Forum water-permeable clay pavers

CLAY PAVERS

VANDE MOORTEL H2O NATURAL CLAY PAVING

The pavement (the whole of the paving including clay pavers, laying bed, sub-base layer and any sub-foundations) has a surface permeability of > 5.4 * 10-5 m/s.

COLOUR

Purple

Product description

The bricks are formed individually in the sanded mould to a solid mass, pressed from clay of alluvial origin from an area located in the Scheldt basin and fired in a tunnel oven at a temperature of approximately 1180°C. On the narrow side the bricks have an sanded surface structure. The shape is slightly irregular. Finally the bricks are processed until they have acquired a weathered shape, due to which the paver surface leaves a rustic, aged impression.

TECHNICAL CHARACTERISTICS

The paving is laid in fired clay bricks of Belgian origin, quality class A, carrying the Benor mark, the CE mark and UKCA mark.

CE label according to EN 1344 : 2013 / AC : 2015

Manufacturing dimensions (L x W x H)	: *210x50x103 mm	on demand for projects > 2000 m²
Quantity / m² with a traditional joint	: ca. 91	
Manufacturing dimensions (L x W x H)	: *210x67x103 mm	on demand for projects > 2000 m²
Quantity / m² with a traditional joint	: ca. 68	

PHYSICAL AND MECHANICAL PROPERTIES ACCORDING TO EN 1344: 2013 / AC: 2015

Aspect	Class	Mean	Individual
Water absorption NBN EN771	Class W3	max 3%	max 4%
Transverse breaking load NBN EN1344	Class T4	min 80 N/mm	min 64 N/mm
Abrasion resistance NBN EN1344	Class A3	max 450 mm³	max 500 mm³
Frost resistance NBN EN1344	Class FP100	freeze/thaw resistant	freeze/thaw resistant
Size tolerance NBN EN1344	Class R1	± 0,4 √d	0,6 √d (range)
Wet skid resistance NBN EN1344	Class U3	>55	
Acid resistance NBN EN1344	Klasse C	< 7%	< 7%

LAYING

The clay pavers are laid on edge. In the case of water-permeable paving, the slope can be restricted to 1% in order to allow infiltration. The clay pavers are to be laid loosely against each other with a minimum joint (2 to 3 mm), if necessary with a slightly wider joint in places in order to keep to the bond.

Before vibrating the paving, a suitable water-permeable jointing material with a permeability of > 5.4 * 10-5 m/s is embedded between the clay pavers.
Check the filter stability of the jointing sand in respect of the paving layer beforehand. This sand is applied for the first time until the clay pavers are stable and seated firmly so that they can no longer press against each other during vibration. During vibration, a rubber mat is placed underneath the vibration plate in order to prevent damage to the clay pavers. After vibration, jointing sand should be spread over the whole surface again and swept in several times. Repeat the procedure until the clay pavers can no longer move and the joint is completely filled. Only then is the paved surface ready for use.

APPLICATION

The use of water-permeable clay pavers is however restricted to OCW traffic categories II, III and IV. In practice, a maximum of 100 trucks (> 3.5 tons) and 5,000 light vehicles (< 3.5 tons) per day is expected.
Due to the relatively restricted joint width, the paving remains easy to walk on and drive on, and a normal level of comfort is maintained in terms of use and noise.
The clay paver also retains its normal strength and resistance to acids and de-icing salts.

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MATERIALS

Joint filler

The jointing sand is a naturally pure crushed sand originating from the process of crushing natural stone. Its natural form is angular and sharp with an optimum content of fine particles smaller than 0.063 mm with Tmax ≤ 2 mm of 0% or a maximum of < 3% (NBN EN 933-1).
The quality of the granulates is important for the retention of the water permeability capacity. That means that the Los Angeles coefficient (LA – resistance to crushing) must not exceed 20 and the Micro-Deval coefficient (MDE – resistance to abrasion) must not exceed 15 in accordance with PTV 411. The colour is dark grey to anthracite.

Paving layer

It is recommended for crushed sand with a fraction of 2/4 or split with a fraction of 2/6.2 to be used for the laying bed. The quality of the granulates is important for the retention of the water permeability capacity. That means that the Los Angeles coefficient (LA – resistance to crushing) must not exceed 20 and the Micro-Deval coefficient (MDE – resistance to abrasion) must not exceed 15.

Water-permeable crushed stone foundations

Draining lean-mixed concrete foundations are most suitable for zones with a significant number of passages of heavy traffic. For all other applications, an unbound, preferably continuous water-permeable crushed stone sub-base layer with a sufficient load-bearing capacity can be used.
In Flanders: in accordance with SB250 version 4.1.a, section 5-4.13 and section 3-7.1.2.15
In Brussels: in accordance with TB2015, section E.4.2
In Wallonia: in accordance with Qualiroutes 20 July 2021, section F.4.2.1 (subject to the restriction of the number of fine constituents) or in accordance with section F.4.2.1.4.

Additional information on the use of draining lean-mixed concrete

For a draining lean-mixed concrete sub-base, according to the recommendations of the Research Centre for Road Construction (OCW) (memorandum 04/05/06 2022), a geotextile according to PTV 829 is provided in order to prevent the seepage of fine particles from the paving layer.
In Flanders: in accordance with SB250 version 4.1.a, section 5-4.10
In Brussels: in accordance with TB2015, section E.4.5
In Wallonia: in accordance with Qualiroutes 20 July 2021, section F. 4.6

Water-permeable crushed stone sub-foundations

It is recommended to use the same materials as the ones used for the crushed stone sub-base layer. Mixed rubble or masonry rubble is therefore not recommended. The properties for a water-permeable crushed stone sub-base layer can also be found in SB250 version 4.1.a, section 5 – 3.6.

Geotextile - Geogrid

In addition, a geotextile and geogrid can be laid under the sub-foundations to improve the load-bearing capacity if the subsoil is saturated. Geotextile type 2.5B, non-woven according to SB250 version 4.1.a
Geogrid in SB250 version 4.1.a. section 3 – 13.3.2.2.

MAINTENANCE

Water-permeable paving constructed using clay pavers is low-maintenance. Cleaning can be carried out using a jet washer. The contaminated joint material released is removed from the paving. A cleaner for very open asphalt concrete can also be used.

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