HE

Name: **DROP IN ANCHOR**	Codes: **HEHO, HECLOM, HEA4, HENOM**		
Reference: **FT HE-en**	Date: **27/11/18**	Revision: **11**	Page: **1** of **5**

HEHO

HECLOM

HENOM

Z ZINC

HEA4

A4 INOX AISI 316

CHARACTERISTICS

- Functioning by deformation
- European approval for structural applications in non cracked concrete
- European approval for non structural applications in cracked and non cracked concrete
- Installation prior to the material to be fixed.
- Bolt can be disassembled so that the surface of the base material is smooth
- Bolt not included

APPLICATIONS

- Fixing suspended ceilings, sprinklers and ventilation systems
- Structural fixing, inner and outer ironworks.
- Fixing threaded bars

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European Technical Approval

FIRE RESISTANCE

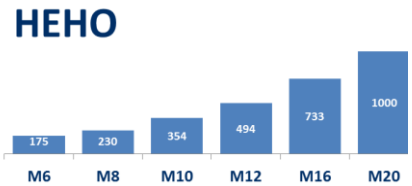
INDEXcal

BASE MATERIAL

CONCRETE

CONCRETE

RECOMMENDED LOADS in NON CRACKED CONCRETE, HEHO [kg]



SIZES

M6 – M20

DRILL CONDITIONS

APPLICATION EXAMPLES

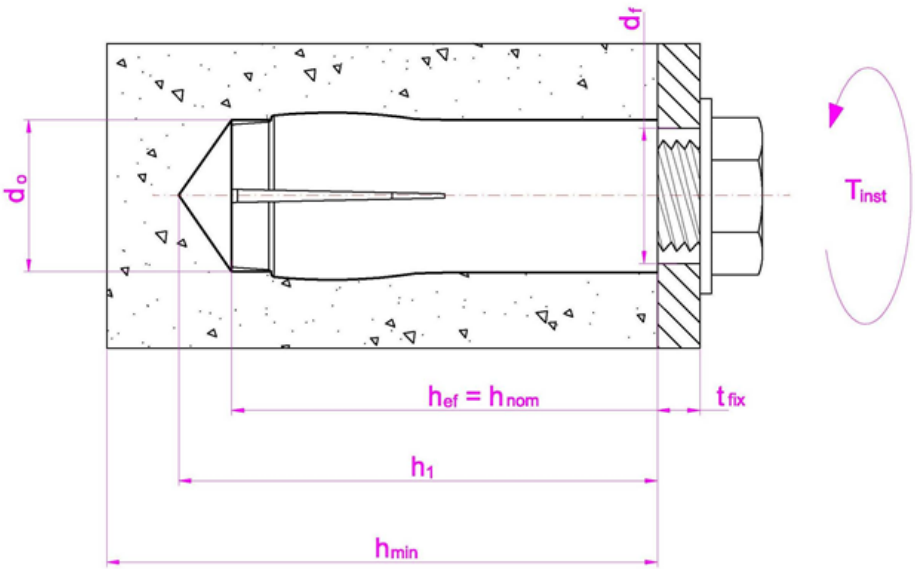
1. RANGE

ITEM	CODE	SIZE	PHOTO	COMPONENT	MATERIAL
1	**HEHO**	M6 to M20		Capsule Cone	Carbon steel Carbon steel Coating: zinc ≥ 5 µm
2	**HECLOM**	M6 to M16		Capsule Cone	Carbon steel Carbon steel Coating: zinc ≥ 5 µm
3	**HEA4**	M6 to M20		Capsule Cone	Stainless steel A4 Stainless steel A4
4	**HENOM**	M6 to M20		Capsule Cone	Carbon steel Carbon steel Coating: zinc ≥ 5 µm

2. ACCESSORIES

ITEM	CÓDE	PHOTO	DESCRIPTION
1	**EXHB**		Installation tool

3. INSTALLATION DATA

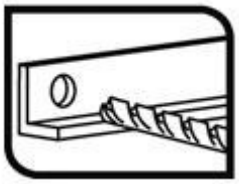


SIZE		M6	M8	M10	M12	M16	M20
d_0: outer diameter	[mm]	8	10	12	15	20	25
d_f: fixture diameter ≤	[mm]	7	9	12	14	18	22
T_{ins}: max. Installation torque	[Nm]	4	11	17	38	60	100
h_1: hole depth	[mm]	27	33	43	54	70	86
h_{nom}: installation depth	[mm]	25	30	40	50	65	80
e: bolt length*	[mm]	6 - 10	8 - 13	10 - 17	12 - 21	16 - 27	20 - 34
$s_{cr,N}$: critical spacing	[mm]	75	90	120	150	195	240
$c_{cr,N}$: critical edge distance	[mm]	38	45	60	75	98	120
s_{min}: minimum spacing	[mm]	60	60	80	100	130	160
c_{min}: minimum edge distance	[mm]	105	105	140	175	230	280
h_{min}: minimum concrete thickness	[mm]	100	100	100	100	130	160
Installation tool	[-]	EXHBM06	EXHBM08	EXHBM10	EXHBM12	EXHBM16	EXHBM20

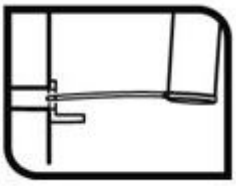
(*) Bolt length to be threaded (not included) = e + washer thickness + thickness of material to be fixed.

Critical distances are those in which the anchors in a group do not affect each other when taking into account resistance loads. However, minimum distances between anchors must be observed.

4. INSTALLATION PROCEDURE

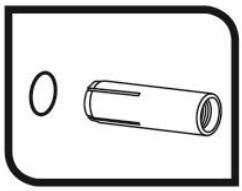


1. DRILL
Check the concrete base is well compacted and porosity insignificant.
Dry and wet drills allowed
Drill at hammer or percussion position
Respect specified diameter and depth.

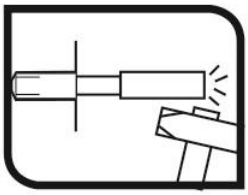


2. BLOW AND CLEAN
Clean hole form dust and drill debris.

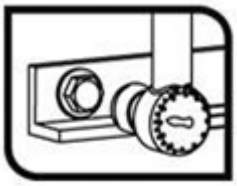
Use air pump and brush



3. INSTALLATION
Introduce the anchor in the hole completely. Use hammer if necessary. The anchor must not stand out of the surface of the base material.



4. EXPAND ANCHOR
Insert the expansion tool into the inner cone of the anchor. Hammer until the setting tool is level with the anchor



5. APPLY NOMINAL TORQUE

Put the material to be fixed inserting the bolt or stud through holes. Use a bolt with the correct length. Wide washers are recommended (DIN 9021).

Do not introduce any materials between the material to be fixed and the washer (sealants, etc.). Apply the nominal torque using dynamometric wrench.

5. RESISTANCE

Characteristic resistance in non cracked concrete C20/25 for an isolated anchor (no spacing and edge distance effects) with bolt class 6.8 or A4-70.

	SIZE			M6	M8	M10	M12	M16	M20
HEHO	Code		[-]	HEHOM06	HEHOM08	HEHOM10	HEHOM12	HEHOM16	HEHOM20
	ETA 14/0135 assessment		[-]	✓	✓	✓	✓	✓	✓
	Tension characteristic resistance	N_{Rk}	[kN]	6.3	8.3	12.7	17.8	26.4	36.1
	Concrete coefficient C30/37	ψ	[-]	1.02	1.22	1.15	1.15	1.22	1.19
	Concrete coefficient C40/45	ψ	[-]	1.04	1.41	1.29	1.28	1.41	1.35
	Concrete coefficient C50/60	ψ	[-]	1.05	1.55	1.37	1.37	1.55	1.46
	Tension partial safety factor	γ_M	[-]	1.8	1.8	2.1	2.1	2.1	2.1
	Shear characteristic resistance	V_{Rk}	[kN]	6.3	8.3	9.1	17.8	32.5	47.5
	Shear partial safety factor	γ_M	[-]	1.5	1.5	1.25	1.5	1.25	1.25
HECLOM	Code		[-]	HECLOM06	HECLOM08	HECLOM10	HECLOM12	HECLOM16	--
	ETA 14/0135 assessment		[-]	✓	✓	✓	✓	✓	
	Tension characteristic resistance	N_{Rk}	[kN]	6.3	8.3	12.7	17.8	26.4	--
	Concrete coefficient C30/37	ψ	[-]	1.02	1.22	1.15	1.15	1.22	--
	Concrete coefficient C40/45	ψ	[-]	1.04	1.41	1.29	1.28	1.41	--
	Concrete coefficient C50/60	ψ	[-]	1.05	1.55	1.37	1.37	1.55	--
	Tension partial safety factor	γ_M	[-]	1.8	1.8	2.1	2.1	2.1	--
	Shear characteristic resistance	V_{Rk}	[kN]	6.3	8.3	9.1	17.8	32.5	--
	Shear partial safety factor	γ_M	[-]	1.5	1.5	1.25	1.5	1.25	--
HEA4	Code		[-]	HEA4M06	HEA4m08	HEA4M10	HEA4M12	HEA4M16	HEA4M20
	ETA assessment		[-]						
	Tension characteristic resistance	N_{Rk}	[kN]	5.0	6.6	10.2	14.3	21.1	28.8
	Concrete coefficient C30/37	ψ	[-]	1.02	1.22	1.15	1.15	1.22	1.19
	Concrete coefficient C40/45	ψ	[-]	1.04	1.41	1.29	1.28	1.41	1.35
	Concrete coefficient C50/60	ψ	[-]	1.05	1.55	1.37	1.37	1.55	1.46
	Tension partial safety factor	γ_M	[-]	2.1	2.1	2.1	2.1	2.1	2.1
	Shear characteristic resistance	V_{Rk}	[kN]	6.3	8.3	10.5	17.8	32.1	52.0
	Shear partial safety factor	γ_M	[-]	1.5	1.5	1.52	1.5	1.52	1.52
HENOM	Code		[-]	HENOM06	HENOM08	HENOM10	HENOM12	HENOM16	HENOM20
	ETA assessment		[-]						
	Tension characteristic resistance	N_{Rk}	[kN]	5.0	6.6	10.2	14.3	21.1	28.8
	Concrete coefficient C30/37	ψ	[-]	1.02	1.22	1.15	1.15	1.22	1.19
	Concrete coefficient C40/45	ψ	[-]	1.04	1.41	1.29	1.28	1.41	1.35
	Concrete coefficient C50/60	ψ	[-]	1.05	1.55	1.37	1.37	1.55	1.46
	Tension partial safety factor	γ_M	[-]	2.1	2.1	2.1	2.1	2.1	2.1
	Shear characteristic resistance	V_{Rk}	[kN]	6.3	8.3	9.1	17.8	32.5	47.5
	Shear partial safety factor	γ_M	[-]	1.5	1.5	1.25	1.5	1.25	1.25

1 KN ≈ 100 kg

Characteristic resistance in non structural applications in concrete C20/25 to C50/60 (cracked and non-cracked) for an isolated anchor (no spacing and edge distance effects) with bolt class 6.8 or A4-70.

	SIZE			M6	M8	M10	M12	M16	M20
HEHO	Code		[-]	HEHOM06	HEHOM08	HEHOM10	HEHOM12	HEHOM16	HEHOM20
	ETA 14/0068 assessment		[-]	✓	✓	✓	✓	✓	✓
	Resistance to any direction (C20/25 a C50/60)	F_{Rk}	[kN]	2.0	3.0	5.0	7.5	12.0	20.0
	Partial safety factor	γ_M	[-]	1.8	1.8	2.1	2.1	2.1	2.1
	critical spacing	s_{cr}	[mm]	150	180	240	300	390	480
	critical edge distance	c_{cr}	[mm]	75	90	120	150	195	240
HECLOM	Code		[-]	HECLOM06	HECLOM08	HECLOM10	HECLOM12	HECLOM16	--
	ETA 14/0068 assesssment		[-]	✓	✓	✓	✓	✓	--
	Resistance to any direction (C20/25 a C50/60)	F_{Rk}	[kN]	2.0	3.0	5.0	7.5	12.0	--
	Partial safety factor	γ_M	[-]	1.8	1.8	2.1	2.1	2.1	--
	critical spacing	s_{cr}	[mm]	150	180	240	300	390	--
	critical edge distance	c_{cr}	[mm]	75	90	120	150	195	--

It is recommended an increasing coefficient of loads of γ_F = 1,4

Calculation example:

Fixing a tension load of 400 kg (=3.92 kN) in non cracked concrete C30/37 with HEHOM10 anchor and bolt class 6.8
Checking: Design load < Design resistance
Design load = service load * increasing coefficient for loads = 3,92 * 1,4 = 5,49 kN
Design resistance = Characteristic resistance * Concrete coefficient / Tension partial safety factor = 12,7 * 1,15 / 2,1 = 6,95 kN
Checking: 5.49 kN < 6,95 kN: fixing is safe

For more complex calculations you can use our anchor calculation programme INDEXcal.

6. DOCUMENTATION

You can obtain the following documents by means of our commercial department or our web page www.indexfix.com :

- European assessments:
  - ETA-14/0135 for non cracked concrete according to ETAG 001 guide, option 7, from M6 to M20
  - ETA 14/0068 for use in concrete in non structural applications according to ETAG 001 part 6, from M6 to M20
- 1219-CPR-0078 y 1219-CPR-0079 certificates of performance
- DoP HEHO-en declaration of performance
- INDEXcal.anchor calculation programme