SPECIFICATIONS
ISOHEMP HEMP BLOCK

Thicknesses: 60, 90, 120, 150, 200, 250, 300 and 360 mm
Version: April 2021

1. General definition of the material

The hemp block is a free-standing masonry element that does not fulfil any structural role and is manufactured in Belgium. It is comprised of hemp chips and a mixture of air and hydraulic lime. The hemp chips have a particle size between 2 mm and 20 mm. The mix ratio comprises a minimum 80% of hemp by volume. The product is moulded, pressed and then cured and dried in the open air without the need for any heat input. The standard size of the hemp blocks is 60 cm by 30 cm and they are manufactured in thicknesses varying between 6 and 36 cm.

2. Applications

New build, external insulation, interior insulation, floor insulation and interior masonry. The blocks form insulating, non-load bearing masonry that must be protected from the weather.

The hemp blocks can be used to form the building envelope, as a filling between frames or to construct partition walls.

3. Physical characteristics

- Bulk density when dry: $310 < \boldsymbol{\rho} < 360$ [kg/m³]
- Resistance to compression: $f_b > 300$ [kPa]
- Thermal conductivity when dry: $\boldsymbol{\lambda}_d < 0.07$ [W/mK]
- Thermal conductivity when wet: $\boldsymbol{\lambda}_{ui} < 0.072$ [W/mK]
- Resistance to water vapour: $\mu < 3$ [-]
- Surface cohesion > 100 [kPa]

4. Product characteristics

The blocks have a colour ranging from grey/beige to off white with a porous surface between the plant strands which is highly suitable for easy application of the outer coating.

The blocks have modular dimensions:

- Thicknesses: 60, 90, 120, 150, 250, 300 et 360 mm
- Length: 600 mm
- Height: 300 mm

Parallelism of the installation faces - maximum defect NBN – EN 772-16 < 3 mm

5. Packaging

Pallet sizes 1000 X 1200 mm, for a height of 1450 mm.

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5. Certification

Hempcrete blocks obtained the ATG certificate.

6. Carbon footprint

The environmental impact of hemp blocks is determined by a life-cycle assessment (LCA). The LCA revealed that 76 kg of CO2 are stored for 1 m³ of blocks. During production, the block waste is completely returned to the production line. There is no outgoing waste or wastewater.

7. Application

During building using the hemp blocks, the contractor must adhere to the manufacturer's instructions. The following must also be observed:

a. Bedding mortar:

The bedding mortar is used for bonding of the blocks and finishing of the joints as necessary. It comprises a dry mixture of bonding plaster, lime and sand.

b. First course of blocks:

The hemp block must be placed so that it is away from any risk or rising damp. If there is any risk, the first course of blocks must be placed on a waterproof membrane lifted for 2 cm along the length of the hemp block.

When there is no risk of rising damp, the first course of hemp blocks is bedded on standard mortar in the case of a concrete slab or fixed with an adhesive construction foam on a wooden/OSB floor.

Outside, best practice is to start the masonry at least 15 cm from the ground.

c. Other courses:

The following blocks are bonded with thin 3mm joints to the first course using the bonding mortar. The vertical joints must be offset by a minimum of 20 cm. The bonding mortar is applied using a notched or plain trowel, a bonding comb or any other tool with which the mortar can be applied quickly to the blocks.

d. Last course:

The hemp blocks of the last course are cut so as to leave only a minimum space (no more than 2 cm) between the blocks and the ceiling. Then the space is closed using mortar, flexible insulator or adhesive foam.

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e. <u>Finishing</u>:

Finishing of the hemp blocks must be carried out in accordance with the guidelines of the finishing product manufacturer. A joint validation may be requested from the hemp block manufacturer.

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