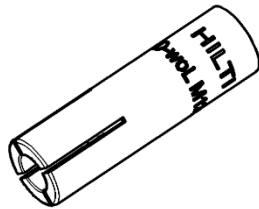
**Product description: Hilti push-in anchor HKD**  
**Multiple use for non-structural applications only**



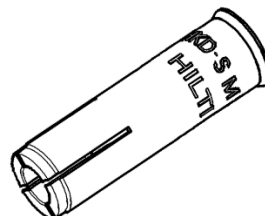
**Marking:**



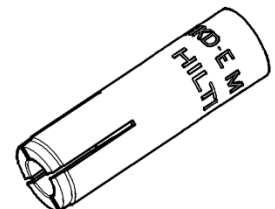
**HKD**



**HKD-woL**



**HKD-S /  
 HKD-SR**



**HKD-E /  
 HKD-ER**

HKD

- HKD M6 x 25
- HKD M8 x 25
- HKD M8 x 30
- HKD M8 x 40
- HKD M10 x 25
- HKD M10 x 30
- HKD M10 x 40
- HKD M12 x 25
- HKD M12 x 50
- HKD M16 x 65

HKD-woL

- HKD-woL M6 x 25
- HKD-woL M8 x 25
- HKD-woL M8 x 30
- HKD-woL M8 x 40
- HKD-woL M10 x 25
- HKD-woL M10 x 30
- HKD-woL M10 x 40
- HKD-woL M12 x 25
- HKD-woL M12 x 50
- HKD-woL M16 x 65

HKD-S

- HKD-S M6 x 30 ø8
- HKD-S M8 x 30 ø10
- HKD-S M8 x 40 ø10
- HKD-S M10 x 30 ø12
- HKD-S M10 x 40 ø12
- HKD-S M12 x 50 ø15

HKD-SR

- HKD-SR M6 x 30 ø8
- HKD-SR M8 x 30 ø10
- HKD-SR M10 x 40 ø12
- HKD-SR M12 x 50 ø15

HKD-E

- HKD-E M6 x 30 ø8
- HKD-E M8 x 30 ø10
- HKD-E M8 x 40 ø10
- HKD-E M10 x 30 ø12
- HKD-E M10 x 40 ø12
- HKD-E M12 x 50 ø15

HKD-ER

- HKD-ER M6 x 30 ø8
- HKD-ER M8 x 30 ø8
- HKD-ER M10 x 40 ø12
- HKD-ER M12 x 50 ø15

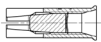

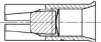

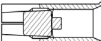

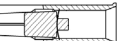

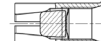











**ANNEX A3**  
**Product description**  
**Identification after installation**

This annex applies to the product described in the main body of the UK Technical Assessment.

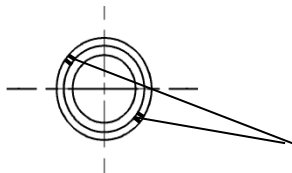
**Identification after installation**

Each anchor can be identified with setting tool after installation.

**Table A1: Identification HKD and HKD-woL**

Size		Setting tool	Top view
HKD M6x25		HSD-G M6 x 25	
HKD M8x25		HSD-G M8 x 25/30	
HKD M8x30		HSD-G M8 x 25/30	
HKD M8x40		HSD-G M8 x 40	
HKD M10x25		HSD-G M10 x 25/30	
HKD M10x30		HSD-G M10 x 25/30	
HKD M10x40		HSD-G M10 x 40	
HKD M12x25		HSD-G M12 x 25	
HKD M12x50		HSD-G M12 x 50	
HKD M16x65		HSD-G M16 x 65	

**Identification HKD-E(R) and HKD-S(R)**



Additional marking on end-face for M8x40 and M10x40

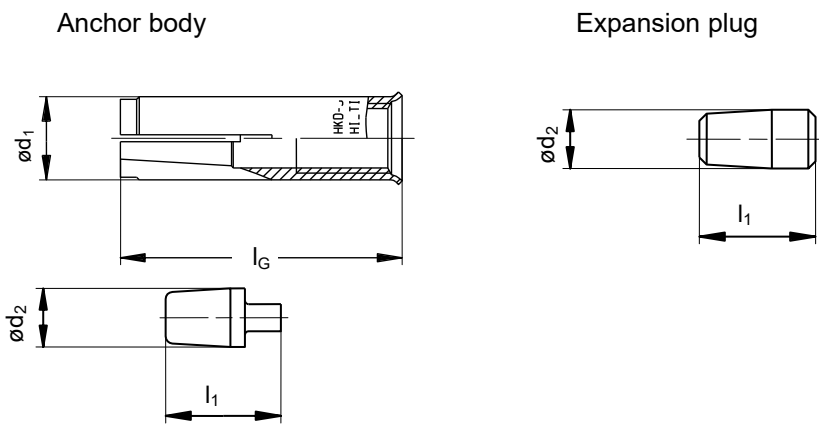
**ANNEX A4**  
**Product description**  
**Anchor materials and anchor dimensions**

This annex applies to the product described in the main body of the UK Technical Assessment.

**Anchor materials and anchor dimensions**

**Table A2: Materials**

Designation	Material
<b>HKD; HKD-woL</b>	
Anchor body	Cold formed steel – galvanized to $\geq 5 \mu\text{m}$
Expansion plug	Cold formed steel
<b>HKD-S; HKD-E</b>	
Anchor body	Steel Fe/Zn5 (galvanized $\geq 5 \mu\text{m}$ )
Expansion plug	Cold formed steel
<b>HKD-SR; HKD-ER</b>	
Anchor body	Stainless steel of corrosion resistance class III according to EN1993-1-4:1996+A1:2015 1.4401, 1.4404 or 1.4571 EN 10088-3:2014
Expansion plug	



**Table A3: Dimensions**

Anchor size			M6x25	M6x30	M8x25	M8x30	M8x40	M10x25	M10x30	M10x40	M12x25	M12x50	M16x65
Anchor length	$l_G$	[mm]	25	30	25	30	40	25	30	40	25	50	65
Anchor diameter	$\varnothing d_1$	[mm]	7.9	8	9.95	9.95	9.95	11.9	11.8	11.95	14.9	14.9	19.75
Plug diameter	$\varnothing d_2$	[mm]	5.1	5	6.35	6.5	6.35	8.1	8.2	8.2	9.7	10.3	13.8
Plug length	$l_1$	[mm]	10	15	7	12	16	7	12	16	7.2	20	29



**ANNEX B1**  
**Intended use.**  
**Specifications**


This annex applies to the product described in the main body of the UK Technical Assessment.

**Specifications of intended use**  
**Multiple use for non-structural applications only**

**Base material:**

- Reinforced or unreinforced normal weight concrete according to EN 206-1:2013 + A1: 2016.
- Strength classes C20/25 to C50/60 according to EN 206:2013 + A1: 2016.
- Cracked and non-cracked concrete.
- Fire resistance: M6 to M16.

**Table B1: Specifications of intended use**

Anchorages subject to:	HKD / HKD-woL / HKD-E(R) and HKD-S(R) with ... Threaded rods or screws
Hammer drilling 	✓
Static and quasi static loading in cracked and non-cracked concrete	M6 to M16 Table: C1, C2, C3 and C4
Fire resistance	M6 to M16 Table: C5 and C6

**Use conditions (Environmental conditions):**

- Structures subject to dry internal conditions (zinc coated steel, stainless steel or high corrosion resistant steel).
- Structures subject to external atmospheric exposure (including industrial and marine environment) and to permanently damp internal conditions, if no particularly aggressive conditions exist (stainless steel or high corrosion resistant steel).

**Design:**

- Anchorages are designed under the responsibility of an engineer experienced in anchorages and concrete 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 reinforcement or to supports, etc.).
- Anchorages under static or quasi-static loading are designed in accordance with: EN 1992-4: 2018
- Anchorages for multiple use for non-structural applications only according to EN 1992-4: 2018

**Installation:**

- Anchor installation must be carried out by appropriately qualified personnel and under the supervision of the person responsible for the technical matters of the site.
- The anchor may only be set once.
- Overhead installation is admissible.

**ANNEX B2**  
**Intended use.**

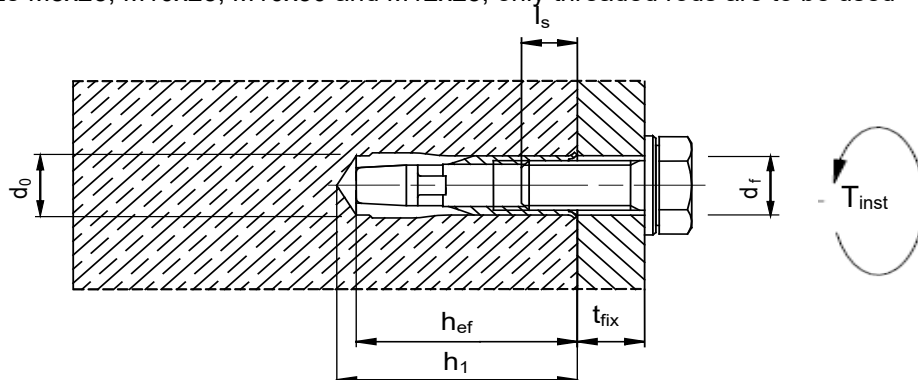
## Installation parameters

This annex applies to the product described in the main body of the UK Technical Assessment.

**Table B2: Installation parameters**

HKD		M6x25	M6x30	M8x25 <sup>(1)</sup>	M8x30	M8x40	M10x25 <sup>(1)</sup>	M10x30 <sup>(1)</sup>	M10x40	M12x25 <sup>(1)</sup>	M12x50	M16x65
Diameter of drill bit	$d_0$ [mm]	8	8	10	10	10	12	12	12	15	15	20
Thread diameter	$d$ [mm]	6	6	8	8	8	10	10	10	12	12	16
Drill hole depth	$h_1$ [mm]	27	32	27	33	43	27	33	43	27	54	70
Effective embedment depth	$h_{ef}$ [mm]	25	30	25	30	40	25	30	40	25	50	65
Maximum screwing depth	$l_{s,max}$ [mm]	12	12.5	11.5	14.5	17.5	12	12.7	18	12	23.5	30.5
Minimum screwing depth	$l_{s,min}$ [mm]	6	6	8	8	8	10	10	10	12	12	16
Maximum torque moment	$T_{inst}$ [Nm]	$\leq 4$	$\leq 4$	$\leq 8$	$\leq 8$	$\leq 8$	$\leq 15$	$\leq 15$	$\leq 15$	$\leq 35$	$\leq 35$	$\leq 60$
Maximum diameter of clearance hole in the fixture	$d_f$ [mm]	7	7	9	9	9	12	12	12	14	14	18

<sup>(1)</sup> With anchor size M8x25, M10x25, M10x30 and M12x25, only threaded rods are to be used



### Requirements for fastening screw or threaded rod:

For anchors made of galvanized steel (HKD, HKD-woL, HKD-E and HKD-S), fastening screws or threaded rods of steel grade 4.6 / 5.6 / 5.8 or 8.8 according to EN ISO 898-1:2013 shall be specified. For anchors made of stainless steel (HKD-ER and HKD-SR), fastening screws or threaded rods of steel grade 70 according to EN ISO 3506:2009 shall be specified.

### Minimum screw depth $l_{s,min}$ :

The length of the screw shall be determined depending on thickness of fixture  $t_{fix}$ , admissible tolerances and available thread length  $l_{s,max}$ , as well as minimum screw depth  $l_{s,min}$  according to Table B2

### ANNEX B3

#### Intended use.

#### Installation data for precast pre-stressed hollow core slabs

This annex applies to the product described in the main body of the UK Technical Assessment.

#### Admissible anchor positions in precast pre-stressed hollow core slabs ( $w/e \leq 4,2$ )

Core distance:

$$l_c \geq 100 \text{ mm}$$

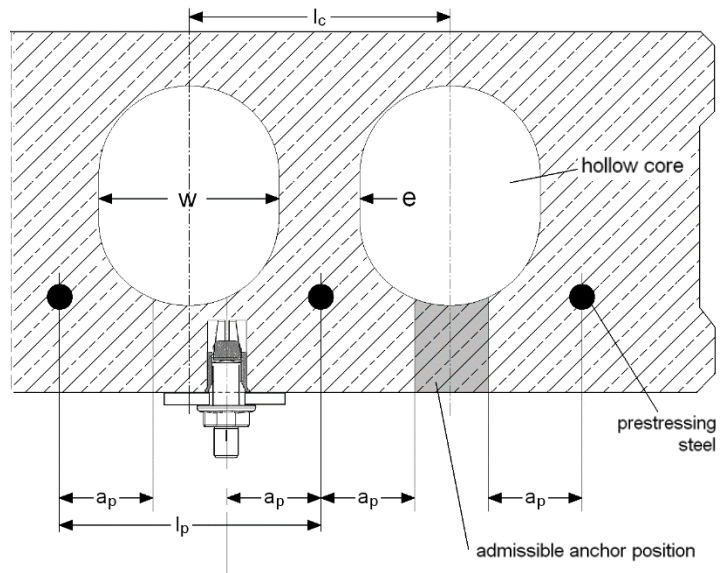
Pre-stressing steel distance:

$$l_p \geq 100 \text{ mm}$$

Distance between anchor

position and pre-stressing steel:

$$a_p \geq 50 \text{ mm}$$



#### Minimum spacing and edge distance of anchors and distance between anchor groups in precast pre-stressed hollow core slabs

$c_1, c_2$  Edge distance

$s_1, s_2$  Anchor spacing

$a_1, a_2$  Distances between anchor groups.

Minimum edge distance

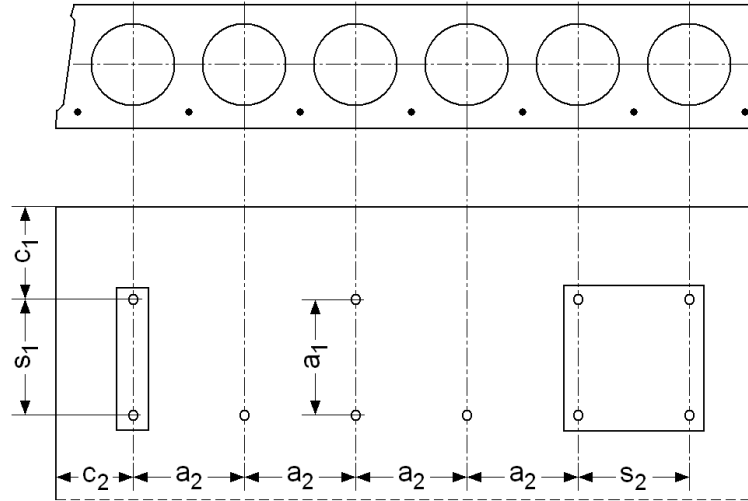
$$c_{min} \geq 200 \text{ mm}$$

Minimum anchor spacing

$$s_{min} \geq 400 \text{ mm}$$

Minimum distance between anchor groups

$$a_{min} \geq 400 \text{ mm}$$



The maximum shear load of an anchor group is restricted to max.  $V = 25 \text{ kN}$ .

## ANNEX B4

### Intended use

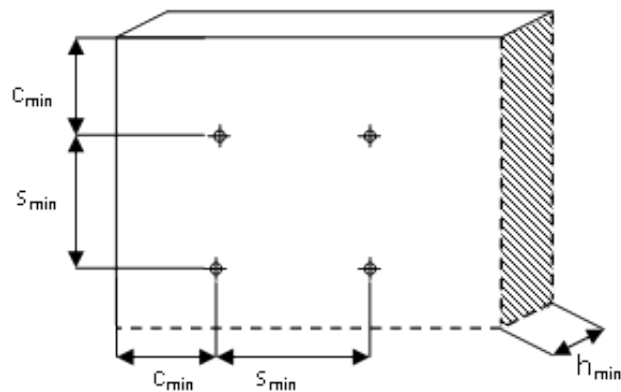
#### Minimum spacing and minimum edge distance.

This annex applies to the product described in the main body of the UK Technical Assessment.

**Table B3: Minimum spacing and minimum edge distance**

HKD-S(R), HKD-E(R)			M6x30 M8x30 M10x30	M8x40 M10x40	M12x50
<b>Minimum spacing and minimum edge distance</b>					
Minimum thickness of concrete member	$h_{min}$	[mm]	100	100	100
Minimum spacing	$s_{min}$	[mm]	60	80	125
Minimum edge distance	$c_{min}$	[mm]	105	140	175
<b>Minimum thickness of concrete member</b>					
Minimum thickness of concrete member	$h_{min}$	[mm]	80	80	-
Minimum spacing	$s_{min}$	[mm]	200	200	-
Minimum edge distance	$c_{min}$	[mm]	150	150	-

HKD, HKD-woL		M6x25 M8x25 M10x25 M12x25	M8x30 M10x30	M8x40 M10x40	M12x50	M16x65	
<b>Minimum spacing and minimum edge distance</b>							
Minimum thickness of concrete member	$h_{min}$	[mm]	100	100	100	120	
Minimum spacing	$s_{min}$	[mm]	80	60	80	125	130
	for $c \geq$	[mm]	140	105	140	175	230
Minimum edge distance	$c_{min}$	[mm]	100	80	140	175	230
	for $s \geq$	[mm]	150	120	80	125	130
<b>Minimum thickness of concrete member</b>							
Minimum thickness of concrete member	$h_{min}$	[mm]	80	80	80	-	-
Minimum spacing	$s_{min}$	[mm]	200	200	200	-	-
Minimum edge distance	$c_{min}$	[mm]	150	150	150	-	-



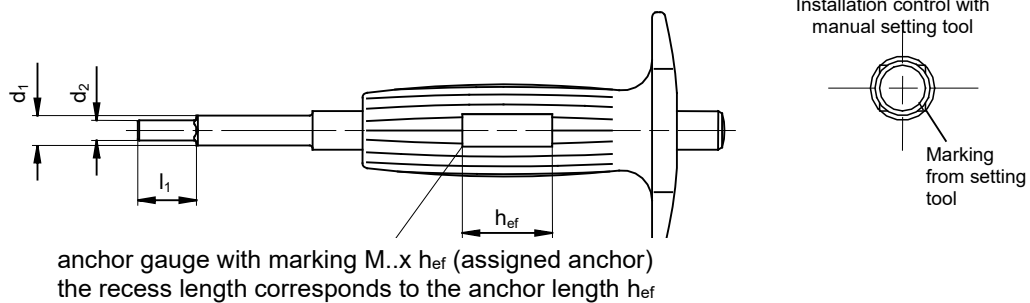
**ANNEX B5**  
**Intended use**  
**Setting tools**

This annex applies to the product described in the main body of the UK Technical Assessment.

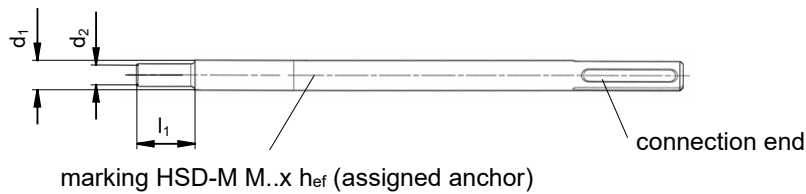
**Table B4: Dimensions of the setting tools**

Setting tool HSD / HSG		M6x25 M6x30	M8x25 M8x30	M8x40	M10x25 M10x30	M10x40	M12x25	M12x50	M16x65
Diameter	$d_1$ [mm]	7.5	9.5	9.5	11.5	11.5	14.5	14.5	18
Diameter	$d_2$ [mm]	5	6.5	6.5	8	8	10.2	10.2	13.5
Length	$l_1$ [mm]	15	18	28	18	24	18	30	36

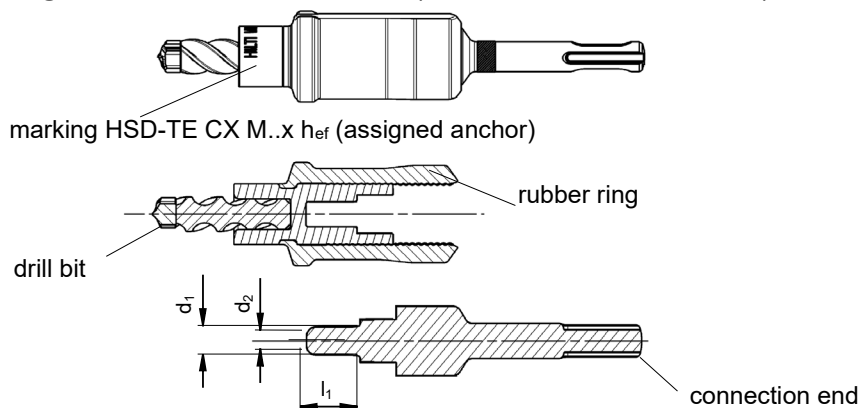
**Manual setting tool HSD-G M. x  $h_{ef}$  (e.g., HSD-G M8 x 30)**



**Machine setting tool HSD-M M.. x  $h_{ef}$  (e.g. HSD-M M8 x 30)**



**Machine setting tool HSD-TE CX M.. x  $h_{ef}$  (z.B. HSD-TE-CX M8 x 30)**

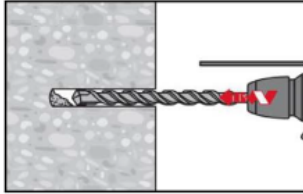


**ANNEX B6**  
**Intended use**  
**Installation instructions**

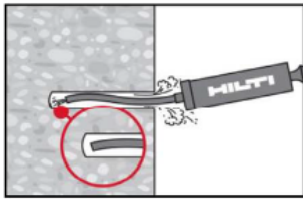
This annex applies to the product described in the main body of the UK Technical Assessment.

**Installation instructions**

**Hole drilling and cleaning**

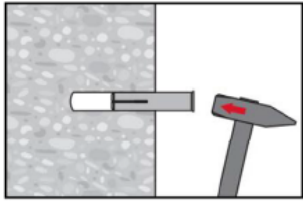


Make a cylindrical hole.

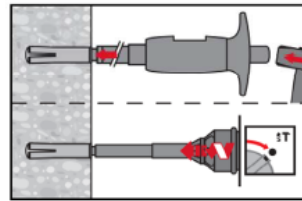
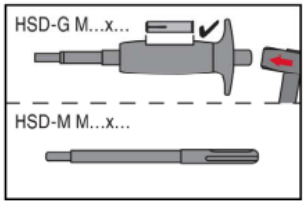


Clean the drill hole.

**Fastener setting**

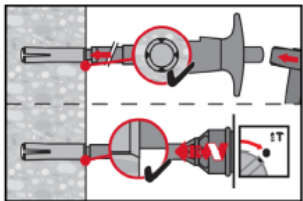


Install the anchor by hammering.



Choose the setting tool; and confirm the size of setting tool according to the size of the anchor.

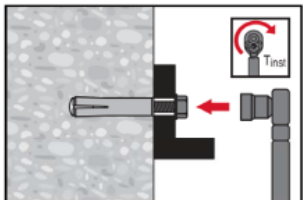
**Setting check**



HSD-G M...x...: Hammer on the top of setting tool until the 4 marks are visible on the lips of the anchor.

HSD-M M...x...: set the anchor until the setting tool touches the rim of the anchor.

**Loading the anchor**



Apply the torque (check the values for  $T_{inst}$ ) using torque wrench.

## ANNEX B7

### Intended use

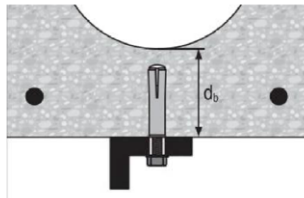
### Installation instructions in precast pre-stressed hollow core slabs

This annex applies to the product described in the main body of the UK Technical Assessment.

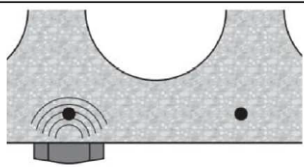
### Installation instructions

#### Installation with the stop drill bit HKD-TE CX only

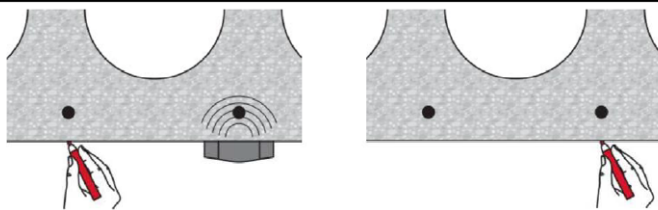
##### Positioning the anchor



Verify the bottom flange thickness of the hollow core slab according to Table C3.

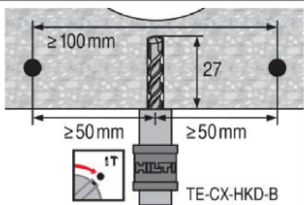


Detect the position of reinforcement.

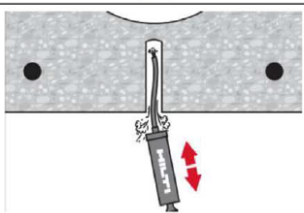


Detect the position of reinforcement and mark.

##### Hole drilling and cleaning



Make a cylindrical hole.



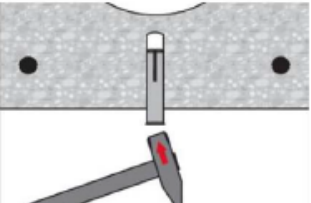
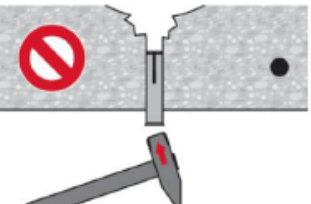
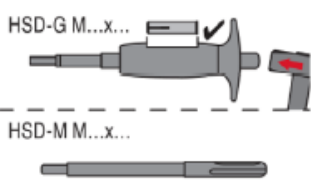
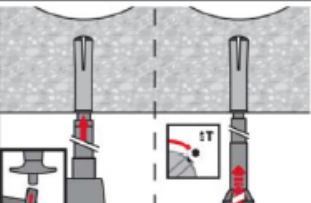
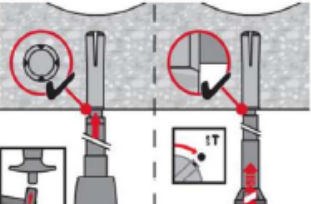
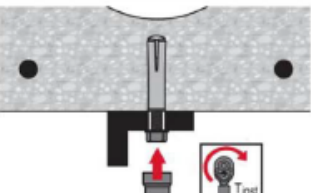
Clean the drill hole.

#### Installation with the stop drill bit TE-CX-HKD only

**ANNEX B8**  
**Intended use**  
**Installation instructions in precast pre-stressed hollow core slabs**

This annex applies to the product described in the main body of the UK Technical Assessment.

**Installation instructions**

Fastener setting	
	<p>Install the anchor by hammering.</p>
	<p>Fixing is not allowed for <math>h_{ef}=25\text{mm}</math> and <math>d_b&lt;35\text{mm}</math> when a cavity is cut.</p>
 <p>HSD-G M...x...  HSD-M M...x...</p>	<p>Choose the setting tool; and confirm the size of setting tool according to the size of the anchor.</p>
	<p>HSD-G M...x...: Hammer on the top of setting tool until the 4 marks are visible on the lips of the anchor.  HSD-M M...x...: set the anchor until the setting tool touches the rim of the anchor</p>
Setting check	
	
	<p>Apply the torque (values for <math>T_{inst}</math> in ETA) using torque wrench.</p>



## ANNEX C1

### Performances

#### Characteristic values of resistance for Hilti push-in anchor HKD-S (R) and HKD-E (R)

This annex applies to the product described in the main body of the UK Technical Assessment.

**Table C1: Characteristic values of resistance for Hilti push-in Anchor HKD-S(R) and HKD-E(R)**

HKD-S, HKD-E HKD-SR, HKD-ER			M6x30 <sup>(2)</sup>	M8x30 <sup>(2)</sup>	M8x40	M10x30 <sup>(2)</sup>	M10x40	M12x50
Installation safety factor	$\gamma_2$		1.0					
<b>All load directions</b>								
Characteristic resistance in C20/25 to C50/60	$F_{Rk}^0$	[kN]	3	3	5	4	6	6
Characteristic spacing	$s_{cr}$	[mm]	90	90	120	90	120	150
Characteristic edge distance	$c_{cr}$	[mm]	45	45	60	45	60	75
<b>Shear load with lever arm</b>								
Steel grade 4.6	$M_{Rk,s}^0$	[Nm]	6	15	15	30	30	52
Partial safety factor	$\gamma_{Ms}^{(1)}$		1.67					
Steel grade 5.6	$M_{Rk,s}^0$	[Nm]	8	19	19	37	37	65
Partial safety factor	$\gamma_{Ms}^{(1)}$		1.67					
Steel grade 5.8	$M_{Rk,s}^0$	[Nm]	8	19	19	37	37	65
Partial safety factor	$\gamma_{Ms}^{(1)}$		1.25					
Steel grade 8.8	$M_{Rk,s}^0$	[Nm]	12	30	30	60	60	105
Partial safety factor	$\gamma_{Ms}^{(1)}$		1.25					
Steel grade 70	$M_{Rk,s}^0$	[Nm]	11	26	-	-	52	92
Partial safety factor	$\gamma_{Ms}^{(1)}$		1.56		-		1.56	

<sup>(1)</sup> In absence of other national regulations.

<sup>(2)</sup> Characteristic bending moment  $M_{Rk,s}^0$  for equation (5.5) in UKAD 330232-00-0601.

**The anchor is to be used only for multiple use for non-structural applications, the definition of multiple use according to the member states is given in UKAD 330232-00-0601.**

## ANNEX C2

### Performances

#### Characteristic values of resistance for Hilti push-in anchor HKD and HKD-woL

This annex applies to the product described in the main body of the UK Technical Assessment.

**Table C2: Characteristic values of resistance for Hilti push-in Anchor HKD and HKD-woL**

HKD HKD-woL		M6x25	M8x25	M8x30	M8x40	M10x25	M10x30	M10x40	M12x25	M12x50	M16x65
Installation safety factor	$\gamma_2$	1.0		1.2	1.0	1.2	1.0				
<b>All load directions</b>											
Characteristic resistance in C20/25 to C50/60	$F_{Rk}^0$ [kN]	2	3	5	5	4	5	7,5	4	9	16
Characteristic spacing	$s_{cr}$ [mm]	80	80	90	120	80	90	120	80	150	200
Characteristic edge distance	$c_{cr}$ [mm]	40	40	45	60	40	45	60	40	75	100
<b>Shear load with lever arm</b>											
Steel grade 4.6	$M_{Rk,s}^0$ <sup>(2)</sup> [Nm]	6	15		30			52		133	
Partial safety factor	$\gamma_{Ms}$ <sup>(1)</sup>	1.67									
Steel grade 5.6	$M_{Rk,s}^0$ <sup>(2)</sup> [Nm]	8	19		37			65		166	
Partial safety factor	$\gamma_{Ms}$ <sup>(1)</sup>	1.67									
Steel grade 5.8	$M_{Rk,s}^0$ <sup>(2)</sup> [Nm]	8	19		37			65		166	
Partial safety factor	$\gamma_{Ms}$ <sup>(1)</sup>	1.25									
Steel grade 8.8	$M_{Rk,s}^0$ <sup>(2)</sup> [Nm]	12	30		60			105		266	
Partial safety factor	$\gamma_{Ms}$ <sup>(1)</sup>	1.25									

<sup>(1)</sup> In absence of other national regulations.

<sup>(2)</sup> Characteristic bending moment  $M_{Rk,s}^0$  for equation (5.5) in UKAD 330232-00-0601.

**The anchor is to be used only for multiple use for non-structural applications, the definition of multiple use according to the member states is given in UKAD 330232-00-0601.**

## ANNEX C3

### Performances

#### Characteristic values of resistance for Hilti push-in anchor in precast pre-stressed hollow core slabs

This annex applies to the product described in the main body of the UK Technical Assessment.

**Table C3: Characteristic values of resistance for Hilti push-in anchor in precast pre-stressed hollow core slabs C30/37 to C50/60**

HKD HKD-woL		M6x25	M8x25	M10x25
Installation safety factor	$\gamma_2$	1.0		1.2
<b>All load directions</b>				
Bottom flange thickness	$d_b$ [mm]	$\geq 35$	$\geq 35$	$\geq 40$
Characteristic resistance in C20/25 to C50/60	$F^{0}_{Rk}$ [kN]	2	3	4
Characteristic spacing	$s_{cr}$ [mm]	400		
Characteristic edge distance	$c_{cr}$ [mm]	200		
<b>Shear load with lever arm</b>				
Steel grade 4.6	$M^{0}_{Rk,s}^{(2)}$ [Nm]	6	15	30
Partial safety factor	$\gamma_{Ms}^{(1)}$	1.67		
Steel grade 5.6	$M^{0}_{Rk,s}^{(2)}$ [Nm]	8	19	37
Partial safety factor	$\gamma_{Ms}^{(1)}$	1.67		
Steel grade 5.8	$M^{0}_{Rk,s}^{(2)}$ [Nm]	8	19	37
Partial safety factor	$\gamma_{Ms}^{(1)}$	1.25		
Steel grade 8.8	$M^{0}_{Rk,s}^{(2)}$ [Nm]	12	30	60
Partial safety factor	$\gamma_{Ms}^{(1)}$	1.25		

<sup>(1)</sup> In absence of other national regulations.

<sup>(2)</sup> Characteristic bending moment  $M^{0}_{Rk,s}$  for equation (5.5) in UKAD 330232-00-0601.

**The anchor is to be used only for multiple use for non-structural applications, the definition of multiple use according to the member states is given in UKAD 330232-00-0601.**

## ANNEX C4

### Performances

#### Characteristic values of resistance for Hilti push-in anchor under fire exposure

This annex applies to the product described in the main body of the UK Technical Assessment.

**Table C4: Characteristic values of resistance for Hilti push-in anchor HKD-SR and HKD-ER under fire exposure in concrete C20/25 to C50/60 for all load directions**

Fire resistance class	HKD-SR, HKD-ER		M6x30	M8x30	M10x40	M12x50
R 30	Characteristic resistance	$F_{Rk,fi}^{(1)}$ [kN]	0.5	0.9	1.8	2.3
R 60	Characteristic resistance	$F_{Rk,fi}^{(1)}$ [kN]	0.5	0.9	1.8	2.3
R 90	Characteristic resistance	$F_{Rk,fi}^{(1)}$ [kN]	0.5	0.9	1.8	2.3
R 120	Characteristic resistance	$F_{Rk,fi}^{(1)}$ [kN]	0.3	0.7	1.5	1.8
R 30 to R 120	Spacing	$s_{cr,fi}$ [mm]	120	120	160	200
	Edge distance	$c_{cr,fi}$ [mm]	105	105	140	175
In case of fire attack from more than one side, the minimum edge distance shall be $\geq 300$ mm. The anchorage depth must be increased for wet concrete by at least 30 mm compared to the given value						

(1) In absence of other national regulations the partial safety factor for resistance under fire exposure  $\gamma_{m,fi} = 1.0$  is recommended.

**Table C5: Characteristic values of resistance for Hilti push-in anchor HKD and HKD-woL under fire exposure in concrete C20/25 to C50/60 for all load directions**

Fire resistance class	HKD HKD-woL		M6x25	M8x25	M8x30	M8x40	M10x25	M10x30	M10x40	M12x25	M12x50	M16x65
R 30	Characteristic resistance	$F_{Rk,fi}^{(1)}$ [kN]	0.5	0.6	0.9	1.3	0.6	0.9	1.8	0.6	2.3	4.0
R 60	Characteristic resistance	$F_{Rk,fi}^{(1)}$ [kN]	0.4	0.6	0.9	1.3	0.6	0.9	1.8	0.6	2.3	4.0
R 90	Characteristic resistance	$F_{Rk,fi}^{(1)}$ [kN]	0.3	0.6	0.9	1.3	0.6	0.9	1.8	0.6	2.3	4.0
R 120	Characteristic resistance	$F_{Rk,fi}^{(1)}$ [kN]	0.2	0.5	0.7	0.7	0.5	0.7	1.5	0.5	1.8	3.2
R 30 to R 120	Spacing	$s_{cr,fi}$ [mm]	160	160	120	160	120	120	160	160	200	260
	Edge distance	$c_{cr,fi}$ [mm]	140	140	105	140	105	105	140	140	175	230
In case of fire attack from more than one side, the minimum edge distance shall be $\geq 300$ mm. The anchorage depth must be increased for wet concrete by at least 30 mm compared to the given value												

(1) In absence of other national regulations the partial safety factor for resistance under fire exposure  $\gamma_{m,fi} = 1.0$  is recommended.

(2) The fire resistance data is only valid for concrete C20/25 to C50/60 with a minimum slab thickness of 80 mm. The data is **not** valid for precast pre-stressed hollow core slabs.



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