

# La Gramigna

# La Gramigna

Types of La Gramigna fibres most commonly used in the industrial flooring and prefabrication sector

ART.	WEIGHT OF BOX	WEIGHT OF PALLET
080 x 50	15 kg	1260 kg
090 x 60	20 kg	1260 kg
100 x 50	20 kg	1260 kg
100 x 50 S	20 kg	1260 kg
L 530	20 kg	1600 kg

## GEOMETRY OF LA GRAMIGNA FIBRES



HOOKED

ONDULATED

## TECHNICAL DATA SHEET

Breaking strength	> 1100 N
Tensile stress	> 800 N
Ultimate elongation	< 2%

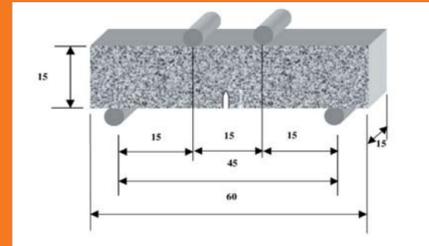
## CHEMICAL ANALYSIS PURELY INDICATIVE

C	0,04
MN	0,25
SI	0,03
P	0,012
S	0,013

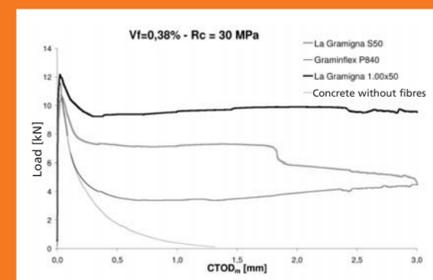
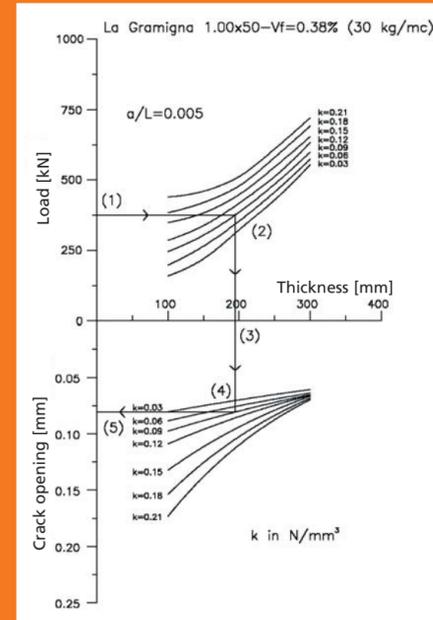
We supply our clients with sizing projects for industrial flooring using a calculation system based on fracture mechanics developed expressly for our purposes by Prof. G. Plizzari of the University of Brescia.

At right, we provide an example of the use of an alignment chart regarding our calculation system with  $R_{ck}$  30 N/mm<sup>2</sup> concrete batched with 30 kg/m<sup>3</sup> of La Gramigna 100x50 steel fibres.

At right, displacement tensile stress diagram for a block of concrete reinforced with fibres batched with a volumetric percentage of 0.38%.



Above, a diagram of the girder used for the concrete classification deflection test.

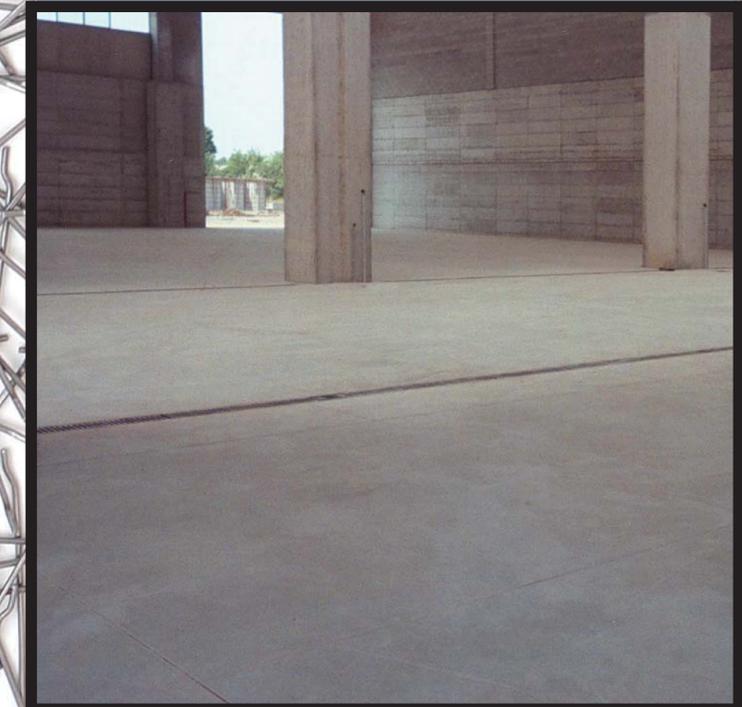


Above, a test piece in the test machine.

## Steel fibres

for concrete structural reinforcement

# F L O O R S



## la matassina

36033 ISOLA VICENTINA (VI)  
 FRAZ. CASTELNOVO - VIA BACCHIGLIONE, 28  
 TEL. 0444 975671 - FAX 0444 977515  
 www.lamatassina.it  
 Email: info@lamatassina.it  
 lamatassina@keycomm.it

Tubo Ø 30 x 1200 | PAVIMENTI

# la matassina

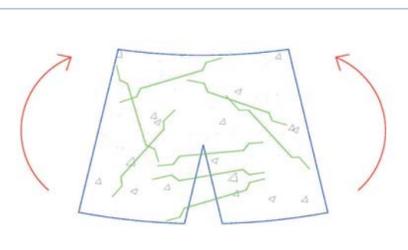
# La Gramigna FLOORS

## steel fibres for concrete structural reinforcement

The increase of the tensile strength of cement mix through the addition of fibres has been the subject of special study in recent years.

Fibres were initially added to improve the performance of material in regard to shrinking or cracking without taking maximum advantage of the structural possibilities offered.

The first such structural applications in which fibres partially or even completely replaced traditional concrete reinforcement have appeared only recently.



Fibres inside the cement matrix serve to provide a composite material in which the mix is enriched by the presence of reinforcement composed of fibres of various nature.

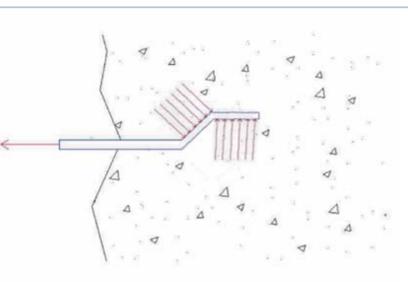
Steel fibres are the most commonly used for such structural applications.

La Gramigna steel fibres are usually constructed with low-carbon steel.

Fibres function as a diffused element of strength that "sews" the flaps of the crack together and therefore it is clear that fibres become efficacious and improve concrete performance only after the matrix has set.

La Gramigna steel fibres are specially shaped at the end for more efficient anchoring.

The most important structural applications of concrete reinforced with La Gramigna steel fibres are currently industrial flooring, prefabrication sector and sprayed concrete.



The conditions below must all be met in order to guarantee the efficacy of concrete reinforced with La Gramigna steel fibres:

- n the fibre must have a L/D ratio equal or superior to 50;
- n the fibre must be distributed evenly in the mix using appropriate SC99/2 type equipment;



n the fibre must be added in the minimum quantity to ensure continuity in reinforcement in accordance with UNI 11039-2 Standard;

n the quality of the steel must comply with UNI 11039-1 Standard.



Concrete reinforced with La Gramigna steel fibres batched with a SC99/2 machine can be pumped easily because it is extremely homogenous and free of all lumps that damage the pump's liner or pumping elements.

All La Gramigna fibres are obtained through cold low-carbon steel wire drawing with high quality rods in order to grant the fibres greater strength and ductibility.



### ART.

1,00 x 50	L/D	50
0,80 x 50	L/D	62
0,90 x 60	L/D	66

