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European Technical Assessment Body
for construction products



European Technical Assessment

ETA-14/0336
of 28 November 2025

English translation prepared by DIBt - Original version in German language

General Part

Technical Assessment Body issuing the European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

CELO Hollow block frame plug HBR 10

Product family
to which the construction product belongs

Plastic anchors for redundant non-structural systems in concrete and masonry

Manufacturer

CELO Befestigungssysteme GmbH
Industriestraße 6
86551 Aichach
DEUTSCHLAND

Manufacturing plant

CELO Plant 1

This European Technical Assessment contains

16 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

EAD 330284-00-0604, edition 12/2020

This version replaces

ETA-14/0336 issued on 12 April 2021

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Specific part

1 Technical description of the product

The CELO Hollow block frame plug HBR 10 is a plastic anchor consisting of a plastic sleeve made of polyamide and an accompanying specific screw of galvanised steel or of stainless steel.

The plastic sleeve is expanded by screwing in the specific screw which presses the sleeve against the wall of the drilled hole.

The 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 anchors 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 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Class A1
Resistance to fire	No performance assessed

3.2 Mechanical resistance and stability (BWR 4)

Essential characteristic	Performance
Resistance to steel failure under tension loading	See Annex C 1
Resistance to steel failure under shear loading	See Annex C 1
Resistance to pull-out or concrete failure under tension loading (base material group a)	No performance assessed
Resistance in any load direction without lever arm (base material group b, c, d)	See Annex C 1 and C 2
Edge distance and spacing (base material group a)	No performance assessed
Edge distance and spacing (base material group b, c, d)	See Annex B 2 and B 3
Displacements under short-term and long-term loading	See Annex C 3
Durability	See Annex B 1

4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

In accordance with European Assessment Document EAD 330284-00-0604 the applicable European legal act is: 97/463/EC.

The system to be applied is: 2+

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

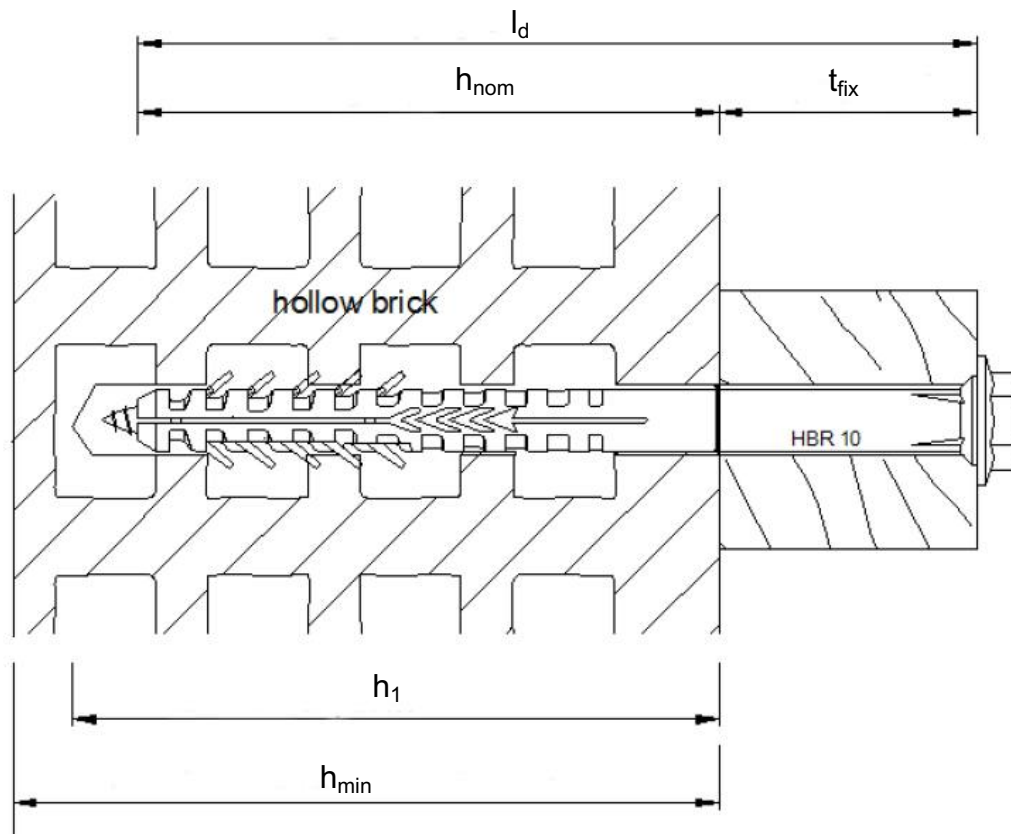
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 28 November 2025 by Deutsches Institut für Bautechnik

Dipl.-Ing. Beatrix Wittstock
Head of Section

beglaubigt:
Ziegler

Installed condition



- h_{nom} = overall plastic anchor embedment depth in the base material
- h_1 = depth of drilled hole to deepest point
- h_{min} = minimum thickness of member
- t_{fix} = thickness of fixture
- l_d = length of plug

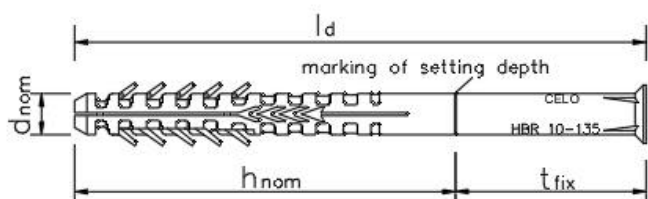
CELO Hollow block frame plug HBR 10

Product description
Installed condition

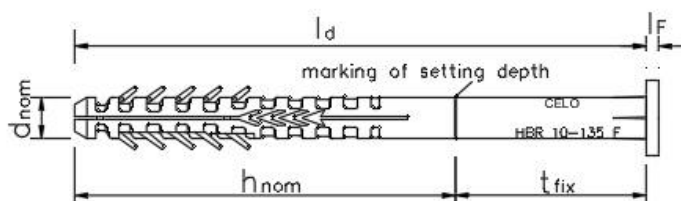
Annex A 1

Product description

Anchor sleeve HBR 10



HBR 10 Type S

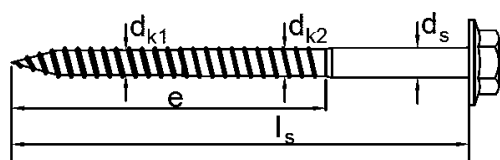


HBR 10 Type F

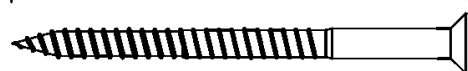
Marking:	Brand	Type	diameter (d_{nom}) - length (l_d)	head (optional)
Example:	CELO (or logo)	HBR	10 - 135	F or S

Special screw

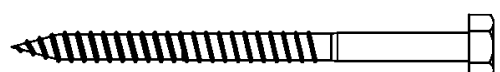
Screw head with different tool fittings



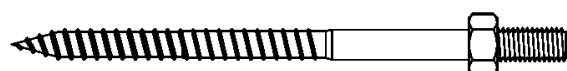
Type SSKS (or SSKS A4)
galvanized steel or stainless steel (A4)



Type TX (or TX A4)
galvanized steel or stainless steel (A4)



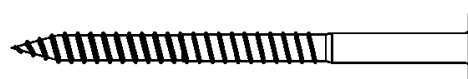
Type SSK (or SSK A4)
galvanized steel or stainless steel (A4)



Type E (or E A4)
galvanized steel or stainless steel (A4)



Type M (or M A4)
galvanized steel or stainless steel (A4)



Type PT (or PT A4)
galvanized steel or stainless steel (A4)

Marking:	Brand	Code Nr. for length	manufacturer code	if stainless steel
Example:	X or C	12 or 115	1	A4

CELO Hollow block frame plug HBR 10

Product description
Anchor types, special screws, marking

Annex A 2

Table A1: Dimensions [mm]

sleeve						
	l_d	$\varnothing d_{nom}$	$t_{fix} \text{ min}$	$t_{fix} \text{ max}$	h_{nom}	l_F ¹⁾
HBR 10	≥ 90	10	≥ 1	1000	90	3

¹⁾ Only for anchor type F

Special screw					
	l_s ¹⁾	$\varnothing d_s$	$\varnothing d_{k1}$ ²⁾	$\varnothing d_{k2}$ ²⁾	e
HBR 10	≥ 95	7	5,8	6,3	≤ 67

²⁾ To ensure, that the screw penetrates the anchor sleeve, l_s must be $l_d + l_F + 5$ mm

³⁾ Only for anchor type F

Table A2: Materials

Designation	Material
anchor sleeve	Polyamid PA 6 Colour: grey
special screw (steel, zinc plated)	Steel, zinc plated, galvanised $\geq 5 \mu\text{m}$ acc. EN ISO 4042:2022 $f_{yk} \geq 480 \text{ N/mm}^2$, $f_{uk} \geq 600 \text{ N/mm}^2$ (≥ 6.8 screw)
special screw (stainless steel)	Stainless steel A4 (material 1.4401 or 1.4571) of corrosion resistance class CRC III according to EN 1993-1-4:2006 + A1:2015 $f_{yk} \geq 450 \text{ N/mm}^2$, $f_{uk} \geq 700 \text{ N/mm}^2$ strength class 70

CELO Hollow block frame plug HBR 10

Product description
Dimensions and materials

Annex A 3

Specifications of intended use

Anchorage subject to:

- Static and quasi-static loads
- Redundant non-structural systems

Base materials:

- Solid brick masonry (base material group b), according to Annex C1.
- Note: The characteristic resistance is also valid for larger brick sizes and higher compressive strength of the masonry unit.
- Hollow brick masonry (base material group c), according to Annex C2.
- Mortar strength class of the masonry \geq M2,5 according to EN 998-2:2016.
- For other base materials of the base material group b) and c) the characteristic resistance of the anchor may be determined by job site tests according to TR 051:2018-04.

Temperature Range:

- a) -40 °C to +40 °C (max. long term temperature +24 °C, max. short term temperature +40 °C).
- b) -40 °C to +80 °C (max. long term temperature +50 °C, max. short term temperature +80 °C).

Use conditions (Environmental conditions):

- Structures subject to dry internal conditions (special screw made of zinc coated steel or stainless steel).
- The specific screw made of galvanised steel also be used in structures subject to external atmospheric exposure, if the area of the head of the screw is protected against moisture and driving rain after mounting of the fixing unit in this way, that intrusion of moisture into the anchor shaft is prevented. Therefore there shall be an external cladding or a ventilated rainscreen mounted in front of the head of the screw and the head of the screw itself shall be coated with a soft plastic, permanently elastic bitumen-oil-combination coating (e. g. undercoating or body cavity protection for cars).
- Structures subject to external atmospheric exposure (including industrial and marine environment) and to permanently damp internal condition, if no particular aggressive conditions exist (screw made of stainless steel of corrosion resistance class CRC III).

Note: Particular aggressive conditions are e.g. permanent, alternating immersion in seawater or the splash zone of seawater, chloride atmosphere of indoor swimming pools or atmosphere with extreme chemical pollution (e.g. in desulphurization plants or road tunnels where de-icing materials are used).

Design:

- The anchorages are designed in accordance with TR 064:2018-05 under the responsibility of an engineer experienced in anchorages and masonry work.
- Verifiable calculation notes and drawings shall be prepared taking account of the loads to be anchored, the nature and strength of the base materials and the dimensions of the anchorage members as well as of the relevant tolerances. The position of the anchor is indicated on the design drawings.

Installation:

- Hole drilling by the drill modes according to Annex C1 and C2 for base material group b and c.
- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.
- Installation temperature from -10 °C to +40 °C.
- Exposure to UV due to solar radiation of the anchor not protected \leq 6 weeks.
- No ingress of water in the core hole $< 0^{\circ}\text{C}$

CELO Hollow block frame plug HBR 10

**Intended Use
Specifications**

Annex B 1

Table B1: Installation parameters

Anchor type				HBR 10
Drill hole diameter	d_0	=	[mm]	10
Cutting diameter of drill bit	d_{cut}	≤	[mm]	10,45
Depth of drill hole to the deepest point ¹⁾	h_1	≥	[mm]	100
Overall plastic anchor embedment depth in the base material ^{1), 2)}	h_{nom}	≥	[mm]	90
Diameter of clearance hole in the fixture	d_f	≤	[mm]	11

1) see Annex A1

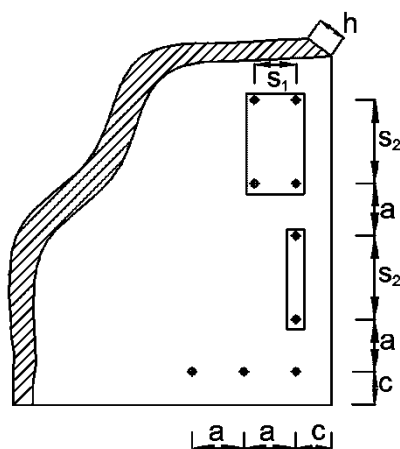
2) For hollow and perforated masonry the influence of $h_{nom} > 90$ mm has to be detected by job site tests according to TR 051:2018-04

Table B2: Minimum thickness of member, edge distance and spacing in solid masonry

Base material	Minimum thickness of member	Minimum edge distance	Minimum spacing		
			Anchor Group		
			perpendicular to free edge	parallel to free edge	
h_{min}	c_{min}	a_{min}	$s_{1,min}$	$s_{2,min}$	
[mm]	[mm]	[mm]	[mm]	[mm]	
Sand-lime solid brick KS 12-1,8 3DF	175	100	³⁾	200	400

³⁾ $a_{min} = \max(250 \text{ mm}; s_{1,min}; s_{2,min})$

Scheme of distances and spacing in solid masonry



CELO Hollow block frame plug HBR 10

Intended Use

Installation parameters, edge distances and spacings for use in solid masonry

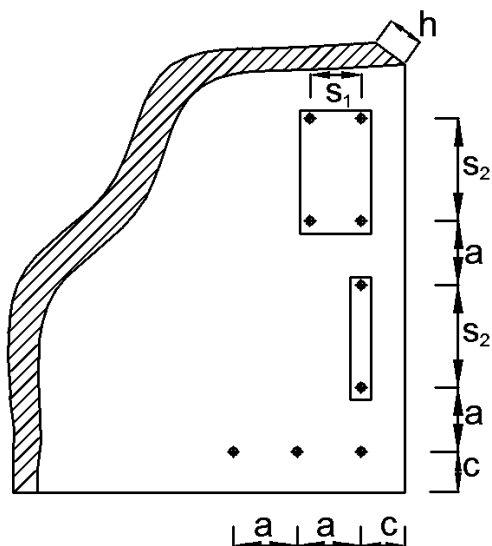
Annex B 2

Table B3: Minimum thickness of member, edge distance and spacing in hollow masonry

Base material	Minimum thickness of member h_{min}	Minimum edge distance c_{min}	Minimum spacing		
			a_{min}	Anchor Group ¹⁾	
				perpendicular to free edge $s_{1,min}$	parallel to free edge $s_{2,min}$
[mm]	[mm]	[mm]	[mm]	[mm]	
Hollow clay brick HLz 12-1,0 3DF	175	100	³⁾	160	320
Hollow sand-lime brick KSL 12-1,4 3DF	175	100	³⁾	180	360
Hollow concrete block HBL 2-0,8 16DF	240 ²⁾	65 ²⁾	³⁾	100 ²⁾	200 ²⁾

- 1) The design method is valid for single anchors and anchor groups with two or four anchors.
- 2) Only for installation in longside of masonry (see Annex C 5 Figure 3)
- 3) $a_{min} = \max(250 \text{ mm}; s_{1,min}; s_{2,min})$

Scheme of distances and spacing in hollow masonry

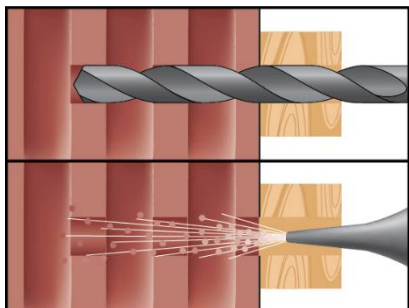


CELO Hollow block frame plug HBR 10

Intended Use
Edge distances and spacings for use in hollow masonry

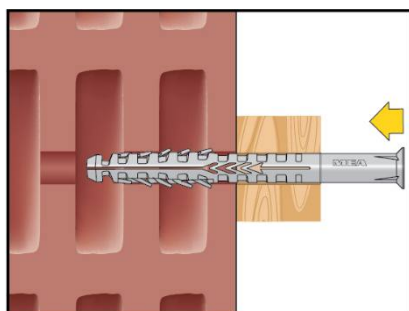
Annex B 3

Installation instructions

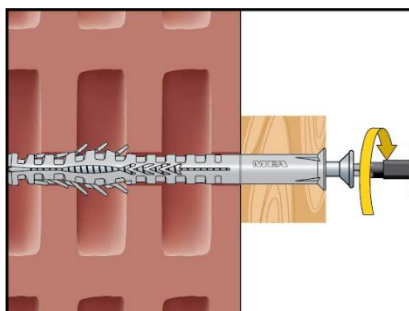


Make the drill hole (can be drilled also through the fixing part).

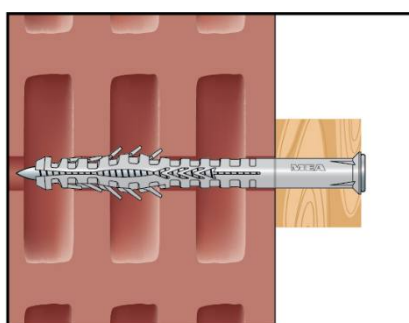
Clean the hole.



Put the plug completely into the hole. The plug must be long enough that the setting depth is ensured.



Turn in the special screw with a screwdriver to fix the fixing part.



The plug is mounted correctly when the screw is completely in the plug.

CELO Hollow block frame plug HBR 10

Intended Use
Installation instructions

Annex B 4

Table C1: Characteristic bending resistance of the screw

Expansion element = special screw Ø 7 mm			material	
			galvanised steel	stainless steel
Characteristic bending resistance	$M_{Rk,s}$	[Nm]	22,7	26,5
Partial safety factor	$\gamma_{Ms}^{1)}$		1,25	1,56

1) In absence of other national regulations

Table C2: Characteristic resistance of the screw

Failure of expansion element			material	
			galvanised steel	stainless steel
Characteristic tension resistance	$N_{Rk,s}$	[kN]	14,3	16,6
Partial safety factor for $N_{Rk,s}$	$\gamma_{Ms}^{1)}$		1,5	1,87
Characteristic shear resistance	$V_{Rk,s}$	[kN]	11,1	12,9
Partial safety factor for $V_{Rk,s}$	$\gamma_{Ms}^{1)}$		1,25	1,56

1) In absence of other national regulations

**Table C3: Characteristic resistance F_{Rk} in [kN] in solid masonry
(base material group "b")**

Base material	Bulk density	Mean compressive strength according EN 771	Minimum format or minimum size	drill method	Characteristic resistance	
	ρ		(L x W x H)		$F_{Rk}^{2)}$	
	[kg/dm ³]	[N/mm ²]	[mm]		$\vartheta = 24/40 \text{ °C}$	$\vartheta = 50/80 \text{ °C}$
Sand-lime solid brick KS 12-1,8 3DF EN 771-2:2011+A1:2015	≥ 1,8	20	3 DF (240*175*113)	Hammer drilling	3,0	3,0
Partial safety factor				$\gamma_{Mm}^{1)}$ [mm]	2,5	2,5

1) In absence of other national regulations

2) characteristic resistance for tension, shear or combined tension and shear loading

CELO Hollow block frame plug HBR 10

Performances

Characteristic resistance of the screw,
Characteristic resistance for use in solid masonry

Annex C 1

Table C4: Characteristic resistance F_{Rk} in [kN] in hollow or perforated masonry (base material group "c")

Base material	Bulk density	Mean compressive strength according EN 771	Minimum format or minimum size	figure/ geometry	drill method	Characteristic resistance	
	ρ		(L x W x H)			$F_{Rk}^{3)}$	
	[kg/dm ³]	[N/mm ²]	[mm]			[kN]	
						$\vartheta = 24/40\text{ °C}$	$\vartheta = 50/80\text{ °C}$
Hollow clay brick HLz 12-1,0 3DF EN 771-2:2011+A1:2015	$\geq 1,0$	12	3 DF (240*175*113)	Annex C 4, Figure 1	Rotary drilling only	1,20	0,90
Hollow Sand-lime brick KSL 12-1,4 3DF EN 771-2:2011+A1:2015	$\geq 1,4$	12	3 DF (240*175*113)	Annex C 4, Figure 2	Rotary drilling only	0,75	0,75
Hollow concrete block HBL 2-0,8 16DF EN 771-3:2011+A1:2015	$\geq 0,8$	2	16 DF (496*240*238)	Annex C 5, Figure 3	Rotary drilling only	0,50²⁾	0,40²⁾
Partial safety factor					$\gamma_{Mm}^{1)}$ [mm]	2,5	2,5

- 1) in absence of other national regulations
- 2) only for installation in longside of masonry (see Annex C 5 Figure 3)
- 3) characteristic resistance for tension, shear or combined tension and shear loading

CELO Hollow block frame plug HBR 10

Performances
Characteristic resistance for use in hollow masonry

Annex C 2

**Table C5a: Displacements under tension and shear load in masonry
for temperature range $\vartheta = 24/40$ °C**

Base material	F=N F=V	Displacements			
		Tension load		Shear load	
	[kN]	δ_{N0} [mm]	$\delta_{N\infty}$ [mm]	δ_{V0} [mm]	$\delta_{V\infty}$ [mm]
Sand-lime solid brick KS 12-1,8 3DF EN 771-2:2011+A1:2015	0,86	0,1	0,1	2)	2)
Hollow clay brick HLz 12-1,0 3DF (EN 771-1:2011+A1:2015)	0,34	0,1	0,1	1,9	2,8
Hollow Sand-lime brick KSL 12-1,4 3DF (EN 771-2:2011+A1:2015)	0,21	0,1	0,1	2,0	3,0
Hollow concrete block HBL 2-0,8 16DF EN 771-3:2011+A1:2015	0,11 ¹⁾	0,1 ¹⁾	0,1 ¹⁾	4,8 ¹⁾	7,1 ¹⁾

¹⁾ Only for installation in longside of masonry (see Annex C 5 Figure 3)

²⁾ No performance assessed

**Table C5b: Displacements under tension and shear load in masonry
for temperature range $\vartheta = 50/80$ °C**

Base material	F=N F=V	Displacements			
		Tension load		Shear load	
	[kN]	δ_{N0} [mm]	$\delta_{N\infty}$ [mm]	δ_{V0} [mm]	$\delta_{V\infty}$ [mm]
Sand-lime solid brick KS 12-1,8 3DF EN 771-2:2011+A1:2015	0,86	0,1	0,1	2)	2)
Hollow clay brick HLz 12-1,0 3DF (EN 771-1:2011+A1:2015)	0,26	0,2	0,3	2,1	3,2
Hollow Sand-lime brick KSL 12-1,4 3DF (EN 771-2:2011+A1:2015)	0,21	0,2	0,4	1,5	2,3
Hollow concrete block HBL 2-0,8 16DF EN 771-3:2011+A1:2015	0,11 ¹⁾	0,1 ¹⁾	0,1 ¹⁾	4,5 ¹⁾	6,7 ¹⁾

¹⁾ Only for installation in longside of masonry (see Annex C 5 Figure 3)

²⁾ No performance assessed

CELO Hollow block frame plug HBR 10

Performances
Displacements for use in masonry

Annex C 3

Geometry and dimensions of hollow or perforated brick

Figure 1

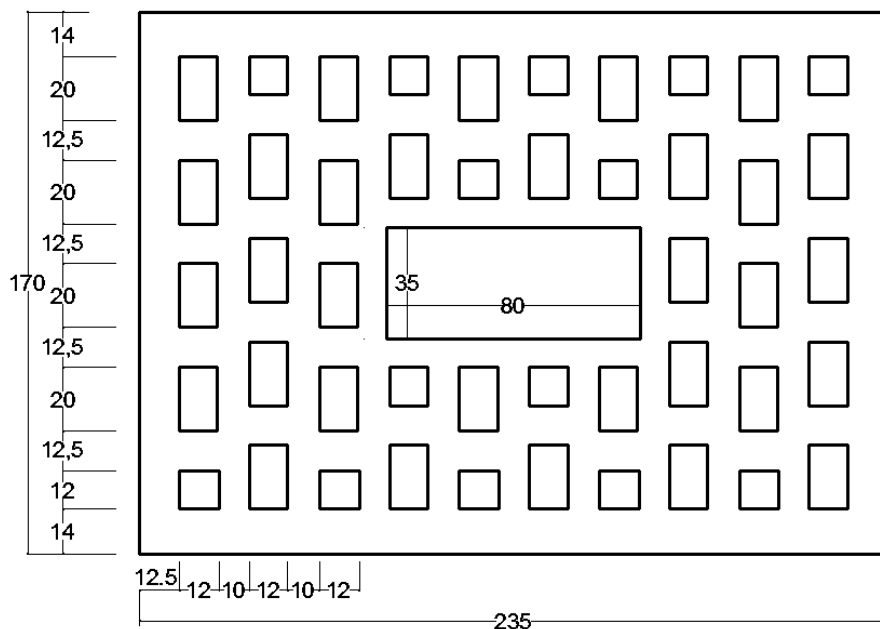
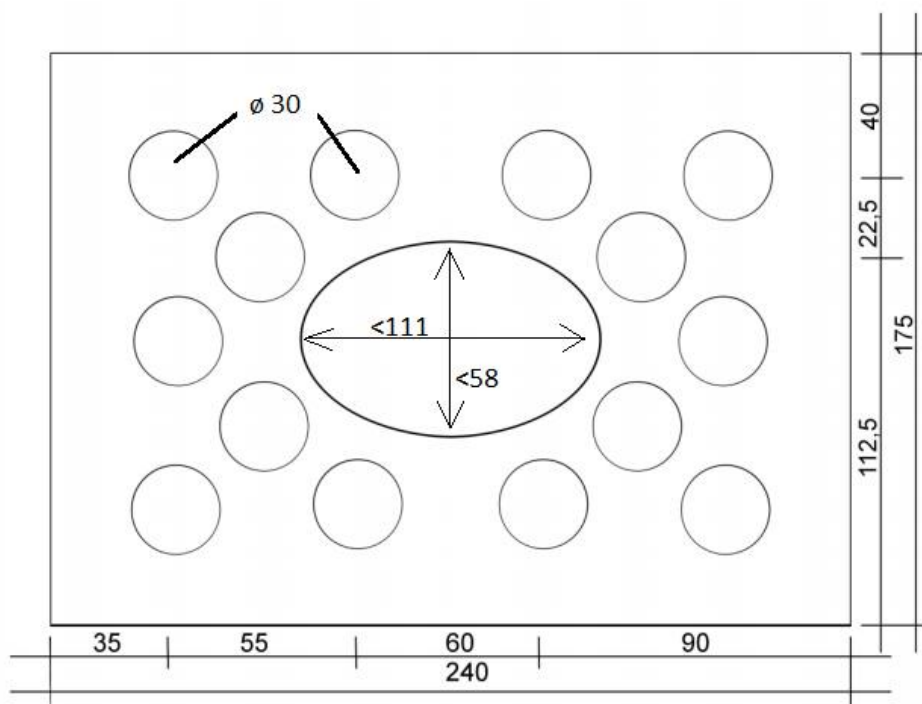


Figure 2



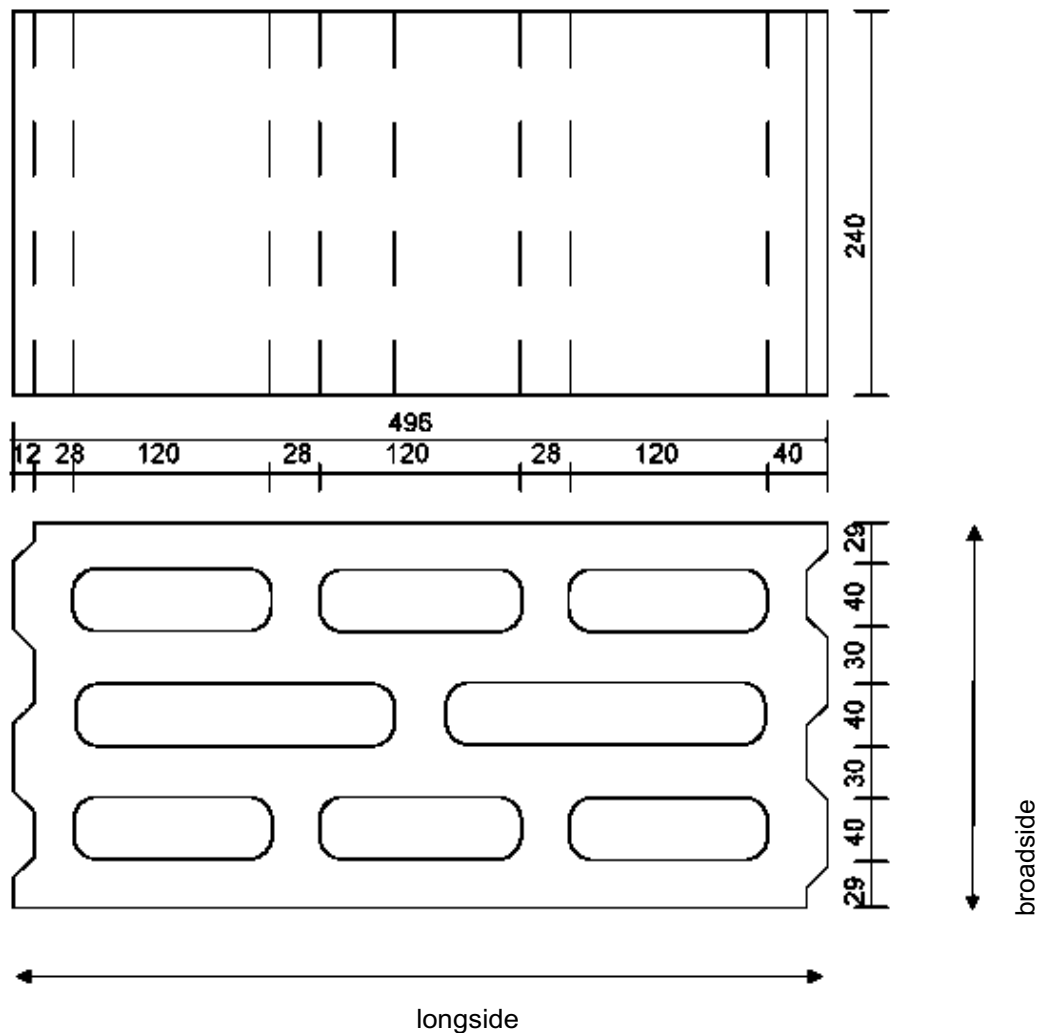
CELO Hollow block frame plug HBR 10

Performances

Geometry and dimensions of hollow or perforated brick

Annex C 4

Figure 3



CELO Hollow block frame plug HBR 10

Performances
Geometry and dimensions of hollow or perforated brick

Annex C 5