



BIO CARBON BRIDGE

COLOR

SPECIAL TORONTO

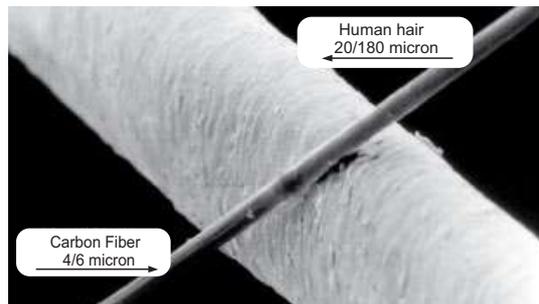
Bio Carbon Bridge, is the new revolutionary system in Carbon fiber for prosthetic reconstruction of Toronto on implants developed in Micro Medica laboratories.

Finally a great alternative to traditional methods which required the use of metal in the routine of dental laboratory

Bio Carbon Bridge is a concentrated of technology in a few grams of weight, with this product it's possible to appreciate the outstanding characteristics of carbon fiber even in the dental field.

This incredible material is used for multiple applications, especially in aeronautical, mechanical and automotive fields where it is required lightness and extreme strength.

Exploiting these important features Micro Medica has developed a special unidirectional Carbon fiber consisting of millions of thin wires (4/6 micron).



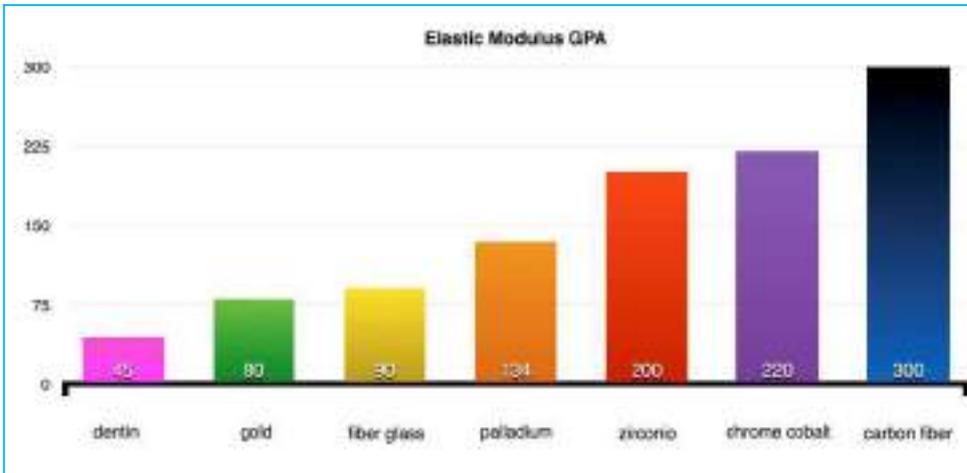
This particular fiber has been produced to be used in the dental field, and designed in such a way to support vertical lingual and vestibular loads of mastication, without undergoing any deformation.

The new Bio Carbon Bridge system allows the realization very extended and immediately passive works, made directly on the implants without any contraction with a surprising ease of use and a weight of only a few grams.

The new carbon fiber designed by Micro Medica drastically reduces the stress transmitted to the implant in the process of mastication, it also amortizing and dissipating the forces generated in a homogeneous way.

The carbon fiber Bio Carbon Bridge system as shown in the graphic reaches extremely high levels of mechanical strength compared with other materials, that demonstrate how this new product can replace metals and zirconia without any problem in the realization of dental structures.

The thousands of filaments which unidirectional wires are composed by allow the realization of substructures even very complex and extremely precise.



The advantage of the unidirectional wires is the possibility of realizing Carbon Toronto substructures in a single block, incorporating all the turrets without interruption.

Of fundamental importance is the realization of monoblock works, because in this way the forces of mastication will not encountering interruptions and are discharged along the structure.

Light as a feather, with a specific weight of $1,4\text{gr} \times \text{cm}^3$, the Bio Carbon Bridge System in Carbon fiber is absolutely the material with weight-strength ratio between the best performing in the world.

Compared to cobalt chrome 8.2 g cm^3 , $6,5\text{g cm}^3$ for zirconia, carbon fiber is much more light weight and efficient.

The all on Four Toronto made with this new system weight only 4gr including the Titanium abutments!

Resistant to chemicals agent, of fundamental importance is the capacity of this new material to resist the attack of any substance present in the oral cavity, in order to avoid the deterioration of the material over time.

Structures made with the new carbon fiber must be fully coated in aesthetic material or appropriate sealant because even if carbon fiber is Biocompatible, it's also a very abrasive material that could favor the accumulation of plaque and bacteria.

Not absorbs water, with a value of less than 0.1%, is absolutely a hydrophobic material, this feature is very important when you want to get stable and long lasting structures.

Excellent thermal insulator, unlike of metals always use for prosthetic reconstructions, Bio Carbon Bridge carbon fiber system is a good thermal insulator, and is stable at any temperature variation.





Mechanical assessment of the effects of a Toronto Bridge structure carbon fiber through a studio in Finite Elements

Abstract:

The purpose of the research conducted by the Polytechnic of Milan on the Bio Carbon Bridge carbon fiber System by Micro Medica is to establish, through a study of finite element, that masticatory forces of different intensity are transmitted through the implant at the bone through the prosthesis with the Unidirectional Carbon Fiber by means of molding in a muffle system.

The model structure 'all on four' toronto used for the simulation is the real scanning of a report case, after scanning it was made a virtual model with prosthesis positioned at the level of the lower jaw.

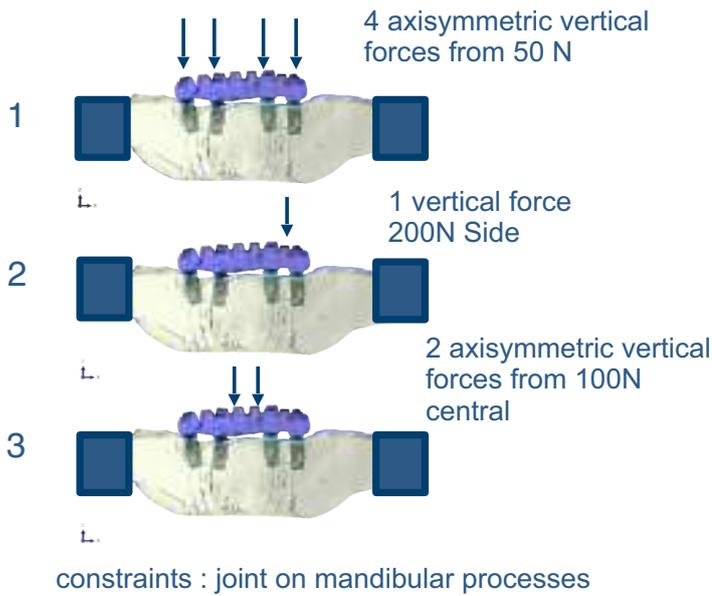
Considering three different axially symmetric forces applied vertically into three different zones of the jaw, with variable loads from 50 to 200N.

4 vertical forces from 50N each level of the lower front
1 vertical force of 200N to the lower canine level
2 vertical forces from 100N to each of the lower central level

Simulations FE

Boundary conditions and load mastication

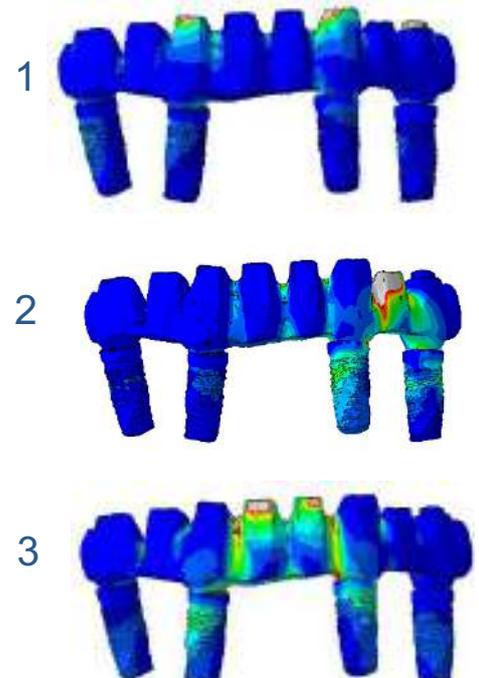
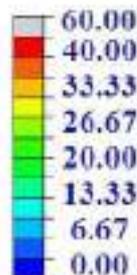
3 Cases were analyzed:



Results: state of stress

Toronto Bridge in Carbon Fibre

Stress Equivalent [MPa]

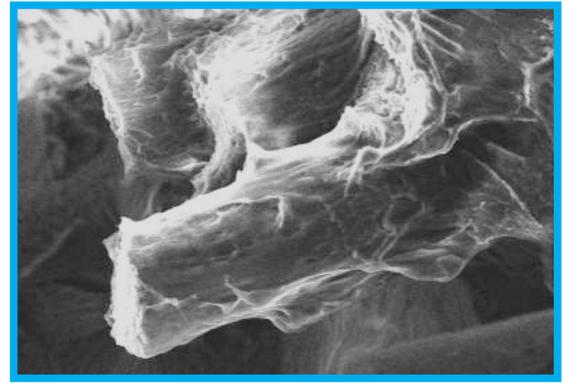


As it is shown by the study carried out by the olitecnico di Milano, new unidirectional carbon wires designed by Micro Medica, drastically reduce the stress transmitted during mastication to the implants, by cushioning and dissipating consistently the forces generated. this feature is extremely important for all works on implants.

Passive structures always, the major cause of bone crest loss, implant mobility and fracture and separation of the components of the prosthesis is not passive fusion.

20N of force applied to a not passive fusion tends to distort the superstructure and overloading the system components and the bone.(University of Rome Sapienza).

Bio Carbon Bridge allows the realization of very complex and always passive prosthetic substructure built directly on the master model, with the perfect mix between the resin developed for this system and the unidirectional wires in carbon fiber.



Carbon Wire + Resin

The special resin developed in Micro Medica laboratories is able to impregnate and stick intimately to the carbon wires employed for the realization of substructures, to create a union that through the polymerization in the Space Lab Oven makes the structure extremely precise and high performing.

A perfect bond, one of the major problems in the realization of dental prosthesis is the link between the substructure made of metal and the superstructure made of aesthetic composite or resin. This two materials are incompatible with each other and need a particular treatment through the use of adhesives and primers to be united. Often even after the use of these products, the union is precarious and unstable.



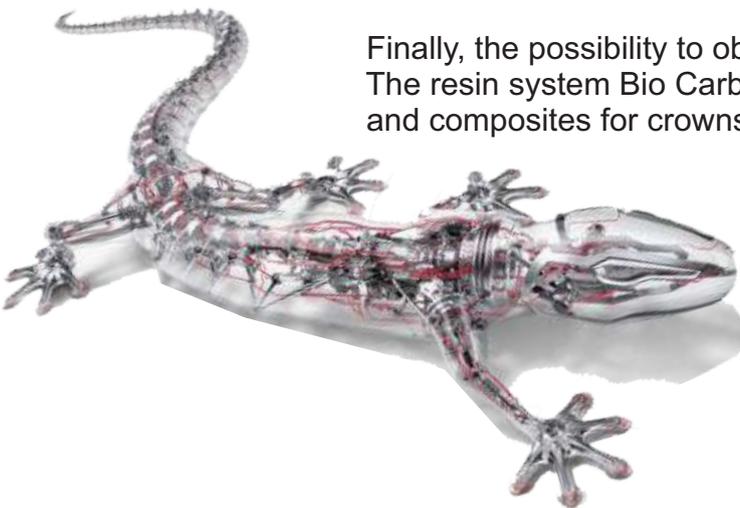
To overcome this problem Micro Medica has developed a special resin from Bisphenol A.

Bisphenol A is the base component of almost all of dental composite resins and Bis-GMA on the market.

For this reason, there is a chemical link between the substructure built with this resin + the carbon fiber and the superstructure made with traditional resins or dental composites.

The new Bio Carbon Bridge resin system also has an high adhesive power, indispensable feature to block implant's towers between the unidirectional carbon wires.

Finally, the possibility to obtain strong and long lasting structures .
The resin system Bio Carbon Bridge is compatible with all resins and composites for crowns and bridges on the market.



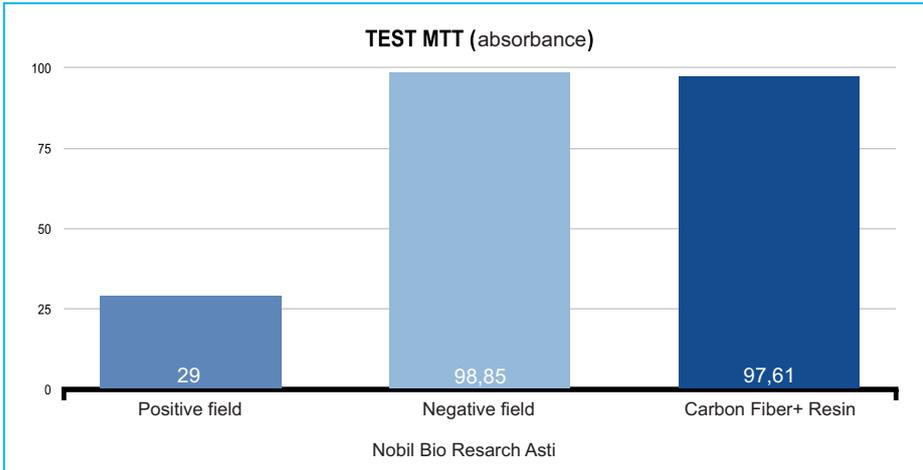
Bimetalism Phenomena, saliva is an electrolyte liquid, if in the mouth there are two metals with different electric potential, such as cobalt chrome and titanium, there will be a passage of electrons between a metal and the other. This micro current will determine the corrosion of one of the metals, thwarting our efforts to obtain precise and fully passive structures.

Metal particles generated by electrolytic corrosion can give sensations of bitter, sour or metallic taste in the mouth, and can create further problems for the health of patients.



electrolytic corrosion of cobalt chrome

Bio Carbon Bridge system avoids any problem of bimetalism!



Biocompatible, carbon fiber is now used with great success for many applications especially in the orthopedic sector, every day are implanted with great success hundreds of prostheses constructed with this amazing material.

The cytotoxicity tests carried out by the Nobil Bio Research Laboratory of Asti on carbon fiber and Bio Carbon Bridge resin system confirmed that this product is absolutely biocompatible.

All reinforcements produced in Micro Medica laboratories are CE marked in the class IIA as long-term implantable, Bio Carbon Bridge carbon fiber system is the first carbon fiber in the world certified for dental use.

Aesthetic winning with the Bio Carbon Bridge system is possible to make Toronto directly in Pink or Dentina colours.

With this special colored gel it is possible to obtain understructure, where the black color is not visible.

The aesthetics and functionality of the prosthesis in carbon fiber are not comparable to other materials on the market.



A concentrate of technology, new unidirectional carbon fiber wires developed by Micro Medica for the construction of substructures in carbon fiber (like Toronto), represent a real novelty in the dental field.



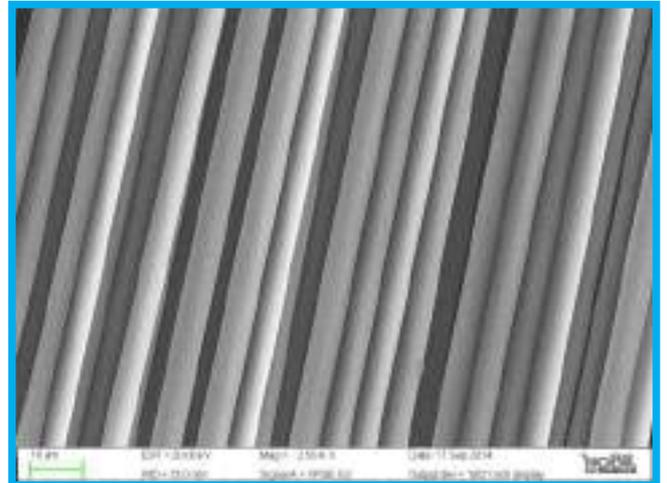
One skeins of unidirectional yarn are contained in the Bio Carbon Bridge Special Toronto starter kit , their use is extremely simple and intuitive, need no special skills and anyone can achieve amazing results by following carefully the instructions.

The possibility of work directly on the counter mold of the muffle gives the opportunity to calibrate the amount and location of the fibers, making the process of molding very simple.

Sem's Photo, to realize high performance structures had to be created a yarn with unique features, carbon wires are perfectly identical to each other, this aspect is very important because in this way the mechanics resistance of structures built with this new product is homogeneous.

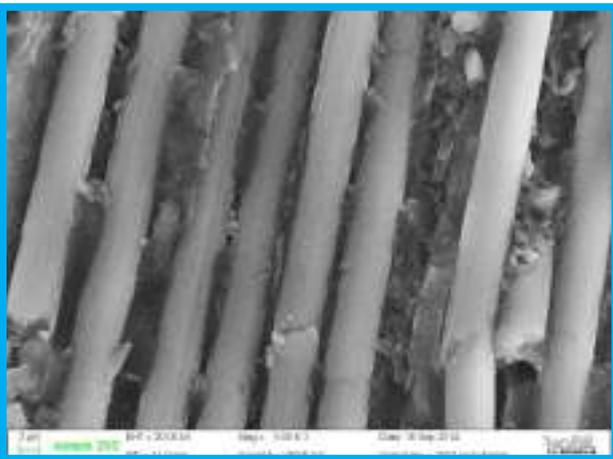
This feature makes this material unique, it took years of research to get an advanced material like our.

Wires, thousands of wires embedded in the resin matrix are the necessary base to make the structures capable of support even very extended works without any problem, the excellent structural rigidity that is obtained with the use of unidirectional wires allows to apply to the structures any kind of aesthetic material .



2

Composite and acrylic resins will be effectively supported by the substructure, the contact points in structures like Toronto will not have a volume less than 11 / 12mm, thickness around the abutment 1.2 / 1.5 mm.



The base resin. The special resin developed by Micro Medica is the key element for the success of the new system.

The kit provides two different types of base resin: Resin Base 1 Full of catalyst and activator and the Resin Base A also full of catalyst and activator.

The Base Resin 1 is perfectly transparent and is used with the addition of the catalyst and activator to impregnate the carbon wires before molding in the muffle.

The Base Resin Gel A instead is loaded with Nano Ceramic powder, this Gel is available in two different colors, Pink and Dentina.

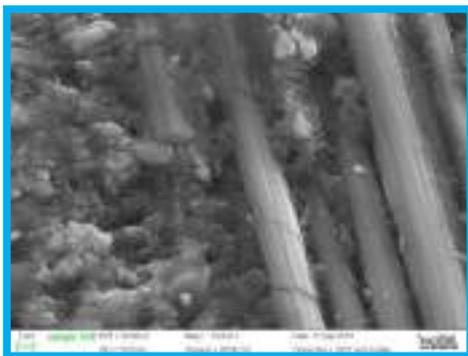


Base Resin A have different function: is used as a first thin layer inside the flask to detect every detail, as base color, and as the last layer after the positioning of the wires to compensate any deficiencies and to increase the pressure in the closing phase of the muffle. In this way the formation of micro porosity is avoided



Pivot System, an indispensable part of the system are the transparent pivot contained in the Bio Carbon Bridge kit, these allow the exact positioning of the unidirectional carbon fiber around the abutment of the implants, without damaging it.

Pivot also make a reference to find the abutment and the screws after the molding.



100% Carbon Fiber, a proven protocol allows to obtain carbon high-density structure.

In the outer areas, the resin base A helps us to replicate the details previously obtained in the modeling stage.

The internal bars heart realized with resina1 is full of wires is also free of any porosity or imperfection.

Following the protocol you get always perfectly identical structures without any defects.

