



Swiss Quality

ECOLOGY MEETS DESIGN

LUNIX®

**CREABETON**

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## LUNIX® – ECOLOGY MEETS DESIGN

DESIGNED BY ATELIER OÏ

Drainable surfaces are all the rage! It makes sense for the environment to drain rainwater directly into the ground and therefore maintain the natural cycle of events, without having to resort to expensive water drainage and retention measures. Both ground coverings that allow the water to drain away thanks to their porous design and those which drain it away through joints or via integrated layers of lawn, soil or grit, have enjoyed increasing popularity in recent years. The requirements of local authorities sensibly promote the use of such eco-paving in many places.

How is it possible to combine functionality and design? This is a question which inspired the product designers at Creabéton Matériaux. Working together with well-known design agency, atelier oï, they started looking for new ideas. Most important was an original, yet unostentatious design, playing with organic shapes and the successful interaction of concrete with a natural element - grass. atelier oï took up the challenge and interpreted it in the form of overlapping circles that go in and out of one another. In this way, a random, yet natural coexistence of concrete and nature came into being. A successful take on modern architectural language, the design of which is protected by copyright.

The new LUNIX® lawn paving stone makes possible the maximum number of different layout designs. The concept consists of four rectangular paving stones of identical size with differently arranged points. This enables the creation of countless repeated or random patterns. The product range is neatly rounded off by filling stones that are also available for making paths or creating patterns in the style of a mosaic.



### atelier oï design agency

The «Tr(oï)ka» was founded in 1991 by Aurel Aebi, Armand Louis and Patrick Reymond under the «atelier oï» brand in the town of La Neuveville in Switzerland's Bernese Jura region.

Multidisciplinarity, teamwork and a «hands-on» approach are the elements that characterise the philosophy and modus operandi of atelier oï. Assignments vary between architecture, design and scenography. They develop in particular for IKEA, Wogg, Röthlisberger, Swatch, B & B Italia, Louis Vuitton, etc. Invited by design schools in Switzerland and abroad, they hold a chair in the Design Department at the «Ecal» (University of Art and Design, Lausanne).

## How does drainage work in the case of lawn paving stones?

### The drainage method – inset cavities

Drainage of precipitation takes place through cavities inset in the stones, with the result that the entire surface is drained.

### Surface drainage

The advantages of surface drainage compared with all other drainage methods lie, on the one hand, in the greatest possible surface distribution of infiltrated water, and, on the other, in the best possible ground water recharge (filter thickness).

## What should you consider for optimal drainage?

### Seepage capability of the ground

In the case of lawn paving stones, the permeability of the ground has to be guaranteed for good drainage. The subsurface or substrate must be capable of conducting water, so that water which gathers on the ground surface can seep into the ground, be stored temporarily and then drained away.

Therefore, the seepage capability of the ground is dependent on several soil-mechanical properties:

- Grain size distribution
- Water content of the ground
- Ground structure
- Water conducting macropores

According to Darcy's law, the water permeability is expressed as the coefficient of permeability  $k$  (m/s).

Loose rock surfaces with a coefficient of permeability of  $k = 5 \times 10^{-6}$  m/s to  $5 \times 10^{-3}$  m/s are suitable for drainage purposes. However, you must also consult local legislation and follow relevant regulations.

### Structure/system

The system structure must be planned according to the load bearing capacity of the ground. Each country has its own technical regulations which must be taken into consideration.

### Cavity construction

Only loose materials can be used for a water permeable covering. Hydraulically bound construction methods can be regarded as being barely permeable. The cavities in a lawn paving stone should be formed using as uniform a material as possible. The material must remain permanently structurally stable and have plenty of hollow spaces. Just filling the cavities with grit increases seepage qualities.

### Paving patterns

Pattern without filling stones



Car parking spaces with path (filling stones)



Fancy pattern with filling stones



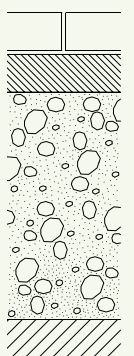
### Structure

Lawn paving stone with filled cavities

Bedding layer

Foundation course

Subsurface





# JUSTIFICATION FOR LUNIX®

## How is lawn growth encouraged?

### Levelling course

An important component of a layer of lawn paving stones is a levelling course. The ideal situation is if the grit is mixed with approximately 10 to 20 % humus, so that a connection can be created with the layer underneath. The subsurface holds more moisture and the roots of the seedlings can penetrate deeper into it.

### Filling material for cavities

A mixture of grit and humus is suitable for filling the cavities (ideal ratio: 2/3 grit, 1/3 humus). Where the humus is concerned, you should make sure no garden soil is used, as this will be contaminated with weeds. Industrially produced compost is best, as it will have been sterilised. You must also make sure that the filling material does not contain clay, as this becomes too compacted and prevents water drainage. Extensive substrates offered on the market guarantee a high level of structural stability, as well as good air and water porosity.

## When and how is the grass introduced?

### Filling/sowing seeds

After lowering, a special mixture comprising lawn paving stone substrate, fertiliser and grass seed is spread on the surface, brushed in and then brushed off. In extremely dry weather, the area can be watered to accelerate germination.

As a rule, the cavities are filled flush with the paving stones. However, a slight indentation of two to four millimetres can provide the lawn with important benefits. The slight difference in height means a shadow is cast. This protects the grass at points with large fluctuations in temperature (where stone meets lawn) and therefore improves the quality of the lawn. Also, the grass should not be cut too short.

### Seedlings

Seedlings specially developed for use in honeycomb-type lawn paving stones are available on the market. We recommend using them.

In Switzerland we recommend: seedlings for paving stone lawns from Eric Schweizer Ltd, Thun; [www.ericsschweizer.ch](http://www.ericsschweizer.ch)

## Optimal care of lawn paving stones

### First cut

After approx. 6 weeks, the lawn can be cut for the first time and, if necessary, extra grass seed sown.

### Care

Basically, if lawn paving stones are used, the lawn must be cared for on an ongoing basis. At least once a year, spread lawn fertiliser on the surface so that the grass receives sufficient nutrients.

### The advantages of LUNIX® for a healthy lawn

As, unlike conventional honeycomb-type paving stones, the grass is contained within cavities, the roots can find their own way into the substrate. If there is insufficient water in one of the cavities, the roots can find their way into another cavity via a link. The roots of the lawn can grow underneath and to the side next to the link and search for nutrients in adjoining cavities.



### Technical specifications

The following specifications should be taken into consideration as a basis for planning and installing drainage layers:

Area	Standard
<ul style="list-style-type: none"><li>• Load-bearing capacity class of the subsurface</li><li>• ME of the grade of the foundation course</li><li>• Basic legal principles for drainage<ul style="list-style-type: none"><li>– Federal law on the protection of water bodies («Gewässerschutzgesetz, GSchG»), Art. 6, para. 1 and Art. 7, para. 2</li><li>– Federal law on the protection of water bodies, decree, («GSchV»), Art. 3</li></ul></li><li>• Drainage of unsoiled waste water</li><li>• Regional rainfall intensities</li></ul>	<p>VSS SN 640 317b</p> <p>VSS SN 640 585b</p> <p>VSA SN 640 350 and SN 640 743</p>

# LUNIX® IN DETAIL

Dimensions:	53,2 cm × 39,9 cm
Weight:	approx. 37 kg
Thickness of paving stones:	12 cm (static thickness 6.5 cm)
Grass percentage:	57% (compared with conventional lawn paving stones at approx. 37%)
Traffic loading:	light traffic; CH: Frequency < 25 heavy motor vehicles (> 3.5 t) per day
Colours:	grey, filling stones grey and porphyry

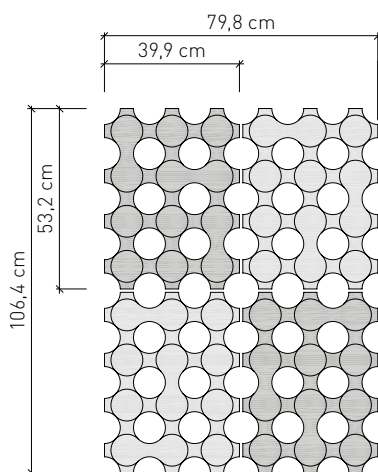
## Application

- LUNIX® can be combined with lawn, grit or filling stones
- Capable of bearing light traffic
- Free arrangement of paving stones to create a multitude of patterns
- Can be laid with cross joints or in the «English style»

## Laying the stones

The new LUNIX® lawn paving stone is delivered on pallets with 4 different stones per layer (106.4 × 79.8 cm). This makes it possible to lay them with a machine which saves both time and money. In the case of areas of 300 m<sup>2</sup> and above this is the most cost-effective handling solution.

We would be only too pleased to help you with the planning and implementation of the job of laying the stones. For further details please request our Technical Guide to Laying Concrete Blocks. For property-specific queries, laying with a machine and laying equipment, our Technical Consultants will be only too happy to assist you.



Larger gap than conventional honeycomb-type lawn paving stones



Detailed view of LUNIX® stone (one of four shapes)



Application with grass



Application with grass, grit and filling stones



Application with grit and filling stones



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