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European Technical Assessment

ETA 14/0068 of 01/03/2018

English translation prepared by IETcc. Original version in Spanish language

General Part

Technical Assessment Body issuing the ETA designated according to Art. 29 of Regulation (EU) 305/2011:

Instituto de Ciencias de la Construcción Eduardo Torroja (IETcc)

Trade name of the construction product

HEHO / HECLO drop in anchor

Product family to which the construction product belongs

Deformation controlled anchor made of galvanized steel of sizes M6, M8, M10, M12, M16 and M20 for multiple use for non-structural applications in concrete

Manufacturer

Index - Técnicas Expansivas S.L.
Segador 13
26006 Logroño (La Rioja) Spain.
website: www.indexfix.com

Manufacturing plants

Index plant 2
Index plant 7

This European Technical Assessment contains

9 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

Guideline for European Technical Approval ETAG 001 "Metal anchors for used in concrete", ed. April 2013, Parts 1 and 6 used as European Assessment Document (EAD)

This version replaces

ETA 14/0068 issued on 11/04/2014

English translation prepared by IETcc

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This European Technical Assessment may be withdrawn by the issuing Technical Assessment Body, in particular pursuant to information by the Commission according to article 25 (3) of Regulation (EU) No 305/2011.

SPECIFIC PART

1. Technical description of the product

The Index HEHO / HECLO in the range of M6 to M20 is an anchor made of galvanised steel, which is placed into a drilled hole and anchored by deformation-controlled expansion. The anchorage is characterised by friction between the sleeve and concrete.

Product and 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 anchor 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 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 mean to 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 under static or quasi static loading	See annexes C1 and C2

3.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Anchorage satisfy requirements for class A1
Resistance to fire	See annex C2

3.3 Hygiene, health and the environment (BWR 3)

This requirement is not relevant for the anchors.

3.4 Safety in use (BWR 4)

The essential characteristics regarding safety in use are included under the basic works requirements Mechanical resistance and stability.

3.5 Protection against noise (BWR 5)

This requirement is not relevant for the anchors.

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3.6 Energy economy and heat retention (BWR 6)

This requirement is not relevant for the anchors.

3.7 Sustainable use of natural resources (BWR 7)

No performance determined

4. Assessment and Verification of Constancy of Performances (hereinafter AVCP) system applied, with reference to its legal base

The applicable European legal act for the system of Assessment and Verification of Constancy of Performances (see annex V to Regulation (EU) No 305/2011) is 97/161/EG.

The system to be applied is 2+.

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

The technical details necessary for the implementation of the AVCP system are laid down in the quality plan deposited at Instituto de Ciencias de la Construcción Eduardo Torroja.



Instituto de Ciencias de la Construcción Eduardo Torroja
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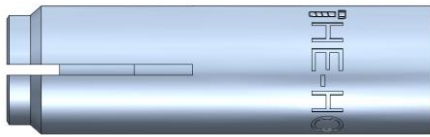


On behalf of the Instituto de Ciencias de la Construcción Eduardo Torroja
Madrid, 1st of March 2018

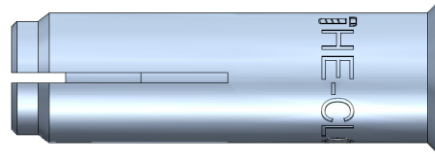
Marta M^a Castellote Armero
Director

Product


HEHO, HECLO anchor



HEHO anchor

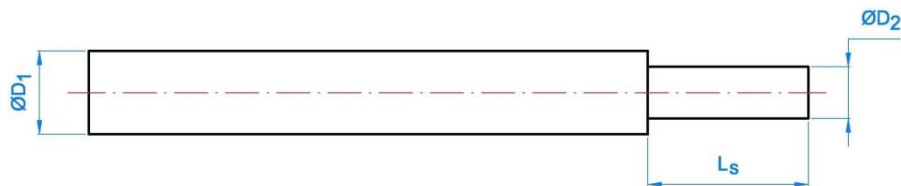


HECLO anchor

Identification on sleeve: Index logo + “HEHO (HECLO)” + Metric; e.g.  HEHO M6

Anchor dimensions		M6	M8	M10	M12	M16	M20
ØD: External diameter	[mm]	8	10	12	15	20	25
Ød: internal diameter	[mm]	M6	M8	M10	M12	M16	M20
L: total length	[mm]	25	30	40	50	65	80

Setting tool

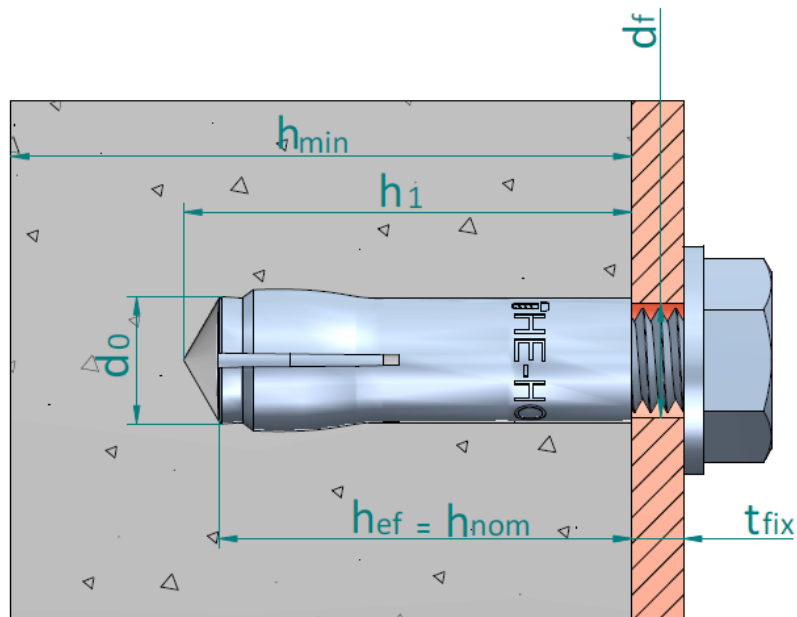


Setting tool dimensions		M6	M8	M10	M12	M16	M20
Ø D ₁	[mm]	7,5	9,5	11,5	14,5	18,0	22,0
Ø D ₂	[mm]	5,0	6,5	8,0	10,2	13,5	16,5
L _s	[mm]	15	18	24	30	36	50

Setting tool could be assembled with a plastic handle for hand protection purposes

HEHO, HECLO anchor	Annex A1
Product description	
Product	

Installed condition



- h_{ef} : Effective anchorage depth
- h_1 : Depth of drilled hole
- h_{nom} : Overall anchor embedment depth in the concrete
- h_{min} : Minimum thickness of concrete member
- t_{fix} : Thickness of fixture
- d_0 : Nominal diameter of drill bit
- d_f : Fixture clearance hole diameter

Table A1: Materials

Item	Designation	Material for HEHO / HECLO
1	Sleeve	Carbon steel wire rod, zinc plated $\geq 5 \mu\text{m}$ ISO 4042 A2
2	Cone	Carbon steel wire rod, zinc plated $\geq 5 \mu\text{m}$ ISO 4042 A2
3	Plastic retainer	PVC

HEHO, HECLO anchor

Product description

Installed condition and Materials

Annex A2

Specifications of intended use

Anchorage subjected to:

- Static or quasi static loads for multiple use in non-structural applications
- Fire exposure
- The anchor may only be used if in the design and installation specifications for the fixture the excessive slip or failure of one anchor will not result in a significant violation of the requirements on the fixture in the serviceability and ultimate state.

Base materials:

- Reinforced or unreinforced normal weight concrete according to EN 206-1:2008
- Strength classes C12/15 to C50/60 according to EN 206-1:2008
- Cracked or uncracked concrete

Use conditions (environmental conditions):

- Anchorages subjected to dry internal conditions.

Design:

- Anchorages are designed under the responsibility of an engineer experienced in anchorages and concrete.
- Verifiable calculation rules and drawings are prepared taking into 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 actions are designed for design method B in accordance with:
 - ETAG 001, Annex C, edition August 2010
 - prEN1992-4
- Anchorages under fire exposure are designed in accordance to:
 - ETAG 001, Annex C, design method B, edition August 2010
 - EOTA Technical Report 020, edition May 2004
 - prEN1992-4
 - It must be ensure that local spalling of the concrete cover does not occur.

Installation:

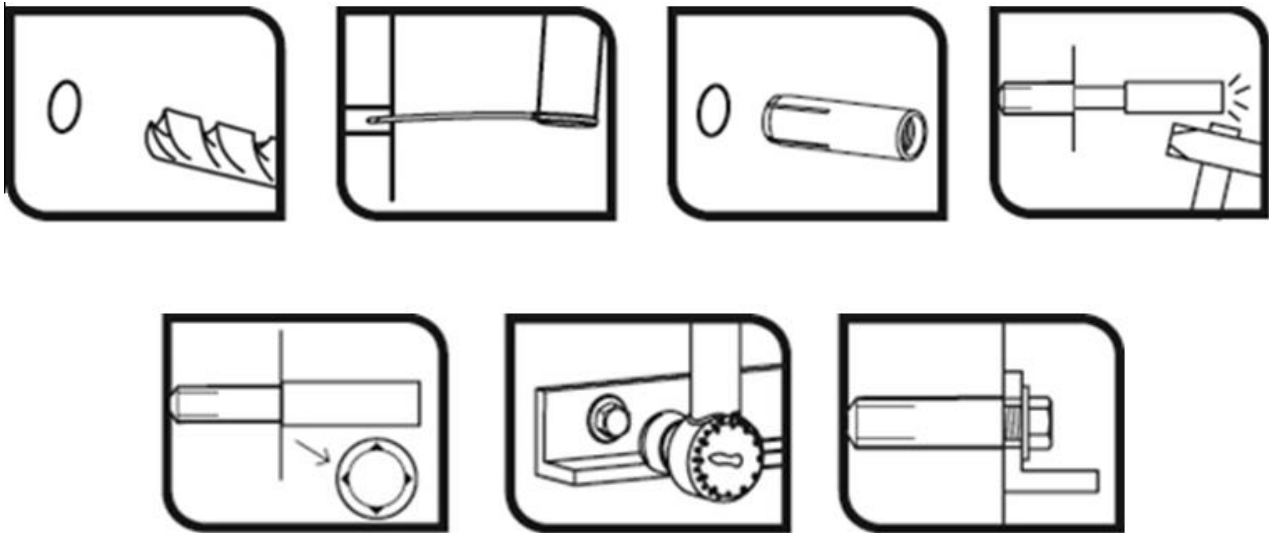
- Hole drilling by rotary plus hammer mode.
- Anchor installation carried out by appropriately qualified personal and under the supervision of the person responsible for technical matters of the site.
- In case of aborted hole: new drilling at a minimum distance away of twice the depth of aborted hole or smaller distance if the aborted hole is filled with high strength mortar and if under shear or oblique tension load it is not the direction of the load application.
- The bolt or threaded rod to be uses shall be property class 4.6 / 5.6 / 5.8 / 6.8 or 8.8 according to ISO 898-1.
- The length of the bolt shall be determined as:
 - Minimum bolt length = $t_{fix} + l_{s,min}$
 - Maximum bolt length = $t_{fix} + l_{s,max}$

HEHO, HECLO anchor	Annex B1
Intended use	
Specifications	

Table C1: Installation parameters for HEHO, HECLO anchor

Installation parameters			Performances					
			M6	M8	M10	M12	M16	M20
d_o	Nominal diameter of drill bit:	[mm]	8	10	12	15	20	25
D	Thread diameter:	[mm]	M6	M8	M10	M12	M16	M20
d_f	Fixture clearance hole diameter \leq	[mm]	7	9	12	14	18	22
T_{inst}	Maximum installation torque:	[Nm]	4	11	17	38	60	100
$l_{s,min}$	Minimum screwing depth:	[mm]	6	8	10	12	16	20
$l_{s,max}$	Maximum screwing depth:	[mm]	10	13	17	21	27	34
h_{min}	Minimum thickness of concrete member:	[mm]	100	100	100	100	130	160
h_1	Depth of drilled hole:	[mm]	27	33	43	54	70	86
h_{nom}	Overall anchor embedm. depth in the concrete:	[mm]	25	30	40	50	65	80
h_{ef}	Effective anchorage depth:	[mm]	25	30	40	50	65	80
s_{min}	Minimum allowable spacing:	[mm]	60	60	80	100	130	160
c_{min}	Minimum allowable distance:	[mm]	105	105	140	175	230	280

Installation process



HEHO, HECLO anchor

Performances

Installation parameters and installation procedure

Annex C1

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Table C2: Characteristic values to loads of design method B according to ETAG 001, Annex C, CEN/TS 1992-4 or prEN1992-4 for HEHO, HECLO anchor

Characteristic values of resistance to loads of design method B				Performances					
				M6	M8	M10	M12	M16	M20
All load directions									
F_{Rk}^0	Characteristic resistance in C12/15 concrete:	[kN]	1,5	3,0	4,0	6,0	9,0	16,0	
F_{Rk}^0	Characteristic resistance in C20/25 to C50/60 concrete:	[kN]	2,0	3,0	5,0	7,5	12,0	20,0	
$\gamma_{Ms}^{1)}$ $\gamma_2^{2)}$	Installation safety factor:	[-]	1,2	1,2	1,5	1,5	1,5	1,5	
s_{cr}	Characteristic spacing:	[mm]	75	90	120	150	195	240	
c_{cr}	Characteristic edge distance:	[mm]	40	45	60	75	100	120	
Shear loads: steel failure with lever arm									
$M_{Rk,s}^0$	Characteristic bending moment, steel class 4.6	[Nm]	6,1	15,0	29,9	52,4	133,3	259,8	
γ_{Ms}	Partial safety factor:	[-]	1,67	1,67	1,67	1,67	1,67	1,67	
$M_{Rk,s}^0$	Characteristic bending moment, steel class 4.8	[Nm]	6,1	15,0	29,9	52,4	133,3	259,8	
γ_{Ms}	Partial safety factor:	[-]	1,25	1,25	1,25	1,25	1,25	1,25	
$M_{Rk,s}^0$	Characteristic bending moment, steel class 5.6	[Nm]	7,6	18,8	37,4	65,5	166,6	324,8	
γ_{Ms}	Partial safety factor:	[-]	1,67	1,67	1,67	1,67	1,67	1,67	
$M_{Rk,s}^0$	Characteristic bending moment, steel class 5.8	[Nm]	7,6	18,8	37,4	65,5	166,6	324,8	
γ_{Ms}	Partial safety factor:	[-]	1,25	1,25	1,25	1,25	1,25	1,25	
$M_{Rk,s}^0$	Characteristic bending moment, steel class 6.8	[Nm]	9,2	22,5	44,9	78,7	199,9	389,7	
γ_{Ms}	Partial safety factor:	[-]	1,25	1,25	1,25	1,25	1,25	1,25	
$M_{Rk,s}^0$	Characteristic bending moment, steel class 8.8	[Nm]	12,2	30,0	59,9	104,9	266,6	519,7	
γ_{Ms}	Partial safety factor:	[-]	1,25	1,25	1,25	1,25	1,25	1,25	

¹⁾ Parameter relevant only for design according to prEN 1994-2

²⁾ Parameter relevant only for design according to ETAG 001, Annex C

Table C3: Characteristic resistance under fire exposure in concrete C20/25 to C50/50 in any load direction according to Technical Report 020, CEN/TS 1992-4 or prEN1992-4 for HEHO, HECLO anchor

Characteristic resistance under fire exposure in concrete C20/25 to C50/60 in any load direction for use in concrete				Performances					
				M6	M8	M10	M12	M16	M20
R30	Characteristic resistance: $F_{Rk,fi30}^0$	[kN]	--	0.4	0.9	1.7	3.1	4.9	
R60	Characteristic resistance: $F_{Rk,fi60}^0$	[kN]	--	0.3	0.8	1.3	2.4	3.7	
R90	Characteristic resistance: $F_{Rk,fi90}^0$	[kN]	--	0.3	0.6	1.1	2.0	3.2	
R120	Characteristic resistance: $F_{Rk,fi120}^0$	[kN]	--	0.2	0.5	0.8	1.6	2.5	
R30 to R120	Spacing $s_{cr,fi}$	[mm]	--	120	160	200	260	320	
R120	Edge distance $c_{cr,fi}$	[mm]	--	60	80	100	130	160	

¹⁾ in absence of other national regulations the partial safety factor for resistance under fire exposure $\gamma_{M,fi}=1.0$ is recommended. Design under fire exposure is performed according to the design method given in TR 020. Under fire exposure usually cracked concrete is assumed. The design equations are given in TR 020, Section 2.2.1.

TR 020 covers design for fire exposure from one side. If fire attack is from more than one side, the design method may be taken if edge distance of the anchor is $c \geq 300$ mm

HEHO, HECLO anchor

Performances

Characteristic resistances

Annex C2