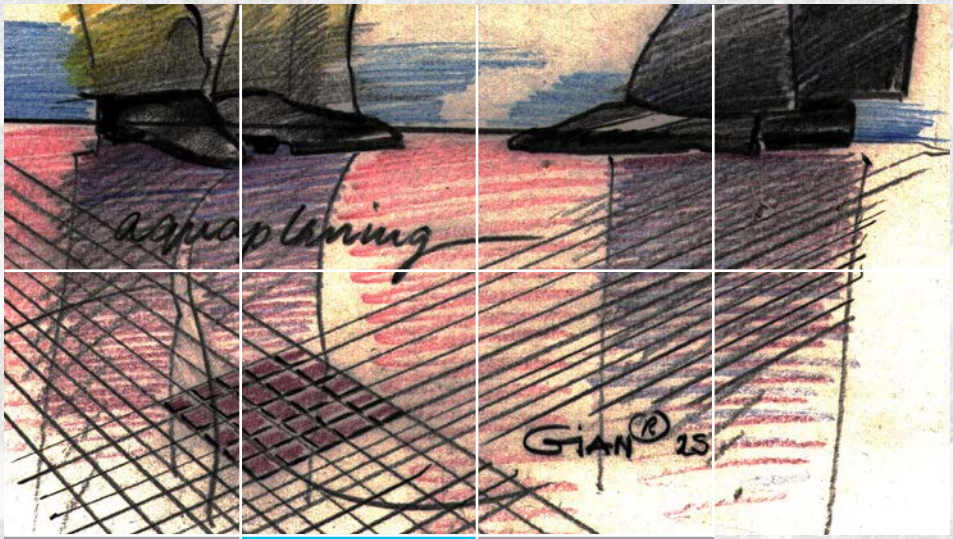
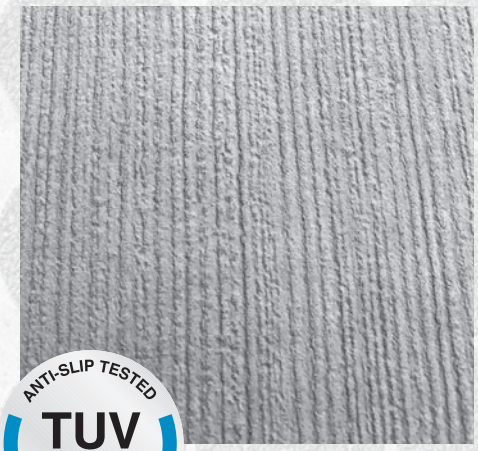
compañero®

partner in concrete patterns



GIAN® Anti-slip

Safety cast in concrete



GIAN® Concrete Art

Beauty cast in concrete

Please visit www.companero.biz for more information

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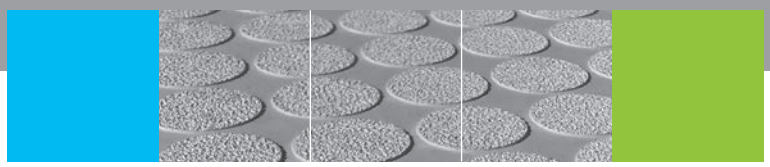


Pattern in concrete

Compañero®
- *Innovative*
- *Collaborative*
- *Experienced*
- *Knowledgeable*
- *Flexible*
- *International*

compliant REACH compliant

Introduction

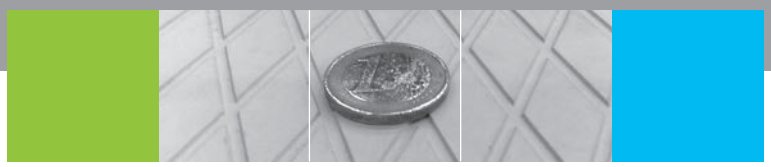
Compañero® is an independent Dutch company that specializes in manufacturing various patterns in concrete.
Maarten de Graaf the founder of Compañero started out in 1999 with a mission: to make concrete safer and more beautiful. The main principles of the company are cooperation and corporate social responsibility.

The name Compañero® - Spanish for *partner* - was chosen because Compañero® wants to meet the wishes of architects and concrete companies and is, together with them, constantly looking for alternative solutions, which could create new, innovative products.

This document provides you with information about patterns in concrete elements:

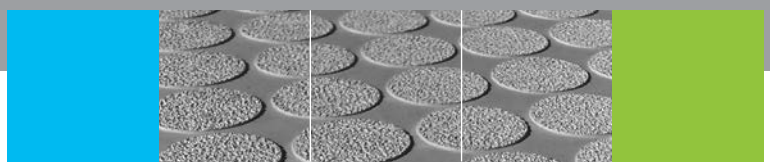
- GIAN® pattern mats for an anti-slip imprint.
- GIAN® Concrete Art for façade patterns.

Maarten de Graaf the founder of Compañero started out in 1999 with a mission: to make concrete safer and more beautiful



Contents

GIAN®
Made in Holland



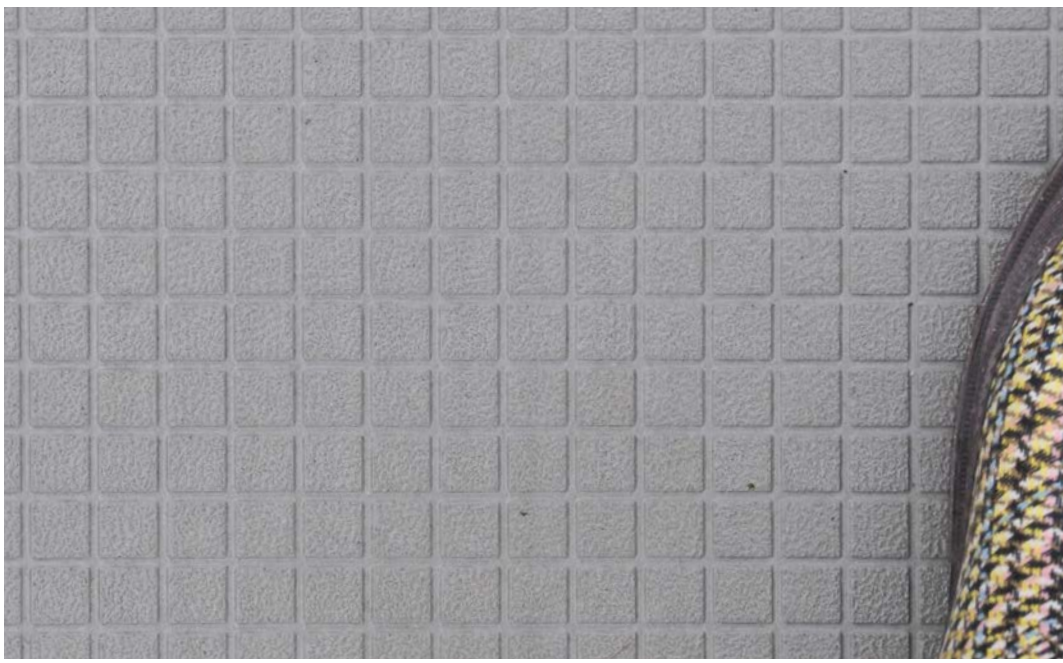
1.1 Development of tread pattern in concrete and safety through an anti-slip imprint

Concrete is increasingly often as smooth as glass
Concrete elements are becoming increasingly smooth and contain increasingly less pores. This smoothness is partly due to the renewed mixture of raw materials for the production of concrete.
Self Compacting Concrete (SCC), for example, which has generally been used in the past years, is much more compact than traditional concrete.

Nowadays, furnace cement is also frequently used for the production of concrete. This type of cement is not only HSR (High Sulphate Resistant) and whiter in colour, it also releases less CO_2 during production. Furthermore, it is less expensive, stronger and more compact than the previously commonly used Portland cement.

This means that the surface of today's concrete elements, like access gallery slabs, landings, stairs and balconies, are so compact and slippery that the tread pattern is just as smooth as glass.

This renewed mixture of raw materials in concrete has made concrete much smoother.



Safety
The risk of slipping due to, for instance, rain, cleaning or fire extinguishing agents is considerably reduced by giving precast concrete elements an anti-slip pattern.

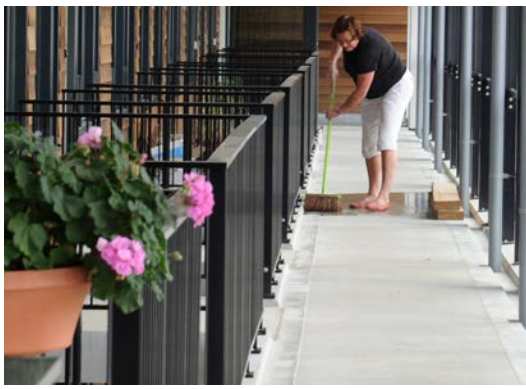
For concrete elements, both outside and inside buildings (like fire escapes or staircases), an anti-slip pattern is a safe, efficient and inexpensive solution.

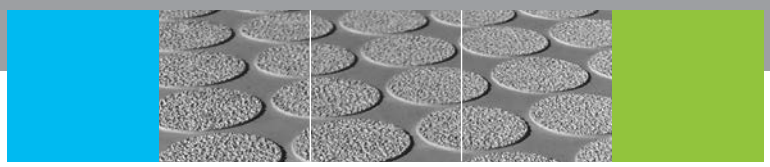
Furthermore, there is currently such a large variety of tread patterns that the various shoe soles, appliances and aids like rollators and wheeled stretchers can all be taken into account.

Maintenance
Safety requires maintenance. This also goes for concrete elements with an anti-slip pattern. To keep the tread pattern clean and to guarantee optimal anti-slip quality, in most cases, regularly sweeping the concrete elements will do.

Intensive use of public buildings, such as car parks or school buildings, results in more dirt. Therefore, these buildings require regular, more intensive cleaning to maintain optimal anti-slip quality.

Safety through an anti-slip pattern: imprint of the GIAN 2s square with sandblast.





1.2 GIAN® pattern mats – a thin mat glued into a concrete mould

Benefits of the GIAN® pattern mats

- *Anti-slip*
- *Excellent KIWA & TÜV test reports*
- *Wide selection*
- *Long lifespan*
- *Available with significant breadth and unlimited length*
- *no differences in thickness*
- *Economical*
- *Greatly enhance health and safety*
- *Uses solvent-free and eco-friendly glue*
- *Easy to use*
- *Made in Holland*
- *Reach Compliant*

Precast concrete elements such as balconies, staircases and access galleries are manufactured in factories or at industrial premises, after which they are transported to the relevant construction site.

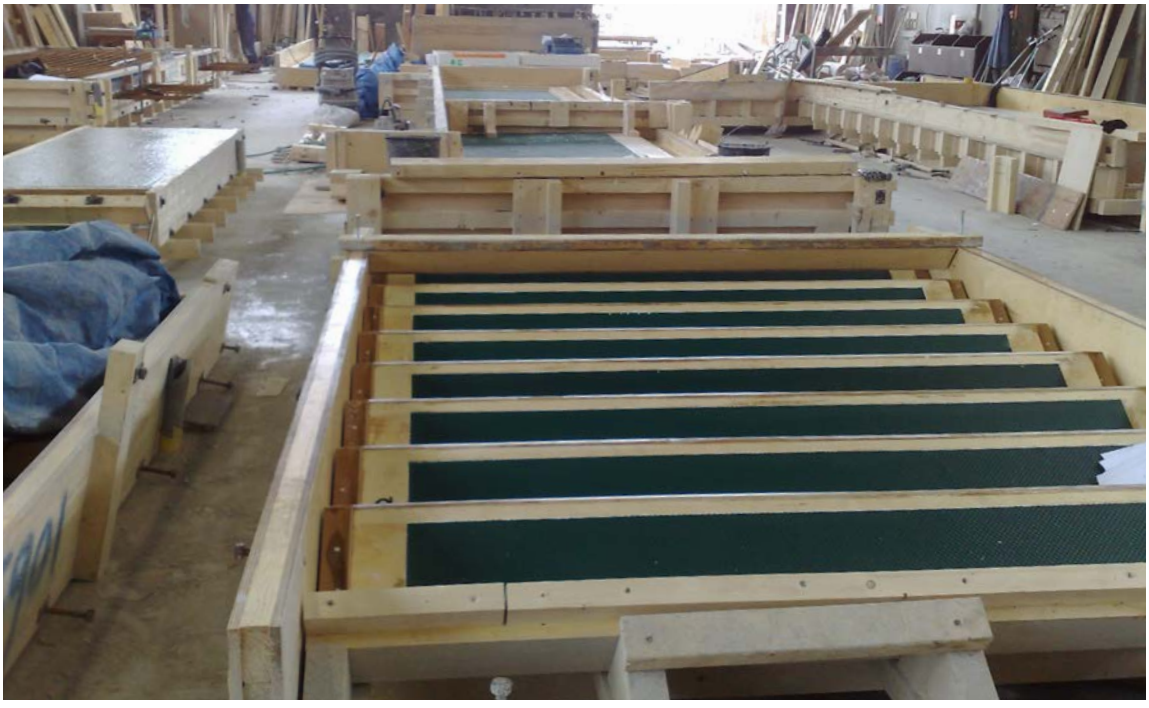
The precast concrete elements are made by pouring concrete into a wooden, steel or synthetic mould. The anti-slip pattern is produced by gluing a synthetic GIAN® pattern mat into the concrete mould.

Just like the concrete mould, the GIAN® pattern mat that is left in the concrete mould can be reused and has a very long life span.

Stylish design
Each building has its own character and this character deserves a suitable finishing touch. GIAN® concrete patterns do not just provide more safety in and around a building, but they also add a visual element to it. That is why GIAN® pattern mats are manufactured in several stylish patterns that can be chosen according to the aesthetic or practical demands of the architect, property developer or future occupant(s).

Concrete moulds are always manufactured with an inversion of 180 degrees.

The concrete mould is being cleaned prior to the next concrete casting.



Examples of a GIAN® pattern mat glued into a wooden concrete mould.

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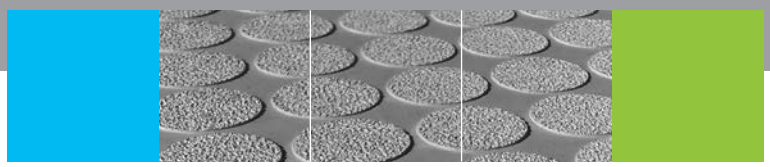

Advantages of the GIAN® pattern mat:

Benefits of the GIAN® pattern mats

- *Anti-slip*
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Enthusiasm and craftsmanship are highly present within the precast concrete industry.

• Anti-slip

In a wet climate like ours slipperiness often occurs. To prevent slipping due to rain, cleaning or fire extinguishing agents it is recommended to put an anti-slip tread pattern in concrete elements. This prevents aquaplaning during walking.

Aquaplaning

A special form of aquaplaning can occur when walking. Motorists are familiar with this phenomenon: when you drive fast over a wet road, a thin film of water can form between the surface and the tyres. As a result, the car briefly loses traction and cannot be controlled. The same phenomenon occurs when a person walks on, for example, a smooth wet surface. A thin film of water between the shoe sole and surface causes extremely low frictional resistance, resulting in an increased risk of slipping.

Aquaplaning on steps, walkways, balconies and other walking surfaces can be combated effectively. The first step in this process is to ensure that the water under the shoe sole is drained away quickly. That is why almost all GIAN® textures 'emboss' small channels into the concrete, in which the shoe sole can help wick away the water. The second step in the process of giving concrete excellent anti-slip properties is the addition of a micro-relief texture. This can be created by pressing a GIAN® texture mat with a sandblast texture into the concrete. The sandblast texture gives aquaplaning absolutely no chance to develop.

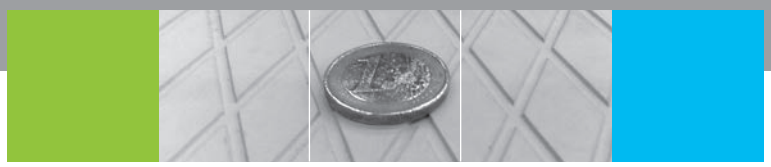
Recommendation:

For optimum anti-slip safety on concrete surfaces, we recommend textures that combine drainage channels with a micro-relief texture.

• Stylish pattern

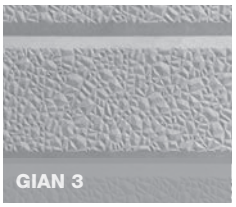
The GIAN® pattern mats are 2 to 3 meters wide and the length is unlimited which makes it possible to produce the concrete elements with an anti-slip pattern practically without seams.

The GIAN® pattern mat has no differences in thickness due to the advanced mechanised production.



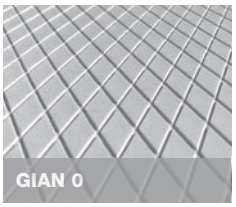
Concrete imprints produced by the GIAN® pattern mats

1200 - 1250 mm — 20 mtr


GIAN 3


GIAN glue or GIAN tape

2050 - 2200 mm — 50 mtr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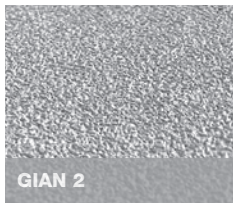
GIAN 1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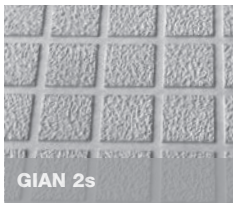
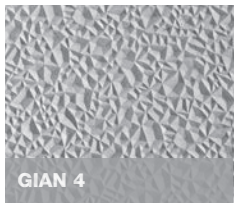
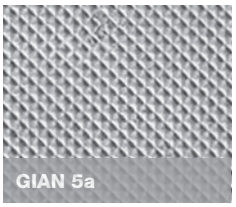
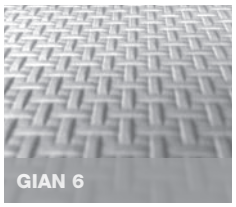

GIAN 2s


GIAN 4


GIAN 5a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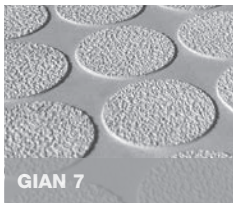
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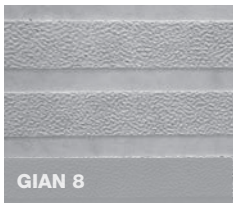
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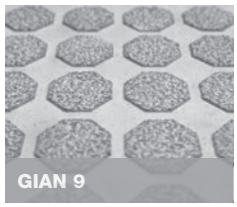
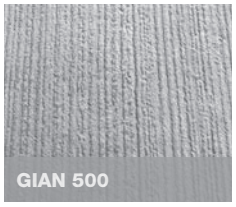

GIAN 9


GIAN 10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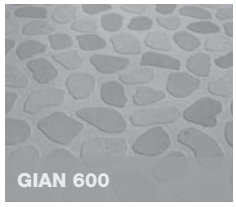
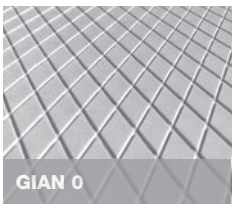

GIAN 600

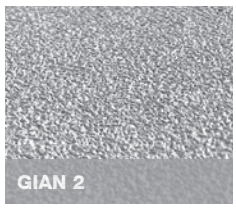

GIAN 800


GIAN 900 NEW!

3050 - 3350 mm — 50 mtr


GIAN 0


GIAN 1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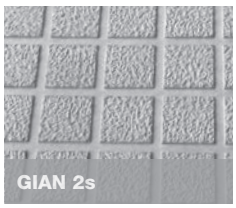
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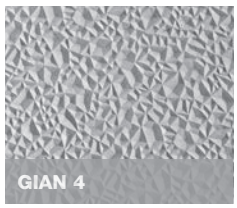
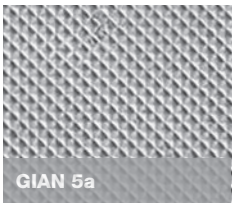
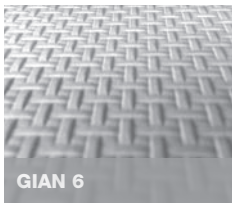
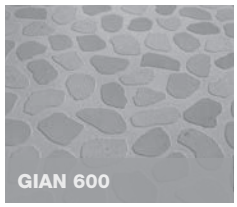

GIAN 4


GIAN 5a


GIAN 6


GIAN 10


GIAN 400


GIAN 600

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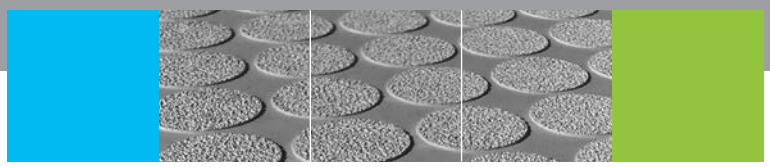


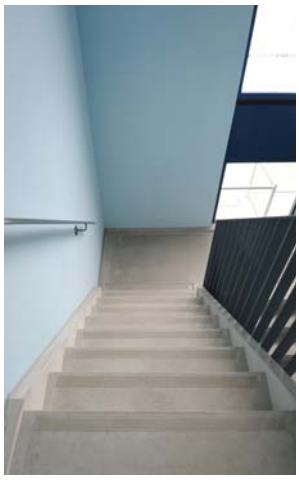
Benefits of the GIAN® pattern mats

- *Anti-slip*
- *Excellent KIWA & TÜV test reports*
- *Wide selection*
- *Long lifespan*
- *Available with significant breadth and unlimited length*
- *no differences in thickness*
- *Economical*
- *Greatly enhance health and safety*
- *Uses solvent-free and eco-friendly glue*
- *Easy to use*
- *Made in Holland*
- *Reach Compliant*

• Cost-effective
The extensive length and mostly directionless pattern of the GIAN® pattern mat results in less waste. Almost all the material of the mats can be used. GIAN® pattern mats have a very long life span and can be used many times. Made in Holland.

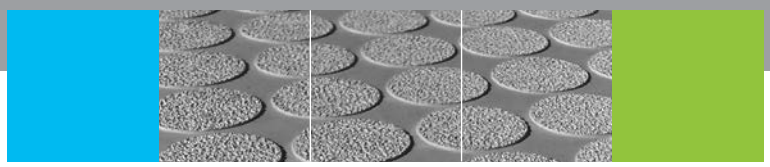
• Health and Safety
The GIAN® pattern mat is thin and therefore does not weigh much. This makes it easier to work with for employees in precast concrete companies.

• Glue without solvents
Compañero® has developed a special glue to stick the GIAN® pattern mat to the bottom of the concrete mould. It doesn't contain any solvents, which makes it environmentally friendly.



It is important that staircases inside and outside a building have an anti-slip imprint.

Concrete elements without seams in the tread pattern. The extensive length and ample width of the GIAN® pattern mats create an almost seamless concrete surface.



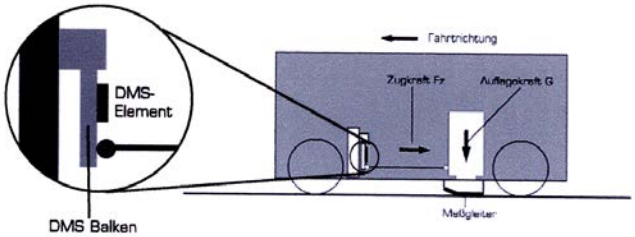
1.3 Test methods for frictional resistance in tread patterns

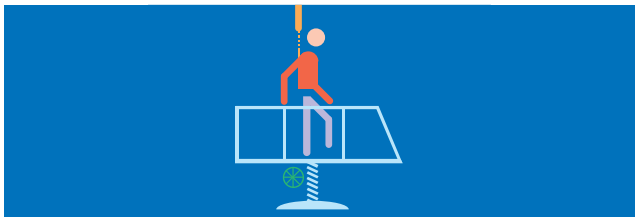
The smoothness or roughness of a floor area is expressed through the so-called friction coefficient (μ). The frictional resistance of a floor can only be measured in practice with a testing machine; there is no theoretical mathematical model to calculate the frictional resistance in advance.

Most of these 'practice tests' are conducted in laboratories, although, experience shows that insurance companies prefer the use of a measuring instrument on location.

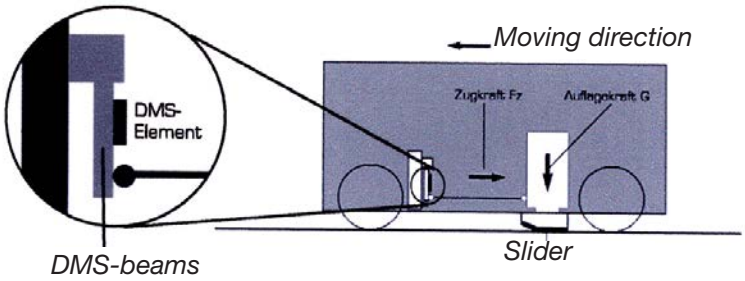
Dutch and European standardizations

A wet concrete imprint from the GIAN®1 diamond is being tested with the FSC 2000 print.





The FSC 2000 print is a manageable machine to measure frictional resistance on location.



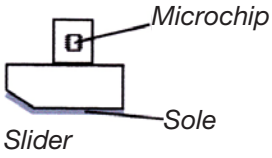
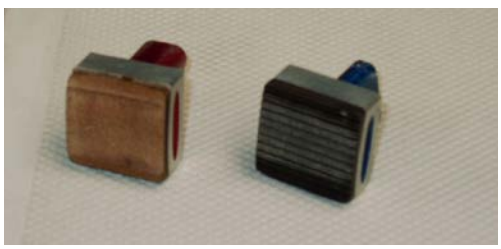
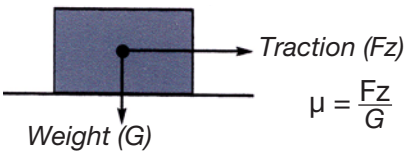


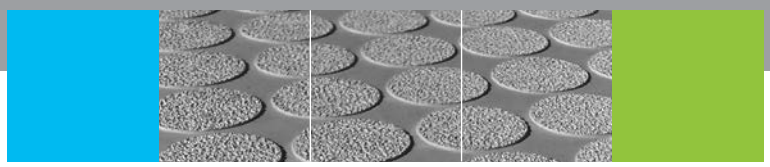
Diagram of the inside of the FSC 2000 print which shows how it works.
The slider is pushed to the ground with a standard pressure (G) of 24 N.
The frictional power (Fz) is measured with the DMS-element.
The ratio of Fz and G is the friction coefficient.



Two (leather and rubber) of the three sliders (also synthetic) that are used on the FSC 2000 print to imitate the shoe sole.



The ratio of Fz and G is the friction coefficient.



Test methods in Europe
Currently there are two recognized methods for measuring frictional resistance: the dynamic *Floor Slide Control 2000 print* (measurement on location by a machine) and the static *DIN 51130 R-standardization* (Shoe Shod Ramp-Test with subjects in a laboratory).

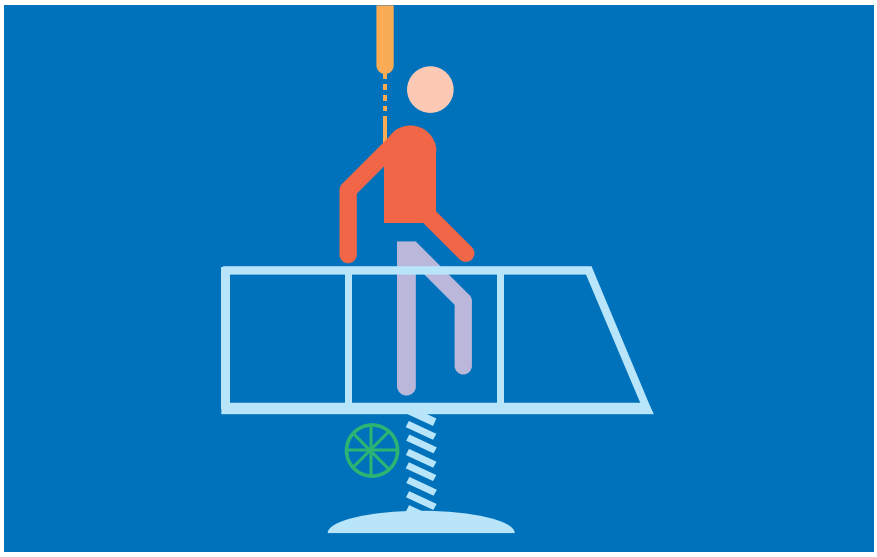
In this document we assume the use of shoes with rubber, synthetic or leather soles in a dry and in a wet environment.

Floor Slide Control 2000 print (measurement by machine)
This dynamic test is conducted with the FSC 2000 print and the friction coefficient (μ) runs from 0 to 1.
The mechanical measurement takes place by dragging a slider across the floor surface and by doing that the friction can be measured.
With the FSC 2000 print the dynamic frictional coefficient of the floor is determined by a standard pressure of the slider of 24 N (Newton) at a speed of 0.20 m/s. The test is carried out in both dry and wet conditions with three standard sliders (imitations of shoe soles) made of rubber, leather and synthetic respectively.

A friction coefficient close to 0 is a very low score (= a very slippery floor).
A friction coefficient close to 1 is a very high score (= a non-slippery floor).

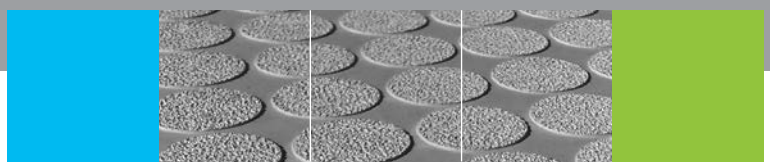
DIN 51130 R-standardization (Shoe Shod Ramp Test with subjects)
The DIN 51130 R-standardization Shoe Shod Ramp-Test is a method to determine the roughness or 'slip resistance' *(Rutschhemmung)* of a floor surface by means of experimental subjects and a floor surface that is tilting.
This is a static test method developed in the 1970s which is still commonly used.

The FSC 2000 print tests a wet concrete element with a GIAN® 2s concrete pattern.



The DIN 51130 R-standardization (Shoe Shod Ramp Test with experimental subjects) is a static test method developed in the 1970s and is still commonly used.

During this test set-up, which is only conducted in a laboratory, the gradient of the slope is increased. The more slanted the angle is when sliding commences, the higher the R-value will be.



During this subjective test method an experimental subject, secured to the ceiling with a safety belt, stands on a test slope with testing material.
The test slope is gradually increasing and as soon as the experimental subject starts sliding *(rutschen)* or feels unsure the R-standardization is determined.

The scores run from R 9 up to and including R 13 and refer to the angle of the slope when the slip resistance can still be overcome. To put it differently: if the angle is more acute when the subject starts sliding, the higher the R-score and the rougher (less slippery) the floor surface.

Comparison of the two test methods
It is difficult to indicate in which way the dynamic and static test methods relate to each other.

To gain more insight into the precise meaning of the two different friction resistances the Swiss Advisory Body for the Prevention of Accidents *(bfu: Beratungsstelle für Unfallverhütung)* has formulated the table of comparison opposite.

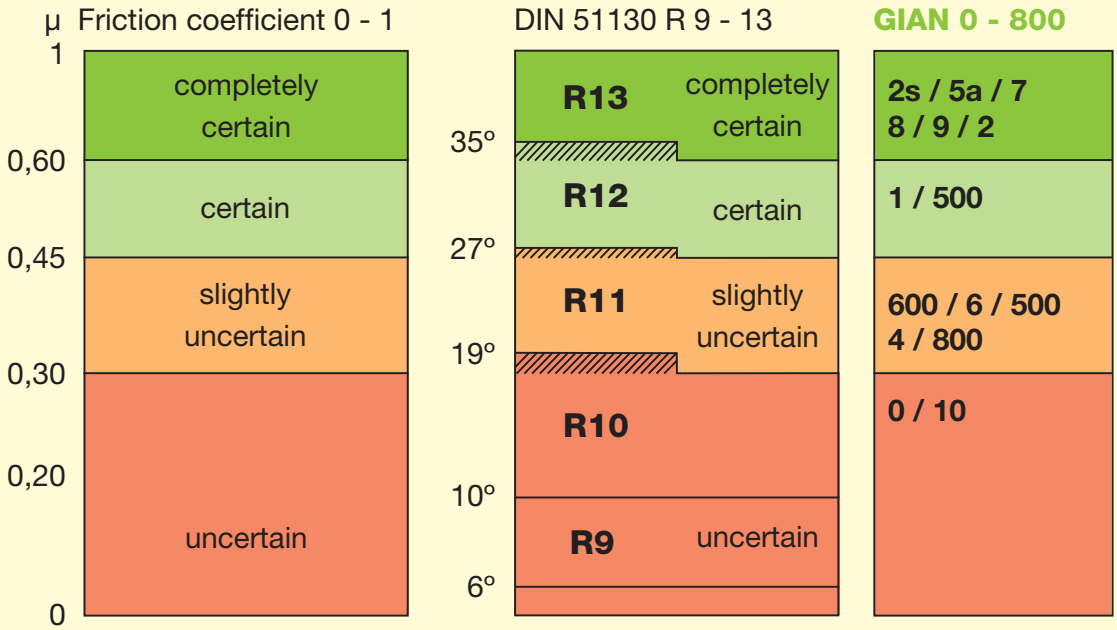
Explaining both test methods the bfu states:

'Both test methods are very hard to compare because one method draws conclusions from a static friction (Shoe Shod Ramp Test with experimental subjects), while the other method draws conclusions from a dynamic friction (FSC 2000 print machine measurement), to arrive at a R-standardization/friction resistance.
In most European countries both test methods are accepted and commonly used.

Static friction.

Dynamic friction.

Table of comparison bfu / EMPA / Uni Wuppertal



FSC 2000 print machine measurements

Shoe Shod Ramp Test with subjects

ANTI-SLIP TESTED
TUV
KIWA

On the website of Compañero® you'll find the testresults.

Compañero®
In cooperation with KIWA and TÜV Rheinland Compañero had friction tests performed on precast concrete elements with a GIAN® anti-slip imprint. At the website of Compañero you can find the results of these tests.

Façade patterns

‘Bird on branch’ concrete pattern

Created via a computer-controlled cutting using the GIAN® 100 (smooth) pattern mat in combination with the GIAN® 2 sandblast pattern

2.1 GIAN® Concrete Art: Computer-controlled cutting in the GIAN® pattern mat

GIAN® Concrete Art is a new technique for creating symbols, letters, fantasy designs and even images in concrete. This new technique, combined with the qualities of the GIAN® pattern mat (easily processed and reusable) meets the desires of commissioners, architects, concrete business and mould makers.

Relief in concrete
Compañero® has long searched for an economically attractive solution for the enhancement of concrete façade elements. We have found the solution in a computer controlled cutting technique. This technique enables great freedom with regard to design. By cutting the designs entirely from the GIAN® 100 smooth pattern mat and gluing it on the mould base of the concrete mould, one creates a sunken or protruding pattern in the concrete.

Standard editions
The GIAN® 100 is a 3 mm or 5 mm thick smooth pattern mat with a special top layer that gives the concrete a visually smooth and virtually pore free surface. The mat is 2 meters in width, with unlimited length. The GIAN® pattern mats can also be used for an additional detail in the concrete. Many combinations are possible.

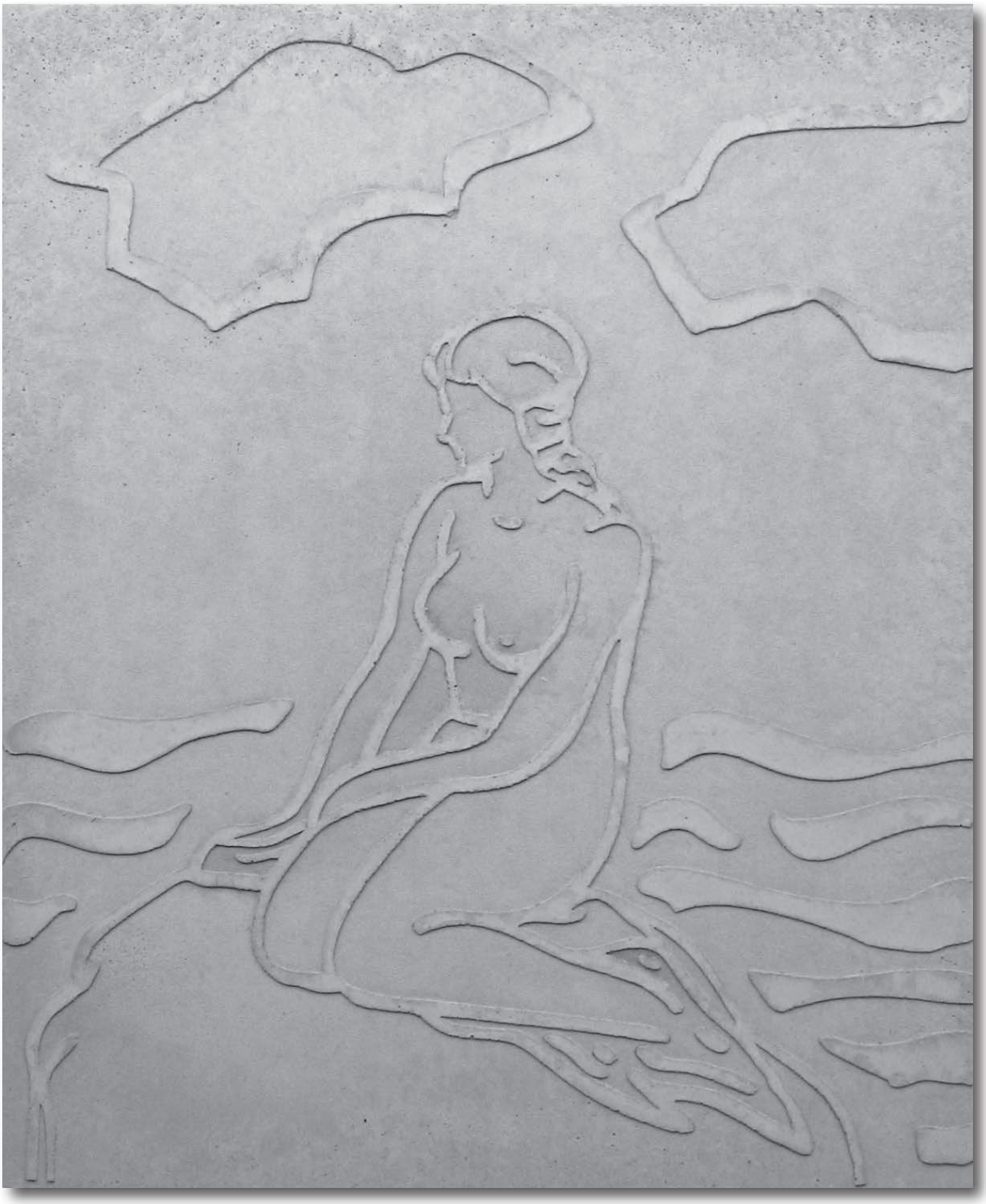
Design submission
We prefer to receive the design as an Adobe Illustrator vector .ai , .eps, .pdf file or DXF file (with highest setting foor bezier-curves). These files can be fed directly to the computer-controlled cutting machine after which the assignment can be performed without additional design fees.

The GIAN® Concrete Art technique allows much freedom in design.

More information
Through our website we will keep you up to date with regard to our most recent developments.

Tinker
Project Haarzuilens

Tinker
Project Haarzuilens



'Football club logo' concrete pattern

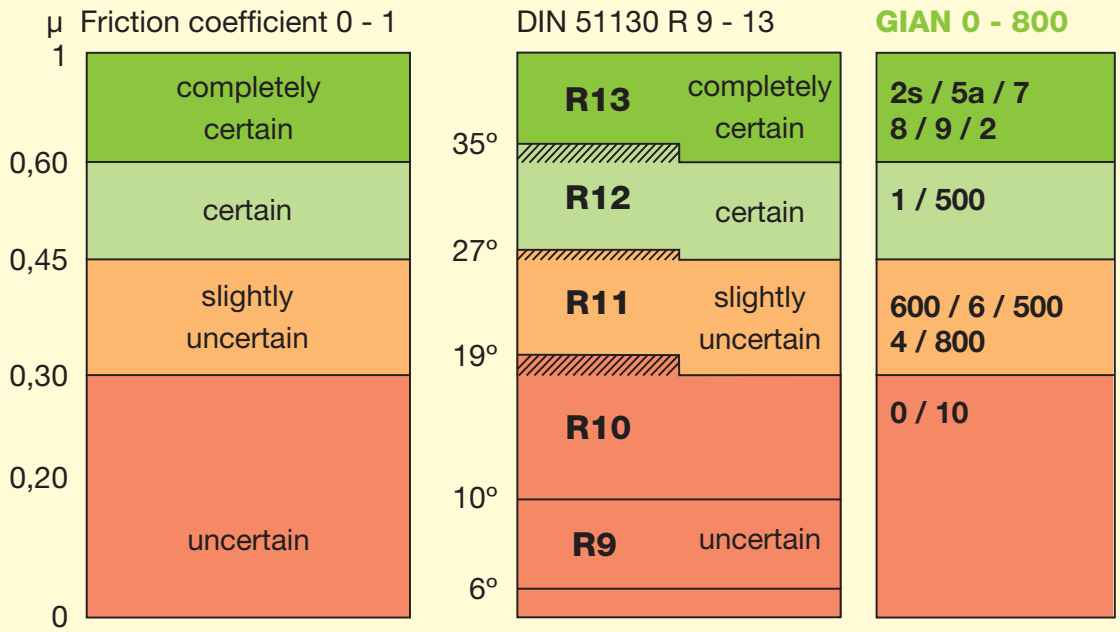
Created via a computer-controlled cutting using the GIAN® 100 (smooth) pattern mat in combination with the GIAN® 2s square pattern with sandblast.

'Bird on branch'

Created via a computer-controlled cutting using the GIAN® concrete retarder paper.




Table of comparison bfu / EMPA / Uni Wuppertal



FSC 2000 print machine measurements

Shoe Shod Ramp Test with subjects

ANTI-SLIP TESTED
TUV KIWA


GIAN® 1 large


GIAN® 2s


GIAN® 4


GIAN® 7


GIAN® 8


GIAN® 600


GIAN® 800