

**hanit<sup>®</sup>** – *the material from recycled plastics*  
The economical alternative for industrial applications!



**Selected profiles, finished parts and systems for industrial construction**

*Industrial developments require constant innovation. Our recycled material **hanit<sup>®</sup>** today increasingly replaces the traditionally used materials wood, steel, metal, concrete and primary plastics.*

# Plastic profiles made from hanit®

– the economical and ecological product of choice!

*Industrial development requires constant innovation.*

*Due to the very good price-performance ratio our material hanit® today increasingly replaces wood, steel, metal, concrete and primary plastics.*

Our hanit® products have already surprised many design engineers and offer users a whole range of benefits.

The hanit® material consists of recycled plastics, to be more precise, polyolefin mixtures.

The main components of these blends are polyethylene (LDPE/HDPE) and polypropylene (PP).

Through utilization of these high-quality recycled raw-materials (material purity level > 95 %) expensive new material is replaced and environmental resources are conserved.

Especially suitable for industrial construction, where demands are being

made increasingly for robust, thick-walled and particularly durable product solutions, our profiles, finished parts and systems made from hanit® often provide a more economical solution and technical advantage.

Primarily, hanit® products are distinguished by their resistance to oils, alkalis, acids, seawater and to micro-organisms, as well as being stable and crack resistant. They are easy to work with and maintenance-free.

## Technical data at a glance

Examination for:	Standard DIN EN ISO	Unit	hanit®ductile	hanit®robust
			Measured value	Measured value
Tension E-module	527-2	[ N / mm <sup>2</sup> ]	659	957
Stress at break	527-2	[ N / mm <sup>2</sup> ]	9.65	9.36
elongation at break	527-2	%	13.8	3.7
Tensile strength	527-2	[ N / mm <sup>2</sup> ]	9.65	9.36
Tensile elongation	527-2	%	13.8	3.7
Bending E-module	178	[ N / mm <sup>2</sup> ]	581	890
Bending stress at 3.5% extreme- fibre strain	178	[ N / mm <sup>2</sup> ]	11.6	15.2
Bending stress at F <sub>max</sub>	178	[ N / mm <sup>2</sup> ]	15.1	18.0

## PRODUCT ADVANTAGES

### Material Durability

- Weather-proof
- Rot-resistant, splinter-proof, low risk of injury
- All year use possible

### Low Weight

- Installation without heavy equipment
- Faster installation
- Reduced workload

### Simple Handling

- Easy to process mechanically (drilling, sawing, screwing, nailing)
- Simple on-site adjustments possible

### Economical

- Long useful life
- Intermediate lengths on request
- Maintenance-free, no upkeep costs
- Made from high-quality upgraded secondary plastics (polyolefins)
- Resistant to vandalism
- Very good price-performance ratio
- Lower transport costs in comparison to concrete
- Ideal construction material, especially for rugged profiles and precast elements

### Ecological

- Manufactured without impregnation
- Relief for waste sites – sustained environment protection
- Fully recyclable
- Awarded with the Blue Angel environmental label
- Harmless to water
- Contaminant-free (in compliance with soil protection regulations)

# Fabrication of our hanit® products

– using proprietary manufacturing processes!

Our hanit® products are fabricated using various manufacturing processes. These procedures in detail are:

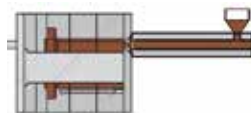
- Extrusion
- Injection Moulding
- Intrusion Moulding
- Pressing

## Extrusion



In extrusion, the plasticized mass (melt) is continuously processed through extrusion dies (tools) into semi-finished products.

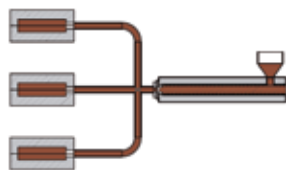
## Injection moulding



In this process thin-walled parts can be economically produced in large quantities.

The difference between extrusion and injection moulding is that with injection moulding a finished part "comes out", whereas with extrusion semi-finished products such as rods, planks and boards are formed.

## Intrusion moulding



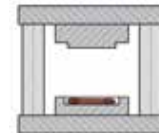
The intrusion process is a combination of extrusion and injection moulding.

The reclaimed materials are plasticized, filled into mould cavities and then cooled to solidification.

Depending on the mould cavity, split or unsplit, the product is either pushed out by the machine or manually removed.

Using intrusion, various products with shot weights of 1 to 200 kg can be realised.

## Pressing



Even during the pressing process the plastics must be heated before the shaping.

Subsequently, the required volume of plastic material is dosed into a tool and brought into the desired shape by hydraulic pressure action of up to 200 tons. The still warm moulding is then removed from the mould and usually placed in cooling supports to avoid warping.

The press method is suitable for producing thin-walled and large-area products.

**Thanks to our manufacturing processes we are able to react quickly and flexibly to our customers' most diverse product requirements.**

## MATERIAL PROPERTIES

- Electrically non-conductive
- Fire behaviour: Fire Class B2 (DIN 4102)
- Pressure resistant
- Density: approx. 0.93 g/cm<sup>3</sup>
- Low thermal conductivity, the thermal conductivity value is about 0.23 [W/mK]
- Continuous operating temperature: -20 to +50 °C
- Waterproof (hydrophobic)
- Resistant to oils, alkalis, acids and seawater
- Resistant to micro-organisms
- UV-resistant
- High splinter resistance
- Material is fully pigmented



[www.blauer-engel.de/uz30a](http://www.blauer-engel.de/uz30a)

# Profit from our expertise

– in the development of new product solutions!

*Industry faces increasingly complex tasks. Innovative solutions are required to address these challenges. One solution is the increased use of plastics.*



*Plastics are innovative materials. Many technical developments in industry would not be possible without the specific application of new materials. Technical progress and material development go hand in hand. Recycled materials such as hanit and profiles, precast elements as well as systems derived from it are pioneers for economic and ecological progress.*

**From an idea to a finished product - all under one roof!**

*With your input, our development team can offer the best technical and most economical solution.*

Our strength is the individual development, design and manufacture of system solutions, customised to your requirements.

Due to our patented manufacturing techniques we can strengthen products with various steel reinforcements, if desired. Moreover, we can source and supply additional components to be added to your product for a one-stop shop process.

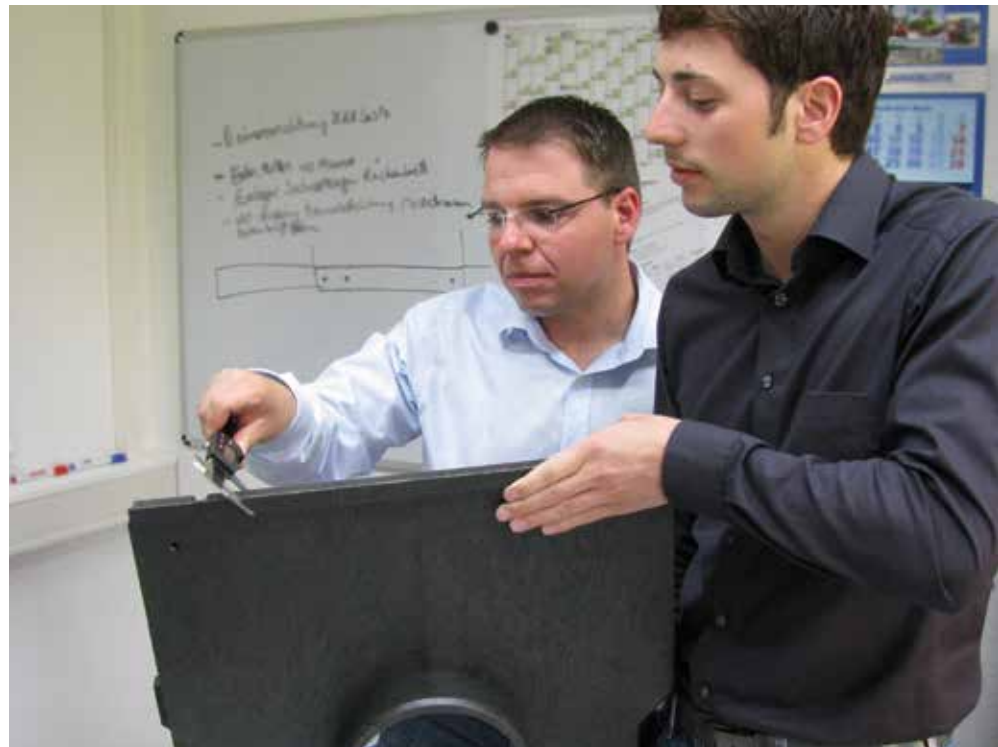
Through product-related compounding and utilising specially developed techniques, we are able to produce robust and durable finished parts with a wall thickness from 6 mm.

Our in-house mould and tool making furthermore allows the production of prototypes and small series.

**The service provisions of our development department at a glance:**

- Feasibility studies / economic efficiency calculations
- Concept, design, development and engineering
- Prototyping
- Computer simulation (3-D CAD, exploded drawings, etc.)
- Mould and tool construction
- Requirement-specific material compositions
- Cost-effective small-batch production
- Component manufacture
- Warehousing for customers

**Together we can develop new products and find new application possibilities!**



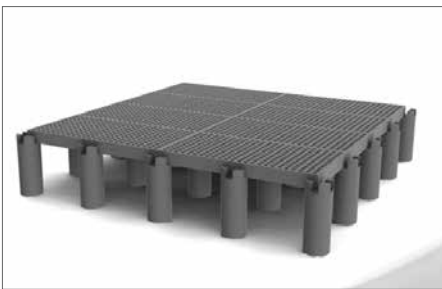
# The grating system made from hanit®

– ideal as walkway and airflow surface, as ventilation or double floor



The assembled grating system installed in biofilter facilities

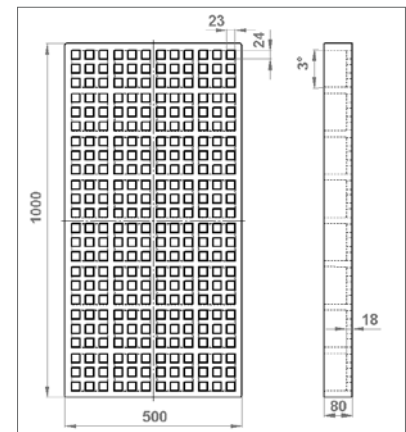
This system consists of 100 x 50 x 8 cm (L x W x H) grating with a high load carrying capacity as well as the corresponding supports in lengths of 30 to 100 cm and a diameter of 15 cm each.



Top view



Bottom view



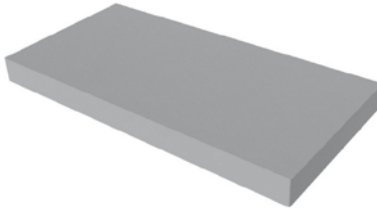
Product drawing

## The grating

The longitudinal and transverse ribs of the grating have identical dimensions and can thus carry loads in both directions. The size of the grating apertures has intentionally been chosen

- to prevent relatively small cover or filling material from falling through the holes
- to give the floor a large ventilation area, thus guaranteeing high air permeability

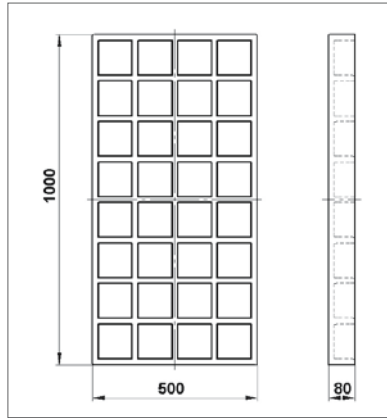
Dimensions cm	Weight per unit kg	Number of units per disposable pallet (100 x 100 cm)	Colour
100 x 50 x 8	15.70	50	grey



Top view



Bottom view



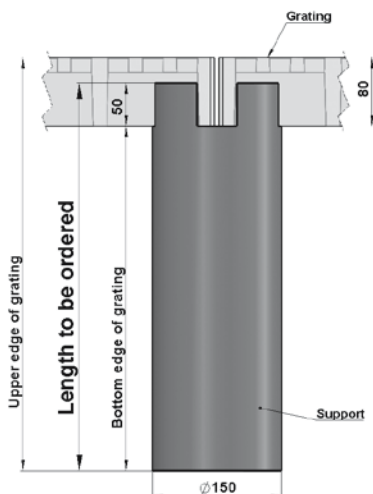
Product drawing

Depending on the application, a closed version of our grating is also available.

Dimensions cm	Weight per unit kg	Number of units per disposable pallet (100 x 100 cm)	Colour
100 x 50 x 8	18.40	50	grey

### The supports

The supports are available in different lengths allowing the realisation of every project-related stiling.

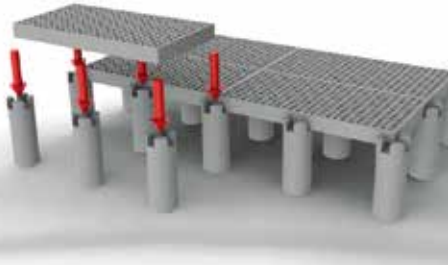


Dimensions cm*	Weight per unit kg	Number of units per disposable pallet (100 x 100 cm)	Farbe
D=15 L=30	3.30	210	grey
D=15 L=35	3.80	210	grey
D=15 L=40	4.30	140	grey
D=15 L=45	4.80	140	grey
D=15 L=50	5.30	140	grey
D=15 L=55	5.80	140	grey
D=15 L=60	6.30	120	grey
D=15 L=65	6.80	60	grey
D=15 L=70	7.30	60	grey
D=15 L=75	7.80	60	grey
D=15 L=80	8.30	60	grey
D=15 L=85	8.80	60	grey
D=15 L=90	9.30	60	grey
D=15 L=95	9.80	60	grey
D=15 L=100	10.30	60	grey

\*Customised lengths on request

Support lengths in the table above include the length of the tenon crown.

The distance between bottom edge of the grating and contact area is thus reduced by 50 mm.



### Simple assembly

On account of its design the grating can be positively fitted into the tenon crowns of the supports. Positioning of the supports beneath the grating is arbitrary.

A fast and economic installation of the grating without heavy machinery is made possible by

- the low weight
- the manageable dimensions and
- the easy mechanical treatment (drilling, sawing, screwing, nailing).

### Accessibility for vehicles

After the installation the grating is immediately capable of bearing loads and can be driven on by wheel loaders with a gross load weight of 2.0 tons.

Please note when driving on the grating:

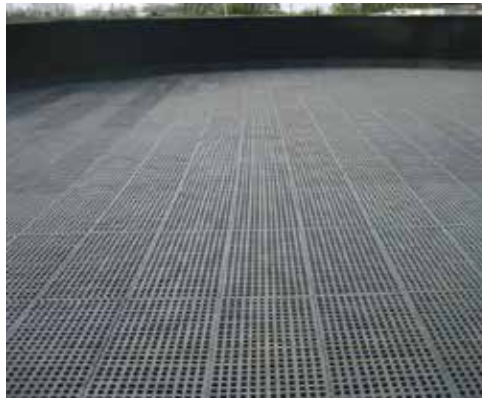
- The grating needs to be resting on 6 supports.
- Use wheel loaders with a rather wide wheel base.
- The use of caterpillars and wheeled vehicles without controlled axle is not allowed.
- The axle load distribution (front/back) must be as symmetrical as possible.
- Ideally, wide-base tires with reduced pressure and multi-track tread pattern should be used.

On request, we will gladly send you free of charge the test report by the Neuwied Material Testing and Research Laboratory in regard to the determination of the failure load and bending under point load. You can also download the above mentioned report as PDF document from the download centre of our homepage [www.hahnkunststoffe.de](http://www.hahnkunststoffe.de).



**Our project team will gladly assist you with the quantity determination, static calculation as well as construction and will work out a detailed offer for your project.**

*Ventilation floor or airflow surface*



The grating system as ventilation floor or airflow surface

### Range of applications

8 Due to the described product advantages and material properties our **hanit**<sup>®</sup> grating is ideally suited as ventilation floor or airflow surface in biofilter facilities which in turn are employed for deodorisation in numerous branches (waste processing, sewage treatment plants, compost works, chemical and food industry, etc.).

The airflow temperature should not exceed 40 °C.

In the context of industrial plant construction the grating can be used as walkways, non-conducting double floors, drainers or stands of operating platforms, ramps as well as assembly and transfer lines.

Especially in areas where corrosion is a problem, our grating system offers the optimum solution.

Since **hanit**<sup>®</sup> products are resistant to oils, alkalis, acids and micro-organisms, our grating is suited perfectly as floor plate or storage rack for contaminant collecting points.



*Non-conducting double floor*



# Multi-purpose trough

– the sturdy and cost-effective trough for easy installation

## Whether

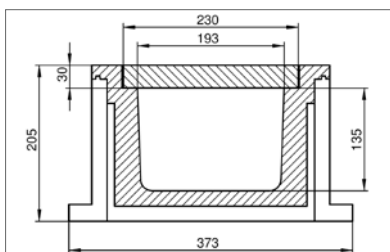
- for draining surface water
- for discharging (contaminated) fluids
- as component in ventilation systems or
- as protection of pipes and cables

our multi-purpose **hanit**® trough can be integrated and built into many above ground and underground installations as

- drainage channel
- ventilation duct
- installation channel or supply line.

## Range of applications

- Indoor and outdoor industrial construction
- Parking decks and parking lots
- Compost works
- Industrial and production buildings as well as vehicle depots
- Cable duct construction



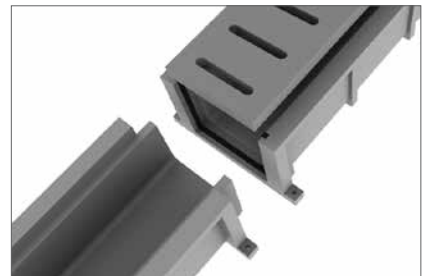
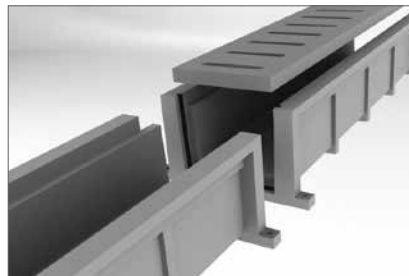
## The trough

The multi-purpose troughs in the measurements 1,000 x 373 x 205 mm (L x W x H) can easily be transported on account of their low weight of 23 kg and can be worked on without any difficulty with standard tools (drilling, sawing, screwing, nailing).

Every trough has a rebate on one end and a corresponding seat on the other. Therefore the individual troughs can easily be assembled with positive locking.

The smooth inner surfaces of the troughs have high self-cleaning properties and permanently prevent silting and the growth of moss.

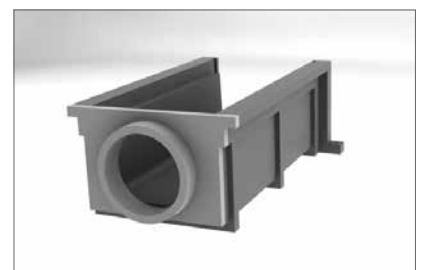
Beside the standard trough our assortment is rounded off by variants with a closed end or pipe connection on one or both sides.



*Seat of rebate and slot for seal*

A seal or cord inserted into the specially designed slot provides for sealing of the joined elements.

The fixing attachments allow for fast and easy fastening to the floor (e.g. using dowels and screws).



*Trough with pipe connection*

### Accessibility for vehicles

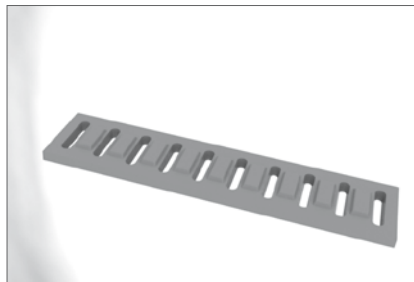
After installation the multi-purpose trough is immediately capable of bearing loads and can be driven on by wheel loaders with a gross load weight of 2.0 tons. Please note when driving on the troughs:

- Use wheel loaders with a rather wide wheel base.
- The use of caterpillars and wheeled vehicles without controlled axle is not allowed.
- The axle load distribution (front/back) must be as symmetrical as possible.
- Ideally, wide-base tires with reduced pressure and multi-track tread pattern should be used.



### The covers

Covers fitting our **hanit**<sup>®</sup> multi-purpose troughs are available as closed and slotted versions in the measurements 1,000 x 230 x 30 mm (L x W x H).



*The bottom view shows that the covers are additionally strengthened by equally distributed cambers.*

*The size of the 10 cover slots prevents most of the dirt (e.g. leaves) from falling through.*



*Trough with closed cover*

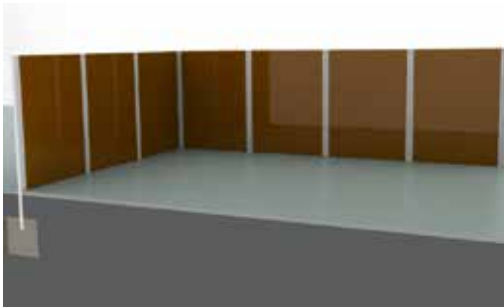


*Trough with slotted cover*

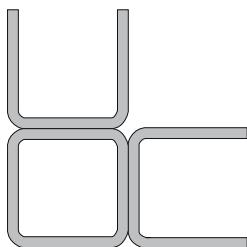


# View protection walls from hanit®

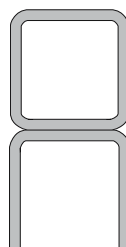
– screening from view guaranteed!



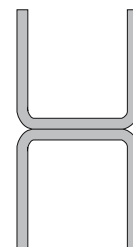
The structure of the **hanit®** view protection wall consists of galvanized steel profiles, which are available as section, corner or end posts.



Corner Posts



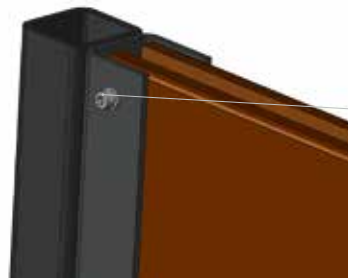
End Posts



Section Posts

11

Tongue and groove boards (T x H: 3.8 x 13 cm) from recycled plastics are inserted into the retainers of the steel profiles. The boards are slightly shorter than the distance between the posts in order to compensate for temperature induced length fluctuations.



Safety Screw

The top layer can be secured with screws against unauthorised removal.

## RANGE OF APPLICATIONS

- Commercial and industrial zones
- Container yards/container enclosures

Standard Dimensions:

Section length: 200 cm  
 Section height: 195 cm (15 layers of tongue and groove boards)

Employment in Commercial Zones



Employment in Container Yards



# Selected ground cover systems for industrial facilities

- hanit® Ground Reinforcement
- hanit® Eco Slabs

## hanit® ground reinforcement

– can be placed without base layer on every type of surface

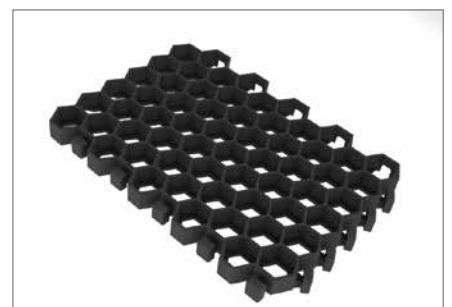
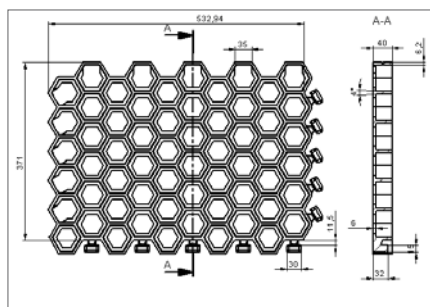


*Due to the strong interlocking system and the low weight large areas can be easily and cost-efficiently covered in a short time.*

The lawn reinforcements can be placed on every type of surface (meadow, sand, gravel, etc.) without a base layer. Please take note of our installation instructions which we will gladly send you on request.

### Range of applications

- Parking lots
- Storage areas
- Driveways
- Walkways



Dimensions, weight, number of required slabs per m<sup>2</sup>

Dimensions	L x W x H: 500 x 400 x 40 mm
Colour	black
Weight	2.1 kg
Slab size	0.2 m <sup>2</sup>
Slabs per m <sup>2</sup>	5
Weight per m <sup>2</sup>	10.5 kg



Load capacity

The strong web (approx. 5 mm) provides for high stability and load capacity of the lawn reinforcements.

During load testing on an elastomer underlay a force of up to 2,400 kN/m<sup>2</sup> was transferred onto a slab via an aluminium plate of 250 mm in diameter.

No changes, that would influence the serviceability, could be determined on the rectangular slabs.

This represents a load capacity of approx. 240 tons per m<sup>2</sup>.

*hanit<sup>®</sup> lawn reinforcements feature an extremely high load capacity.*

# hanit® eco slab

– the quick and easy to install ground cover system for temporary and permanent applications!

A standard base layer is perfectly sufficient for the laying.

The slabs are simply placed side by side; they adhere to each other by means of strong connecting hooks.

Eco slabs can easily be treated mechanically with standard tools.

The visible patterns on the slabs enable the realisation of corners and straight edges in no time.



The hexagonal eco slabs are available as closed and slotted versions as well as in the colours grey and brown.

## Eco slab data at a glance

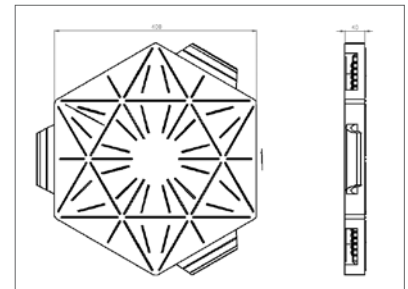
Thickness	Ø Sides	Ø Corners	Type	Weight	Colour
cm	cm	cm		approx.	
4.0	40.0	46.0	closed	1.7 kg	grey + brown
4.0	40.0	46.0	slotted	1.7 kg	grey + brown
Weight per m <sup>2</sup> (approx. 7 slabs)				11.9 kg	

## Range of applications

- Parking lots
- Storage and event areas
- Driveways
- Walkways
- Yard pavement

## Accessibility for vehicles

Our eco slabs can be driven on with cars and wheel loaders. Please note our installation instructions which we will gladly send you on request.



# hanit® bulk containers

– for optimum storage of bulk material and grit!



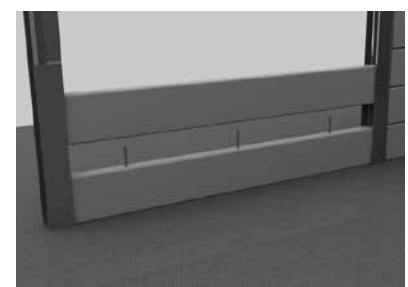
*Design drawing*



*Ties inserted into steel supports*



*Shoe or bracket as retainer*



*Connection of the tie layers using screws or bolts*

Two different sizes of **hanit®** ties are employed in the construction of bulk containers.

The back wall is built from 16 x 24 x 200 cm ties, the sides and separating walls from ties in the measurements 8 x 23 x 200 cm.

Other dimensions on request.

The ties are inserted into standard steel supports, which are not included in the scope of delivery.

Please note the following points for installation and assembly:

- The concrete foundation of the steel posts needs to have a frost-free depth and must be sufficiently dimensioned depending on the density of the bulk material.
- The distance between the steel supports must be 1 % longer

than the profiles to allow for the temperature-dependent expansion properties of the ties.

- In each section the bottom tie is retained by shoes or brackets. It is mandatory to also lock the shoes or brackets into position by means of a foundation.
- The individual tie layers are connected by screws, bolts, etc.
- Production-related dimension variations (up to 3 %) may occur. Therefore the steel posts should not be placed until after delivery of the ties.

## Range of applications

Storage of

- bulk material
- building materials
- grit (road salt, sand, gravel)

# hanit<sup>®</sup> – the material from secondary plastics

See for yourself!



**HAHN**  
KUNSTSTOFFE

We develop, design and manufacture for you!  
Contact us!

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