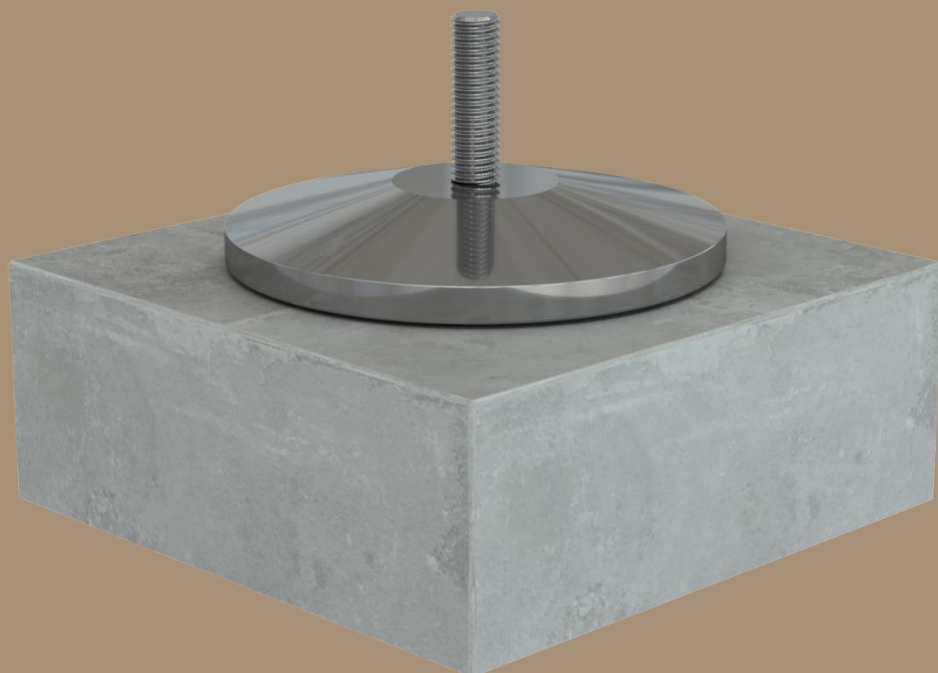




TECHNICAL DATASHEET

C-BLOCK™

The Anti-Seismic Bonded Plate
for Concrete Support



THE BONDED ANTISISMIC FASTENER FOR CONCRETE

C-BLOCK™ is a mechanically strong fixing point that is bonded directly to the concrete. The advantage of this anchor is its non-intrusive nature in the concrete (no drilling).

C-BLOCK™ is a bonded assembly. It consists of the following items:

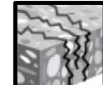
- a circular steel plate with a threaded rod,
- an intermediate deformation layer of polymer,
- a nut and a washer.

VERSIONS:

- C-BLOCK™ T: Temporary applications (<6 months)
- C-BLOCK™ L: Permanent applications (up to 60 years)



Non-cracked concrete



Cracked concrete



Non-intrusive



Removable

Registrations

European Assessment Documents	EAD 330499-00-0601, 2017
	EAD 330232-00-0601, 2016

ITEM CODES AND RANGES AVAILABLE

Designation	C-BLOCK™ T	C-BLOCK™ L
M8	On request	On request
M10	On request	On request
M12	X	X

SERVICE CONDITIONS AND LIFE EXPECTANCY

Features	C-BLOCK™ T	C-BLOCK™ L
Expected service life	6 months	60 years
Environment	Indoor locations ¹	Indoor locations ¹
Moisture	< 80%	< 60%
Service temperature	5°C < T < 35°C	5°C < T < 35°C
Accidental temperature	40°C	40°C
Radiation exposure	“worker zone” (ie. <2 mSv/h)	“worker zone” (ie. <2 mSv/h)
Min. thickness of concrete substrate	200 mm ²	200 mm ²

¹ For outdoor applications, contact COLD PAD and EDF DT.

² For thicknesses below 200 mm, contact COLD PAD and EDF DT.

PRECALCULATED VALUES / STATIC LOADS

Non-cracked C25/30 concrete - C-BLOCK™ T (temporary version) and C-BLOCK™ L (permanent version)

C-BLOCK™	Tensile strength (kN)		Shear (kN)	
	Design resistance $N_{rd, ucr}$		Design resistance $V_{rd, ucr}$	
	C-BLOCK™ T	C-BLOCK™ L	C-BLOCK™ T	C-BLOCK™ L
M12	5.7	Qualification on-going	4.6	Qualification on-going

The design value is obtained by statistical analysis of the results of the C-BLOCK™ qualification campaign according to the formula :

$$X_{Rd,ucr} = \frac{X_{Rk,25,ucr}}{\gamma_c * \gamma_{inst}}$$

- $X_{Rk,25,ucr}$: Characteristic mechanical capacity (8.6 kN in tensile strength; 7 kN in shear)
- $\gamma_c = 1.5$ safety factor for permanent and transient design cases (see Eurocode 2 part 4)
- $\gamma_{inst} = 1$: safety coefficient taking into account the proof load test

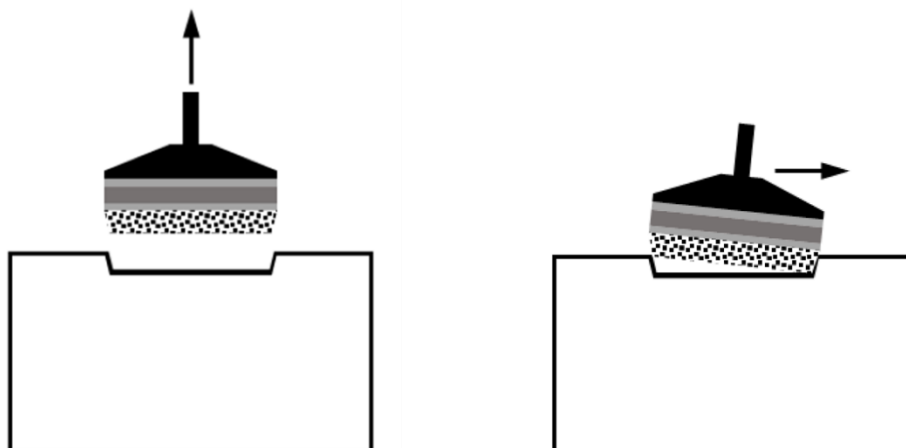
For higher grade concrete, the characteristic tensile and shear strengths are considered the same as for C25/30 concrete (conservative approach).

The pre-calculated values are obtained according to EN1992-4, EN1992-1-1, EN1990, EAD 330499-00-0601 and EAD 330232-00-0601. Depending on the structure, system or components to be fixed with C-BLOCK™, additional safety factors could be applied.

Cracked concrete - Permanent version (C-BLOCK™ L) - under qualification

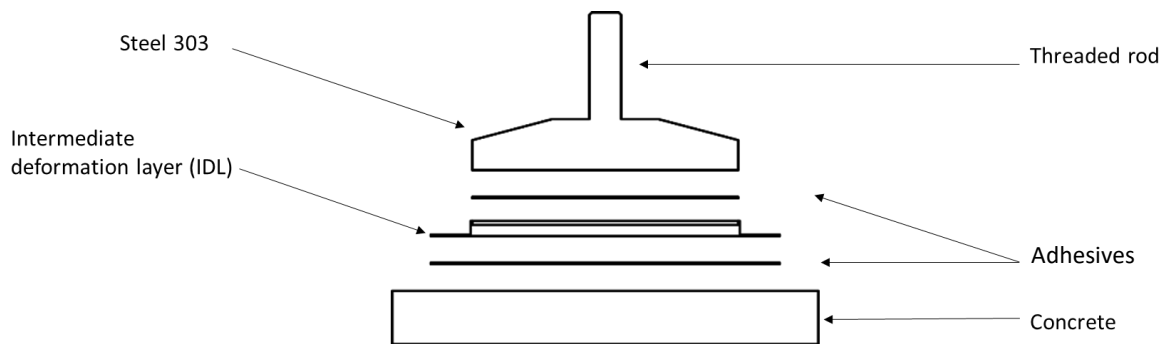
FAILURE MODE:

- The expected mode of failure in tensile strength and shear is predominantly failure in concrete.



C-BLOCK™ MATERIALS

C-BLOCK™	C-BLOCK™ T	C-BLOCK™ L
Dish	303	303
Threaded rod	A4-70	A4-70
Washer	A4	A4
Hexagonal nut	A4-70	A4-70
Adhesive	HIT-RE 500 V3	HIT-RE 500 V3
Intermediate deformation layer (IDL)	Polymer	Polymer



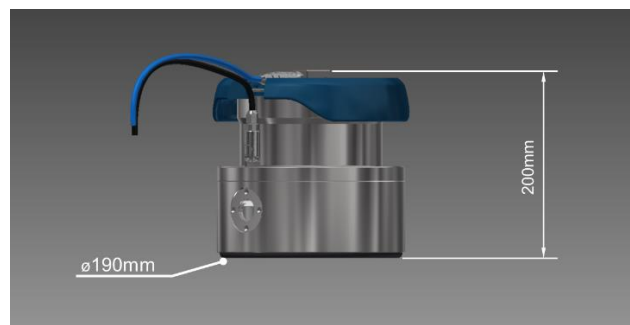
C-BLOCK™ DIMENSIONS

Properties	Value
Outside diameter	130 mm
Distance between the concrete surface and the bottom of the threaded rod	24 mm
Thread diameter / Height of the threaded rod	M12 / 40 mm
Weight (per unit)	1 kg

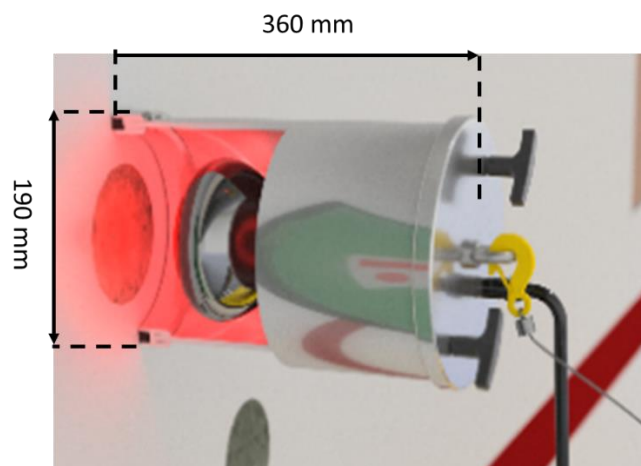
INSTALLATION

INSTALLATION TOOLING

Designation	Product details
C-Hawk	Control box and installation bell
Temperature setting tool	Infrared lamp 250W
Concrete resurfacer with diamond disc	Makita PC5010C 1400 W
Adhesive kit <ul style="list-style-type: none"> • Adhesive cartridge • Application gun • Static mixer 	HIT RE 500 V3
Proofload kit	Hydrajaws



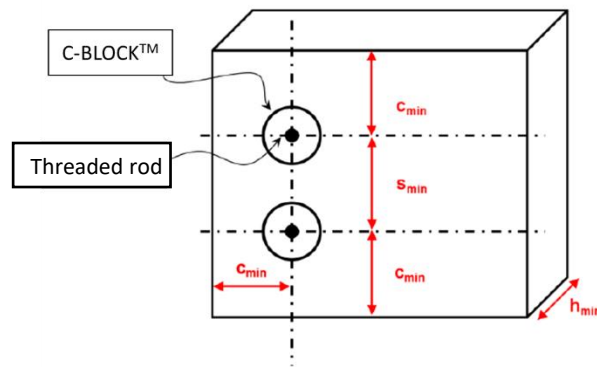
Installation bell



Heating bell

INSTALLATION INSTRUCTIONS

Properties		Entraxe Minimum distance rod to rod	Minimum edge distance	Minimum concrete thickness
		S_{min} (mm)	C_{min} (mm)	h_{min} (mm)
M12	C-BLOCK™ T	160	100	200
	C-BLOCK™ L			



A specific risk analysis is required for the use of the C-BLOCK™. The purpose of this risk analysis is to evaluate the potential impact of a fastener failure on the surrounding safety equipment.

PROOFLOAD TEST

The proofload test is to be carried out on each C-BLOCK™ using the dedicated proofload test kit. The specifications of the test are as follows:

- Minimum time between the end of the bonding process and the execution of the proof load test: 16 hours (at ambient temperature)
- Test value: 5.2 kN
- Test duration: 30 seconds

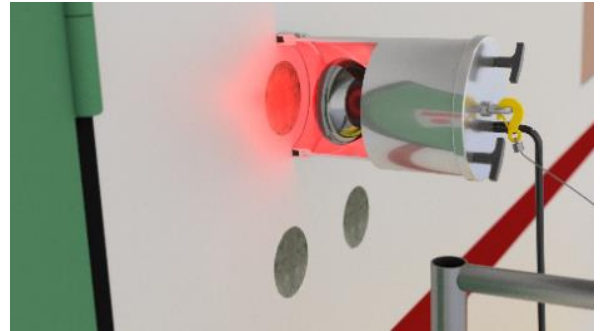
INSTALLATION SEQUENCE



Localized surface preparation

approx. 1 mm thickness
Use of anti-dust system

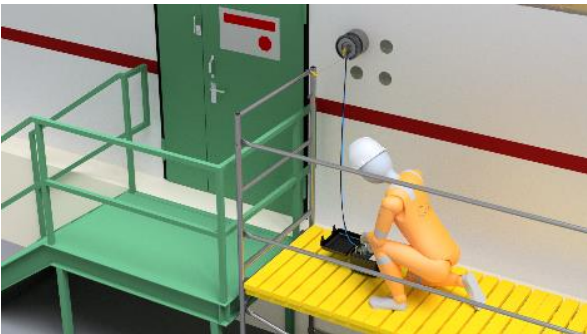
1



Temperature control of concrete

Self-supporting tool and
temperature below 100°C

2



Bonding

Self-supporting tool
Automated installation process

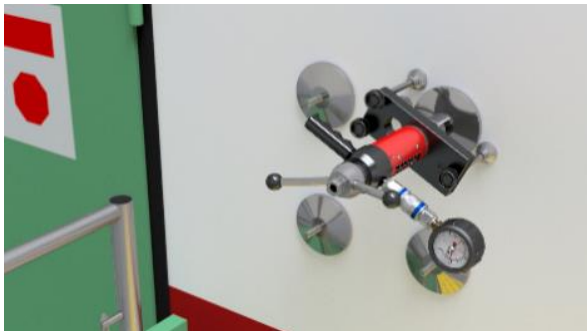
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C-HAWK

Total autonomy &.
Full traceability

4



Proof load test

NDT & Proof load test

5



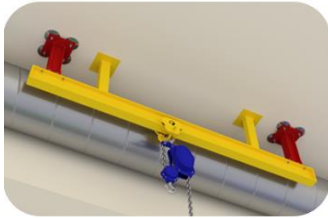
Installation of the outfitting

Fixing the outfitting

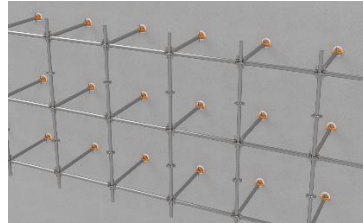
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EXAMPLES OF APPLICATIONS:

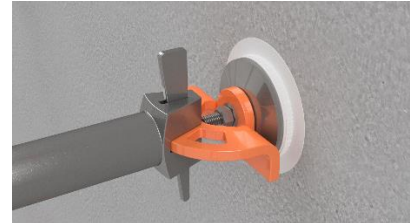
TEMPORARY APPLICATIONS:



Lifting



Scaffolding - general view



Scaffolding - zoomed view

PERMANENT APPLICATIONS:



Pipe support



Cable trays



Electrical appliances

PRODUCT ROADMAP

The C-BLOCK™ is made available on the market in three stages:

- Temporary applications for non-safety rated equipment: already available since April 2021.
- Permanent application for non-safety rated equipment: to be available from September 2021.
- Permanent application for safety rated equipment: to be available during the first semester of 2022.