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**Grid for driveway surfaces
with gravel or grass
finishing**



KEY:



Drainage



Environment



Ecocompatibility



Aesthetics



Technology reference



SWITCHBOARD

Telephone +39 0422 2083



FOREIGN COMMERCIAL SECRETARY OFFICE

export@daliform.com



TECHNICAL SECRETARY OFFICE

tecnico@daliform.com



PRATOPRATICO®

LA GRIGLIA SALVAERBA

Pratopratico® represents an ingenious system to make a lawn treadable, protecting it from damage caused by the transit and parking of vehicles, including heavy vehicles, in any kind of atmospheric conditions.

The essence of Pratopratico® is very simple: it's a question of "arming" the natural soil surface with a modular flooring made up of a grating with a highly robust cellular structure where the turf, which remains a few millimetres below the higher limit of the flooring walls, is protected from squashing or stress.

The grating is made of a particular plastic material with high quality technical/mechanical characteristics, non-toxic and unattackable by atmospheric and chemical agents. The Pratopratico® flooring develops rapidly and economically through the union of various gratings with a male/female hooking system. The aesthetic, functional and ecological advantages offered by this innovative flooring are evident: a lawn surface naturally filters the soil's meteoric waters, respecting the site's hydrogeological balance. During the summer period, moreover, it does not produce undesired thermic effects linked to overheating of the surface with natural finishing.



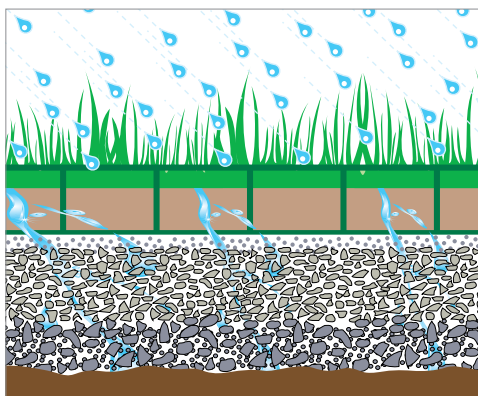
Advantages



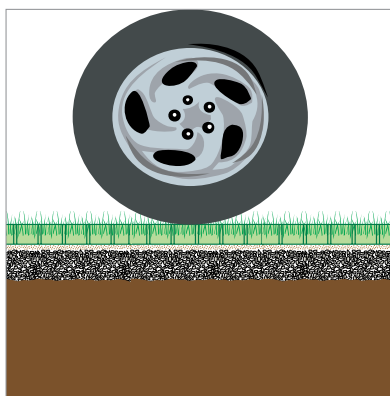
Functional and aesthetic viewpoint:

The base module of this revolutionary flooring system presents a cellular structure that is prevalently trapezoidal and with curvilinear walls. This conformation, manufactured ad hoc, offers numerous advantages.

- It respects the soil's vital structure and protects the lawn in a non-invasive way.
- It favours drainage and the exchange of nutritional elements that benefit a rapid and solid root growth.
- It acts as a surface stabilizer; that is why PratoPratico® can be used to contrast soil wash away and erosion phenomena on slopes.
- It gives the grass a spectacular "mosaic effect".
- It does not absorb humidity and does not transmit heat, allowing the grass to grow naturally.



Hydrogeological balance



Lawn surface with protective grating



Lawn surface without protective grating



"Arch effect"

From a performance and mechanical viewpoint:

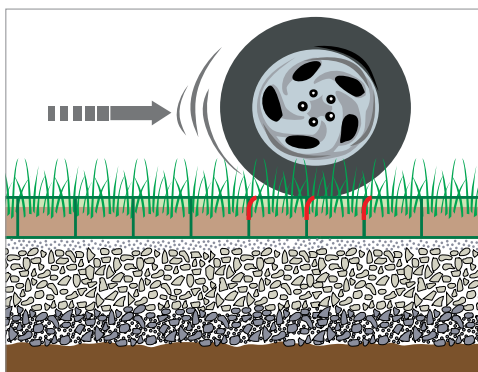
The curvilinear shape considerably improves the resistance of the vertical walls to compression and bending.

The pleasant aesthetic beauty offered by this shape hides a very important and valid structure. During the design phase, the flooring performance was improved by creating s-shaped walls instead of straight ones in order to produce the classic "arch effect".

On one hand, this provides a more efficient absorption and division of the forces developed by an accelerating or braking vehicle which are roughly unloaded on the wall sections, on the other, the vertical load capacity on the same structural surface increases considerably.

With regard to the refined, structural value of the module and the shape of its cells, the following information is highlighted in the graph below:

- The radiation of all the points of union between the walls, a critical point traditionally exposed to breaking.
- The presence of 135 cone trunks.
- The trapezoidal wall section.
- The anti-slip rugged finishing.
- Deliberately irregular contours to better harmonise the natural context.



Tyre during breaking

PratoPratico® is made from virgin, non-toxic thermoplastic resin; the product may be entirely recycled in full respect of the environment. The special cell conformation, studied ad hoc, not only respects the soil's vital structure, but favours permeability and the exchange of nutritive elements contained in the air and light.

The raw material used does not absorb humidity and does not deprive the grass of its main resource: water.

With PratoPratico® the grassy and draining surface is approximately 95%.

Applications



Public parking

- Access areas for cars and motor vehicles;
- Public and private parking areas in residential, directional, commercial, sports, industrial areas, etc: for example: schools, condominiums, banks, trade centres, companies, hotels, hospitals, etc.;
- Bicycle tracks and pedestrian walkways;
- Paths in golf courses and sport plants;
- Equipped areas (gazebo and barbecue areas, etc.);
- Ornamental gardens;
- Gravel paths. (Pratopratico®, prevents waste of crushed stone, makes maintenance elimination and definite reintegration possible);
- Pool borders and beach paths (not presenting any sharp corners, the flooring can be treaded barefoot);
- Lawn protection in spaces used for entertainment and recreation, against wear and tear caused by games for children, (swings, slides, etc.) and in the areas beneath the benches;
- Consolidation of slopes to contrast wash away and erosion phenomenons;
- Temporary surfaces, on chance pieces of land for various events: fairs, markets, tent theatres, etc.;
- Removable lay-bies for campers, roulottes, various garage areas, etc.;
- Various types of structures for parks and camping sites;
- Surrounding surfaces for tree trunks;
- Heliports and strips for ultralight aircraft;
- Protection of lawn surface against damage caused by hostile acts of animals (dogs, etc.);
- Roof gardens;

With Pratopratico® it is possible to respect urban constraints and render the areas, which have to be green areas by precept, functional.



Golf Club parking



Gravel paths

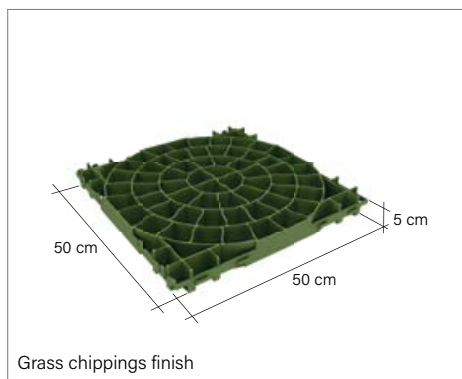


Ornamental gardens

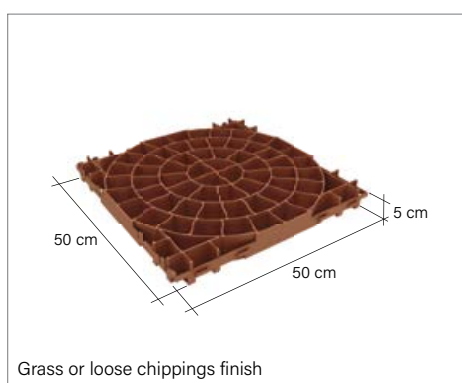


Commercial parking area

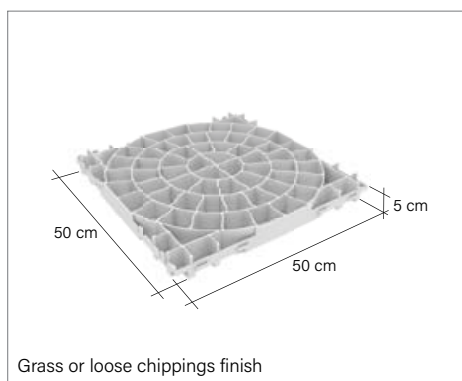
Technical data



Working dimensions	cm	50 x 50 x 5 h
Pieces per m ²	pcs	4
Weight per piece	kg/pcs	1,593
Bearing capacity	t/m ²	> 320
Colour		green
Pallet dimensions	cm	100 x 120 x 220 h
Pallet m ²	m ² /PAL	53
Pallet pieces	pcs/PAL	212
Pallet weight	kg/PAL	346



Working dimensions	cm	50 x 50 x 5 h
Pieces per m ²	pcs	4
Weight per piece	kg/pcs	1,593
Bearing capacity	t/m ²	> 320
Colour		brown
Pallet dimensions	cm	100 x 120 x 220 h
Pallet m ²	m ² /PAL	53
Pallet pieces	pcs/PAL	212
Pallet weight	kg/PAL	346



Working dimensions	cm	50 x 50 x 5 h
Pieces per m ²	pcs	4
Weight per piece	kg/pcs	1,593
Bearing capacity	t/m ²	> 320
Colour		white
Pallet dimensions	cm	100 x 120 x 220 h
Pallet m ²	m ² /PAL	53
Pallet pieces	pcs/PAL	212
Pallet weight	kg/PAL	346

Read the terms carefully (<https://www.daliform.com/en/assistenza-garanzia/>).

Certifications and product test



- UNIVERSITÀ DEGLI STUDI DI PADOVA - Faculty of Engineering - Department of construction technologies - certificate no. 011657 - no. 11669 - no. 13529
- JAPAN CHEMICAL INNOVATION INSTITUTE - High polymer test and evaluation center - certificate no. 0234

Performance data

Material:

Virgin heterophasic PP of excellent quality adapted to UV rays.

Mechanical properties:

PROPRIETY		METHOD	UNIT of MEASUREMENT	VALUE
Elastic module		ISO 178	N/mm ²	1350
Traction resistance		ISO R 527	N/mm ²	27
Lengthening of breaking point		ISO R 527	%	8
Impact resistance	+23°C	ISO 180	kJ/m ²	40
	-20°C			8
Hardness		ISO 868	Points	68
Softening point		ISO 306/A	°C	152

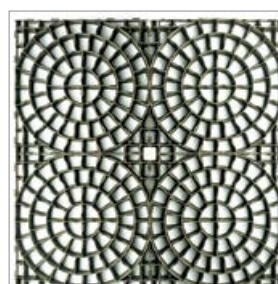
Resistant to atmospheric agents:

Excellent elastic qualities in the material, which guarantee resistance over time to temperature ranges. Excellent product response, when used in extremely rigid environmental conditions (-20°C); the grating does not lose its shape when used in the presence of very high temperature ranges.

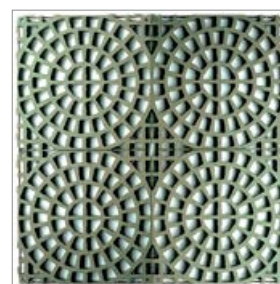
Reversibility:

The grating presents a double and interchangeable profile:

- thinner on one side destined to be treaded;
- more prominent and ornamental on the other side destined for pedestrian use. With this exclusive characteristic, a larger surface area and the absence of sharp corners, it is possible to walk barefoot.



Driveway side



Pedestrian side

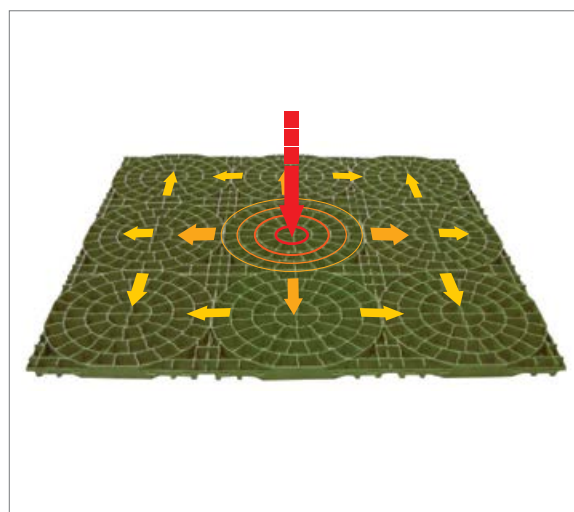
Modularity:

- hooking system with "male - female" screwing system;
- held fast with sealing chamfers;
- possibility of assembling the single elements in a reversible manner (universal assembly);



Stability:

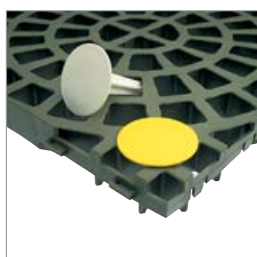
- an effective "male-female" modular system, the blocking chamfers and a rugged finishing guarantee a uniform division of load and the possibility of sticking to the original alignment.
- thanks to the use of deeply penetrating stakes, Pratopratico® is still solidly anchored to the ground, even in the presence of rugged slopes. In fact, the stakes inserted into the special retraction housing prevent the flooring from slipping on high slopes, developing a fast hold on the soil and reducing wash away phenomena.
- finally, the grass roots between the various grating cells produce a natural and robust link that gives the flooring a definite stability.



Accessories



- Signalling elements (white, blue, yellow) to delimit parking and transit areas;
- These are available in the catalogue in the classic 3 colours provided by the Highway Code: white (free parking area), yellow (reserved parking area, for ex. parking spaces reserved for invalids) and blue. It is possible to manufacture colours ad hoc on request.
- Deeply penetrating stakes to anchor the grating on slopes.



Signalling element



Anchorage stake

Material	Virgin Polypropylene adapted to UV rays
Signalling element dimensions	Top: 8 cm Ø - Soil penetration: 10 cm
Signalling element pieces per box	15 pz or multiple - weight 0,5 Kikg
Anchorage stake dimensions	30 cm
Anchorage pieces per box	15 pz or multiple - weight 0,5 kg

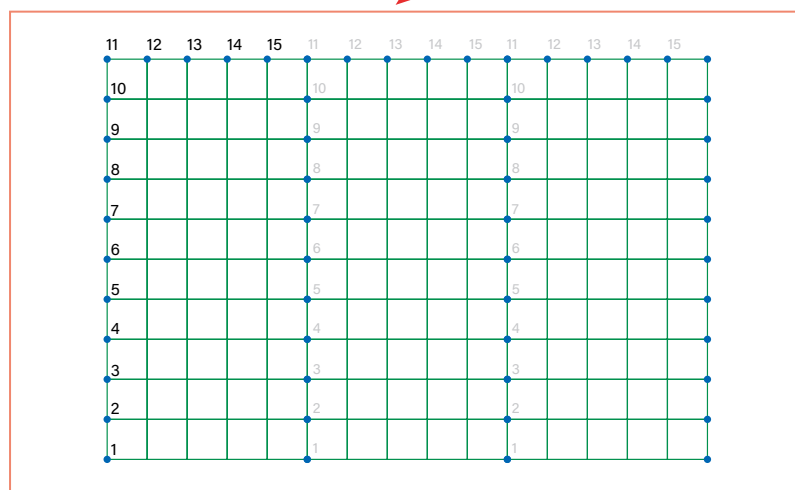
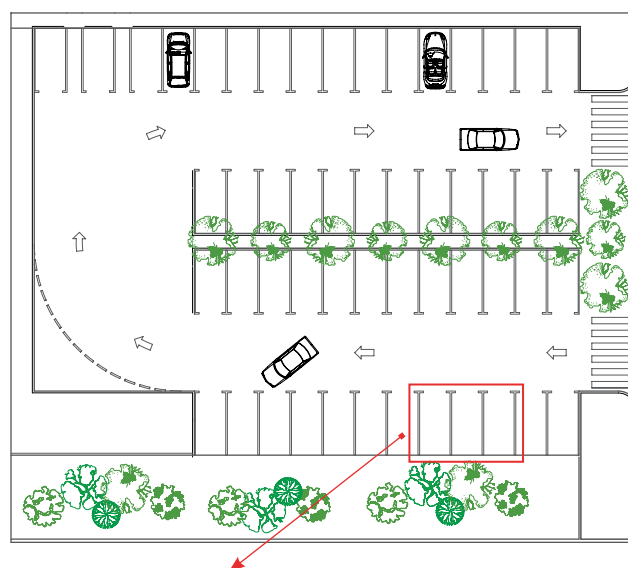
Places for car delimitation

A traditional place for car has rectangular shape with sides measuring 2,5 x 5 m. in order to delimitate the area in a precise and evident way, it is necessary to insert a signalling element - into the lower corner of each grid - every 50 cm along the whole perimeter of car place.

In case of contiguous car place use the following formula:

$$ES = (N \times 15 + 11)$$

Where ES is the necessary number of signalling elements and N the number of car places.



$$ES = (3 \times 15 + 11) = 56$$

Laying for treadable surfaces with lawn finishing



Any kind of intervention should be carried out after preparing a suitable design. The factors that are taken into consideration during this phase are:

- the site of intervention under a geological, morphological and geotechnical profile;
- the use the product is destined for in terms of intensity and frequency of loading to which the flooring will be subjected (destined for pedestrians; light, medium, heavy traffic; other);
- the exposure and climatic conditions of the site.

With reference to the nature of the site, it is important to have a supporting foundation that divides the concentrated loads by distributing them on the natural soil without causing sinking phenomena. Usually, this compact layer consisting of gravely sand and crushed stone of various granulometry, must be applied in relation to the use it is destined to and the quality of the soil.

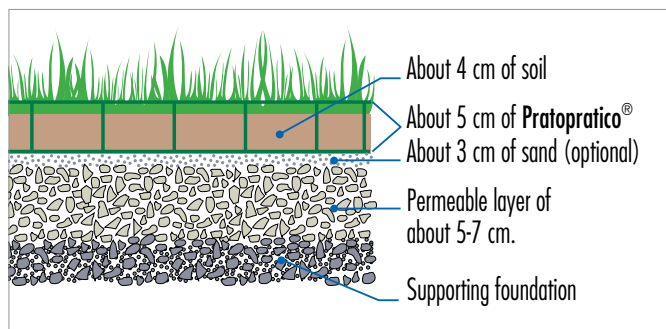
Refer to the diagram below for an example:

Intended use	Substructure thickness in cm.	
	Soil with good load capacity	Soil with sufficient load capacity
Driveways for private residences	10 - 15	20 - 25
Car parks	15 - 30	30 - 40
Surfaces intended as parking areas for medium/heavy vehicles	30 - 45	40 - 55

In case of slopes it is important to consider the adherence coefficient. For this reason, assuming prudentially a wet surface and tires and medium/high use status, it is not recommended to use Pratopratico® for inclinations greater than 8%. Adherence can be improved by inserting joists in stone material.

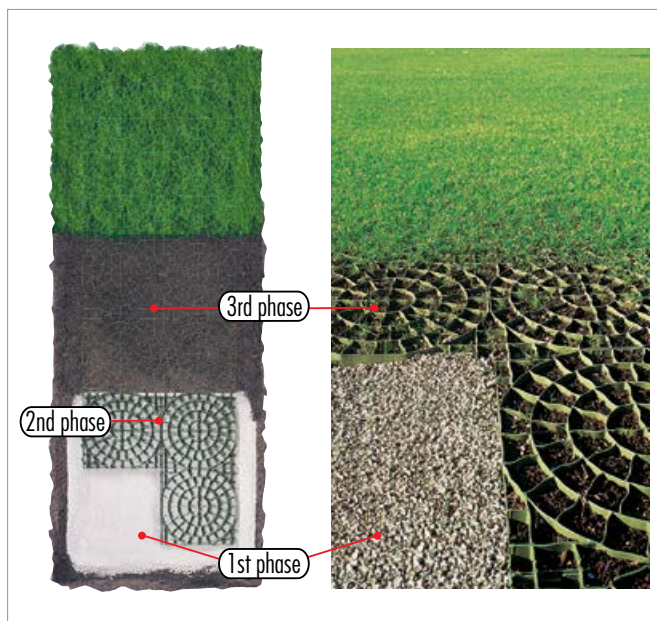


Laying for treadable surfaces with lawn finishing



! Instead of the normal sedimentary dormant components referred to in the preceding paragraphs, it is sometimes possible and even suitable to improve the foundation's water supply using inert volcanic material such as pumice sand and volcanic lapillo. The great advantage of these materials, which can be used in variable percentages, is that while they provide excellent drainage, they also guarantee high water retention (about 50% their volume).

! It is important to carry out an adequate evaluation of the local conditions of the soil. Our instructions are, in fact, in general terms and the preparation of the foundation must be suitable for the type of soil, the climatic conditions and the load intensity.



1 PERMEABLE LAYER - Consisting of granular, finely crushed stone 3-10 mm. This layer, which obviously completes the division of loads, has the double function of draining excess meteoric water and simultaneously favouring root growth towards the lower layer. For this reason, thickness must amount to about 5/7 cm, and can be increased for rainy areas characterised by heavy soil with strong water retention.

2 SAND BED (optional) - This finishing layer, consisting of siliceous sand, about 3 cm thick, levels the surface on which PRATOPRATICO® modules are placed and favours root growth in the sub-layer contained in the grating below.

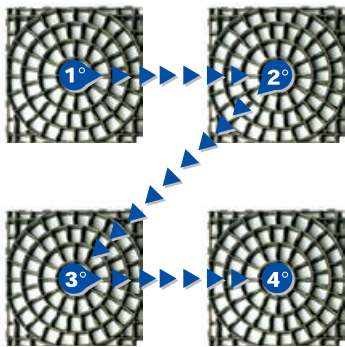
3 LAYING OF PRATOPRATICO® - The consecutive development of the modular surface will take place in a simple and rapid manner according to the modalities and patterns described in the paragraph "ASSEMBLY OF PRATOPRATICO®". Please refer to said paragraph for details.

4 FILLING OF THE PRATOPRATICO® CELLS - Placing of the cultivable sub-layer which will act as a base for the sowing components, composed of a mixture of siliceous sand, vegetable terrain, peat and inert volcanic material (pumice), enriched with slow-release fertilizer. The filling process must partially saturate the cells, the level reaching to 1cm below the flooring's upper border.

5 SOWING - Must be carried out immediately after laying the cultivable sublayer (3rd phase) in order to avoid excessive compactness. The seeds must be selected according to the nature of the site (pay attention to the altimetric quota) and the climate. In any case the grass seeds must be resistant to trampling. You are advised to use a blend composed of *Lolium Perenne*, *Poa Pratensis*, *Festuca Arundinacea* in the proportions and varieties suitable to each single case. Numerous packages with similar mixes, suitable for every need are easily found on sale. For excellent sowing, spread the seeds uniformly through passages crossing at right angles both manually and with the aid of mechanical means.

6 DELIMITING OF PARKING AREAS with the aid of signs Made in such a way so they can be inserted in any point of the flooring, they are available in the 3 classic colours provided by the Highway Code: (free parking areas), yellow (reserved parking spaces), for ex. parking spaces reserved for invalids.

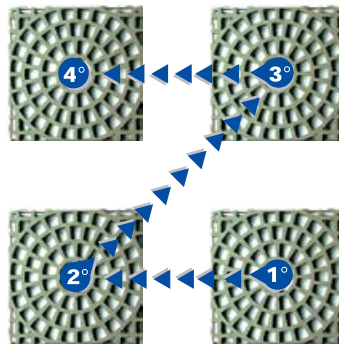
Assembly of Pratopratico®



The first example in the graph regards the most common case, that of creating a grassy path. The flooring must be developed in such a way so as to face the vehicle transit with the lower surface: thin ribs facing upwards in direct contact with the vehicle wheels.

PHASES:

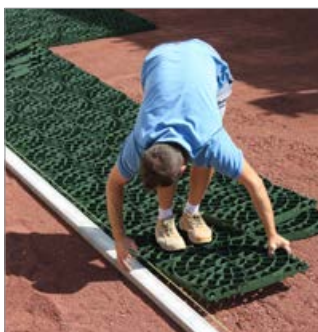
1. Face all the gratings in the same way, with the female hook in the upper left-hand corner;
2. The first grating is placed in the upper left-hand corner of the surface in need of flooring;
3. Proceed with the assembly of the various gratings according to the direction that is normally used for writing: from left to right and downward from above.



Otherwise, where you intend to create a walkway and/or a grassy external area (barbeque area, a base for a gazebo, a small path, a pool border, etc...), place the single Pratopratico® gratings with the thin ribs in contact with the bottom, so as to provide the pedestrian with a base that offers the best support.

PHASES:

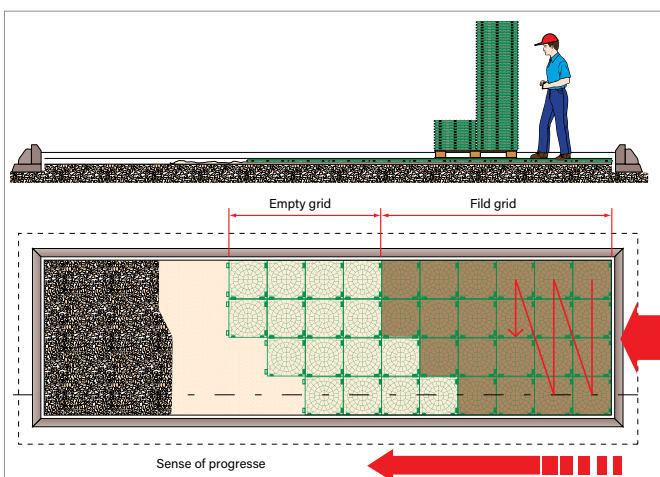
1. Face all the gratings in the same way, with the female hook in the upper left-hand corner;
2. Place the first component in the lower right-hand corner;
3. Proceed with the assembly of the various gratings in the opposite direction to that normally used for writing: from right to left and upward from below.



⚠ Remember that the thinly-ribbed gratings in contact with the bottom are only suitable for lawn finishings.

⚠ Leave empty spaces of about 3/5 cm for the natural dilatation of the material in the following cases:

- in the presence of string courses or other elements delimiting the perimeter that is being treated;
- when laying on variable slopes;
- when laying on large surfaces (about 8/10 ml);
- when the laying is carried out at various intervals.



Pose advantages:

SIMPLE: Due to the light weight of each single element (1,593 kg) laying is possible with the aid of machinery. If it becomes necessary to adapt and shape the module, such as for example in the presence of wells, wolf pits etc., Pratopratico® may be cut directly on site with the tools commonly used in such cases (flexibles, hand saw, trimmer). To join the components hook the "male/female" joint present on the sides.

RAPID: It is possible to develop about 35/40 sq. m/h per worker, with an already prepared sandbed. The solidity between the various gratings is guaranteed by the male-female joint with the help of the sealing chamfers.

Maintenance



Once prepared, the treadable lawn surface needs periodic maintenance. Necessary interventions: irrigation, fertilization and cutting, no different from classic grass maintenance.

Immediately after sowing and subsequent to it the soil must be watered regularly. For an excellent outcome and duration of the grass it would be best to provide a suitable automatic sprinkler irrigation system.

With regard to mowing for the first time, it is best to wait until there is a consistent integration of the seedlings. While waiting for the lawn to grow to 6/7 cm, remove cut grass after mowing. The cut favours root growth with great benefit for the plants. Fertilization takes place with slow-release chemical products, easily found on sale.

One of the necessary maintenance interventions is to fix the foundation or sublayer by levelling possible deficiencies caused by soil adjustments using a mix of soil and sand.



Parking Area



Technogym headquarters - parking lots and driveways

Daliform Group technical office



SUPPORT FOR THE EXECUTIVE DESIGN

Support by design professionals. Support by design professionals at the preliminary and executive stages to determine the technical characteristics of the flooring and the associated costs of gratings.

ON-SITE SUPPORT

If necessary, our technical staff can be present on-site to help the construction company during the operational phase.

The technical consultancy is only valid for the Daliform Group construction systems.

To contact the technical office: Tel. +39 0422 2083 - tecnico@daliform.com

To obtain updated technical cards, support material, new photos and case studies, go to www.daliform.com

Specifications

Laying of treadable grass flooring with Pratopratico®

Art. 1) **PERMEABLE LAYER** - Placing of permeable layer underlying the grass treadable flooring, through the supply and laying of crushed stone made of fine, variable, granular pieces 3/10 mm, well spread and rolled by hand, into a finished thickness of about 5/7 cm.
€ per square meter _____

Art. 2) **FLOORING** - Supply and laying of two-faced flooring elements such as "Pratopratico®" with the following technical characteristics

- Precious, virgin PP Material (polypropylene) adapted to work with UV rays with mechanical performance characteristics of the highest quality;
- Impact resistant to cold temperatures (-20°C) and at least 8kJ/m2 (ISO 180 method) to guarantee the entirety of the flooring even if stressed and placed in extreme environmental conditions;
- Laying capacity of at least 320 t/sqm (monotonic loading breaking point test);
- Softening point of at least 152°C to guarantee nondeformability of the product in the presence of high temperatures (see flooring filled with crushed stone and placed during the summer season).
- Size in centimetres: 50 x 50 x 5;
- At least 95% grass and permeable surface;
- Reversible: both sides can be used;
- Shaped as in attached design;
- Cell border must be at least 4.7 cm to guarantee a congruous nutritional baggage to the grass and a suitable structure for the exchange of air, water and nutritional elements;
- Male-female joint hooking system; flooring kept still with sealing chamfers;
- Possibility of laying signalling elements (in white, yellow and blue) to delimit the parking areas and walkways;

Once laid in place, the above-mentioned flooring has technical characteristics that make it immediately suitable for vehicle transit.

€ per square meter _____

Art. 3) **FILLING OF LAWN FLOORING** - Laying of lawn surface by filling the Pratopratico® flooring type cells with a blend of excellent vegetable soil, peat, siliceous sand and/or inert volcanic material (pumice) enriched with slow-release fertilizer; Supply and sowing of an excellent blend of seeds for grass suitable for vehicle transit (type: poa pratensis/lolium perennial/festuca arundinacea) in amounts of 35/40 gr. per sq. m. Including any extra charges to provide the final product.

€ per square meter _____

Art. 4) **DELIMITING OF PARKING AREAS AND WALKWAYS** - Supply and laying of signalling elements...(in white, yellow and blue) to delimit the parking and/or walkway areas, to be placed in the soil inside the cells of the Pratopratico®, flooring according to the requirements of D.L..

€ per piece _____

The flooring must be produced by companies with a Quality, Environmental, Safety, and Social Accountability System certified in compliance with International provisions UNI EN ISO 9001, UNI EN ISO 14001, UNI EN ISO 45001, SA8000.



Heliports



Private parking lot

Specifications

Laying of gravel treadable con surface with Pratopratico®

Art. 1) PERMEABLE LAYER

Placing of permeable layer underlying the treadable gravel flooring, through the supply and laying of crushed stone made of fine, variable, granular pieces 3/10 mm, well spread and rolled by hand, into a finished thickness of about 5/7 cm.

€ per square meter _____

Art. 2) FLOORING

Supply and laying of two-faced flooring elements such as Pratopratico® with the following technical characteristics:

Precious virgin PP Material (polypropylene) adapted to work with UV rays with high mechanical performance characteristics of the highest quality:

- Impact resistance to cold temperatures (-20°C) and at least 8kJ/m² (ISO 180 method) to guarantee the entirety of the flooring even if stressed and placed in extreme environmental conditions;
- Laying capacity of at least 340 t/sqm (permanent loading test);
- Softening point of at least 152°C to guarantee nondeformability of the product in the presence of high temperatures (see flooring filled with crushed stone and placed during the summer season).
- Size in centimetres: 50 x 50 x 5;
- At least 95% grass and permeable surface;
- Reversible: both sides can be used;
- Shaped as in attached design;
- Cell border of at least 4.7 cm;
- Male-female joint hooking system; flooring kept still with sealing chamfers;
- Possibility of laying signalling elements (in white, yellow and blue) to delimit the parking areas and walkways;

Once laid in place, the above-mentioned flooring has technical characteristics that make it immediately suitable for vehicle transit.

€ per square meter _____

Art. 3) FLOORING FILLING WITH FINE GRAVEL

Laying of gravel flooring by filling the cells with Pratopratico® type flooring with fine gravel (granules of 7/10 mm).

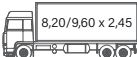
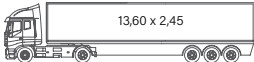


€ per square meter _____

Art. 4) DELIMITING OF PARKING AREAS AND WALKWAYS - Supply and laying of signalling elements...(in white, yellow and blue) to delimit the parking and/or walkway areas, to be placed in the soil inside the cells of the Pratopratico®, flooring according to the requirements of D.L..

€ per piece _____

The flooring must be produced by companies with a Quality, Environmental, Safety, and Social Accountability System certified in compliance with International provisions UNI EN ISO 9001, UNI EN ISO 14001, UNI EN ISO 45001, SA8000.

Logistics - pallet capacity

MEANS OF TRANSPORT	N. PALLETS	
Tractor (8,20/9,60x2,45)	16/18	
Semi-trailer (13,60x2,45)	26	
20 feet container	10*	 20 feet
40 feet container	21+1*	 40 feet

* the m² per pallet can vary based on the type of container.

The information contained in this catalogue could be changed. Please request updated informations from DALIFORM GROUP, which reserves the right to make changes at any moment without notice. In consideration of recycled material, it is specified that there are tolerance margins caused by environmental factors.



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Made in Italy

dali*form*
GROUP
Building Innovation © Creatori dell'Iglù®



Tel. +39 0422 2083 - Fax +39 0422 800234
export@daliform.com - www.daliform.com
Via Postumia Centro, 49 - 31040
Gorgo al Monticano (TV) - Italy



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UNI EN ISO 14001, UNI EN ISO 45001, SA 8000

Partner of
GBC Italia

Rating di legalità: ★★+