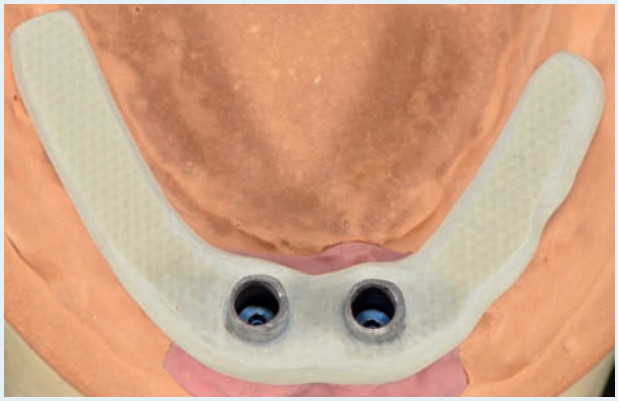
bioloren®
metal free dental solutions

# TRILOR® ARCH TECHNOLOGICAL REPORT



TRILOR®

**hi-tech framework** easy, versatile, cost effective

***At the beginning people refuse to believe that a new strange thing can be done; then they start to hope this can be done; afterwards they see it is possible to do; finally, it is done and all the world asks why it was not done centuries before. (Frances Hodgson Burnett)***

***Fixed or removable prostheses need a resistant material in order not to yield over time under the pressure of chewing loads***

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# Preamble

In the last 15 years implantology world has changed a lot thanks to the development of digital technology and innovative materials. The traditional metals badly adapt to newtechnologies and new clinical needs. The greater rigidity involves a discharge of forces on the bone often compromising the final results or creating problems of bone retraction.

The high weight, thermal shock phenomena, bimetallism, difficult to control castings affect efficiency by increasing timing and costs. The advent of new materials like Trilor has allowed the suitability of cases for immediate loading with great satisfaction for both dentist and patient.

Last generation of complex polymers like Trilor® are a valid alternative to metal as substructures and mesostructures in implantology because they permit to simplify protocols and achieve higher performances.

Trilor® belongs to the FRC (Fiber reinforced composites) family that is revolutionizing the sector of dental prostheses.

Trilor® Arch is the cheapest (no milling machine), fastest and easiest solution (less than 30 minutes to prepare the framework to cover) for a permanent full arch prosthesis.

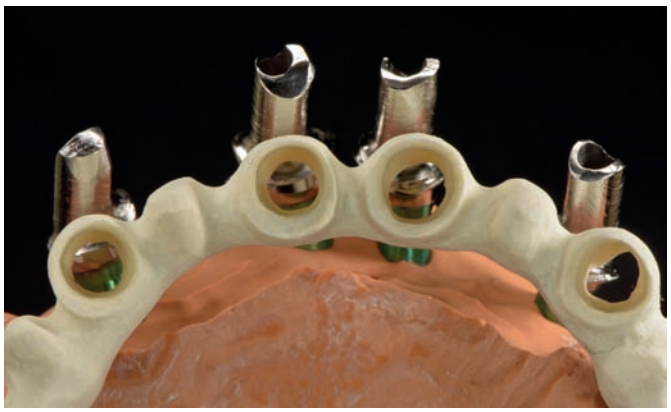
Trilor® Arch is ideal for immediate loading on implants.

The objective of the prosthetic restoration is to restore the anatomy, functionality and aesthetics of partial or total edentuality. The success of a prosthetic therapy depends on a correct treatment plan that represents the sum of medical and operative knowledge, also involving other operators under the guidance of the clinician. The factors that the clinician must evaluate are:

1. the predictability of the reconstruction
2. the biocompatibility
3. the functionality
4. the phonetics,
5. the aesthetics,
6. the duration in time,
7. the economy

***Trilor® is available in discs for digital working and in arches for manual working.***

*Digital working*



*Manual working*

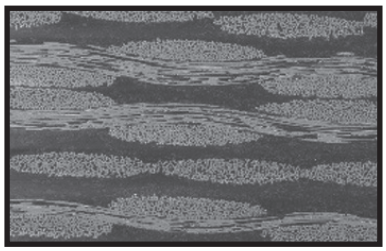
*Photo courtesy of Dr. Gioacchino Cannizzaro - Off. Cdt.Viola*

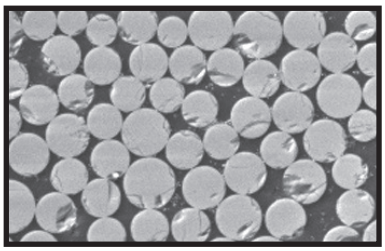
# The Product

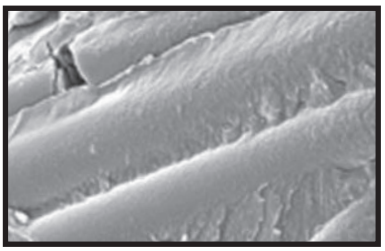
**Trilor® Arch, developed by Bioloren, is an arch made of a new techno-polymer made of a resin matrix and a multi-direction reinforcement of fiberglass.**

FRC (Fiber-Reinforced Composites) are materials used for racing cars, airplanes and many other sectors where the demand of high toughness, low weight and high resistance to efforts are essential requirements.
The woven structure of the fibers reproduces the one of the fabric in a multi directional configuration to offer the best performances.

**The interface matrix/resin represents the most critical point of composite structures. Thanks to an extremely precise and reliable industrial production method, Trilor® offers a level of adhesion between the fibers and the resin matrix that can greatly amplify the technological characteristics of the materia (Synergistic effect).**







*(Photos at SEM University of Pisa – Engineering Faculty)*

Trilor® Arch, through a bench processing with tungsten drills, can be transformed in a permanent or temporary substructure for full arch or small bridges. Trilor® allows to partially or totally edontulous patients to regain the chewing function in a valid and predictable way, through implant-prosthetic techniques like for example “Toronto bridge”, “all-on six”, “all-on-four” and others.

The shape in arches permits to make substructures for restoration of partial or full arch both on natural teeth and on implants, contributing to the restoration of the chewing, phonetic and aesthetic function. Therefore, Trilor® allows the improvement of the patient’s living conditions both from a physiological and a social-relational point of view.

# The Product

**Trilor® Arch is available in 3 thicknesses:**

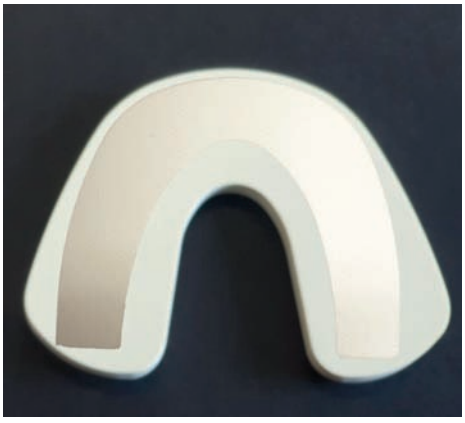
**H 3,5 mm**
Provisional or definitive immediate loading. It can not be modified in thickness, but in width only. Ideal for reinforcement of total provisional prostheses.

**H 5,5 mm**
The most used and the most versatile

**H 7,5 mm**
With its thickness it is possible to compensate any unevenness of vertical positioning of the implants. It is possible to make thimbles.

# Trilor® Arch New and Trilor® Arch Pink

**Trilor® Arch New**
Most clinical cases are solved by standard Trilor Arch, however anomalous cases may occur with implants in limit positions that in the past would have created problems and which are now easily solved using Trilor Arch New.
The new shape, in addition to offering all the features of the traditional Trilor® Arch, is wider in shape and allows the use of this method even in case of highly disparallel implants or implants outside the axis of the dental arch.
Trilor® Arch New is available in 5,5 mm and 7,5 mm thicknesses in ivory white and pink.

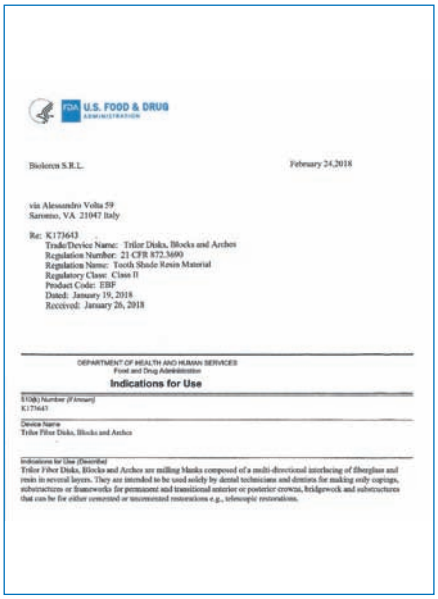


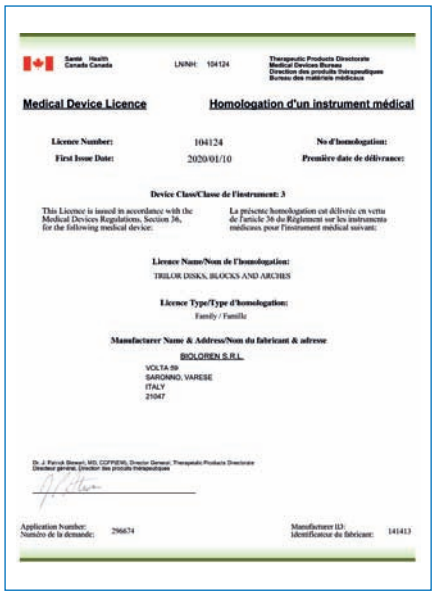
**Trilor® Arch Pink**
Trilor® Arch Pink allows you to solve some prosthetic or clinical needs.
The absence of opaquer allows to avoid the overlapping of multiple materials in the most critical and thin areas of the connections, saving time, space and material used.
The pink color chosen by Bioloren is soft and stable; it is a basic color that is very close to the color of the gum.

# Certificates

Trilor® has received the CE European registration, the American FDA, the Brazilian ANVISA and the Canadian Health for Canada as permanent prosthetic material. Bioloren quality system is certified ISO 13485 and MDSAP.







ANVISA
AGENCIA NACIONAL
DE VIGILANCIA
SANITARIA BRAZIL

Trilor Fiber
Register ANVISA number:
81361440031
80007 - MATERIAL
Cadastro de Famílias
de Material
de Uso Médico / 0553051182

# Technical information

## Physical properties

| | |
|---|---|
| Tensile Strength | 380 Mpa |
| Flexural Strength | 540 Mpa |
| Tensile Elongation | 2% |
| Flexural Modulus | 26 Gpa |
| Tensile Modulus | 26 Gpa |
| Compressive Strength (perpendicular) | 530 MPa |
| Charpy Impact Strength | 300 KJ/cm$^2$ |
| Rockwell Hardnessl | 111 HRR |
| Barcol Hardness | 70 |
| Shore D. Hardness | 90 |
| Density | 1,8 g/cm$^3$ |

## Biocompatibility tests

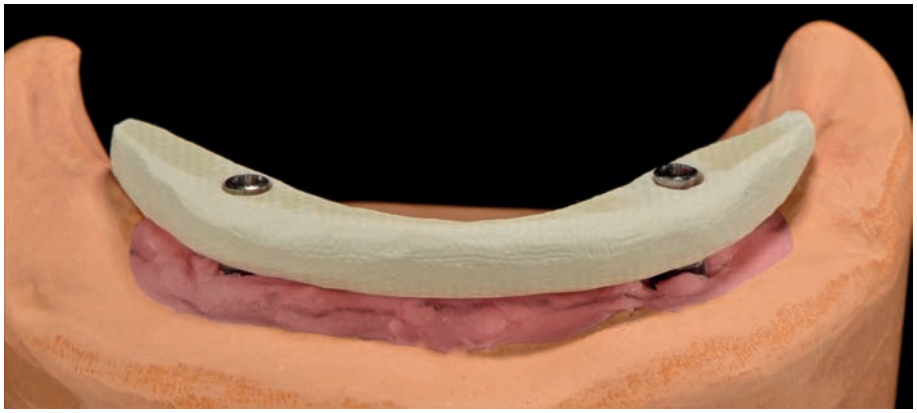
| Test name | Regulation | Result |
|---|---|---|
| Genotoxicity, Carcinogenicity and genetic | ISO 10993-3 | |
| mutation test | Japanise rules | Negative |
| Cytotoxicity test | ISO 10993-5:2009 | |
| | and 10993-5:2000 | Negative |
| Acute System Toxicity | ISO 10993-11:2006 | Negative |
| Delayed Hypersensitivity | ISO 10993-10:2010 | Negative |
| Skin irritation | ISO 10993-10:2010 | Negative |
| Water Absorption and Solubility | ISO 10477-2009 | Insoluble |
| Color stability at 37 °C for 48 hours of | | |
| Solution (Artificial saliva) | Bioloren internal test | Stable |

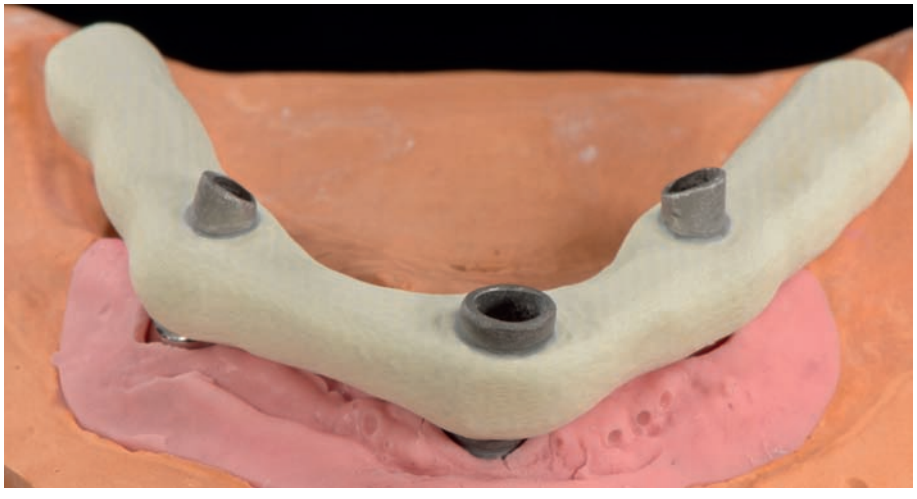
## Mechanic tests

| | |
|---|---|
| Fatigue test (1.200.000 cicli) | University of Siena, Torino, Valencia (E) |
| | and Porsmouth (UK) |
| Flexural test and Hardness (Barcol) | ISO 14125:2000 |
| Fracture Toughness | ISO 6972:2008 Università of Siena, Torino, |
| | Valencia (E) and Porsmouth (UK) |

# Charaterictistics and advantages

| Characteristics | Advantages |
|---|---|
| Stability of the material | Trilor® is processed 1:1 |
| No sintering – no casting | Trilor® keeps its size, it's stable |
| Absence of metal and zirconia | Trilor® s metal-free, without bimetallism |
| No corrosion and oxydation Trilor® | chemically stable |
| Reinforced Glass polymer | Trilor® binds with aesthetic materialsi |
| Aesthetics | Trilor® s white ivory or pink, ideal support material |
| Durability | Trilor® is permanent |
| Fatigue resistant | Trilor® after 1,200,000 cycles (c.a. 5 years of chewing) is stable |
| Reparability | Trilor® is reparable with composites |
| Lightness | Trilor® weighs 3-5 times less than metal and zirconia |
| Absorption of liquids | Trilor® has a technology that minimize the absorption of liquids |
| Time request | Trilor® allows a considerable time saving |



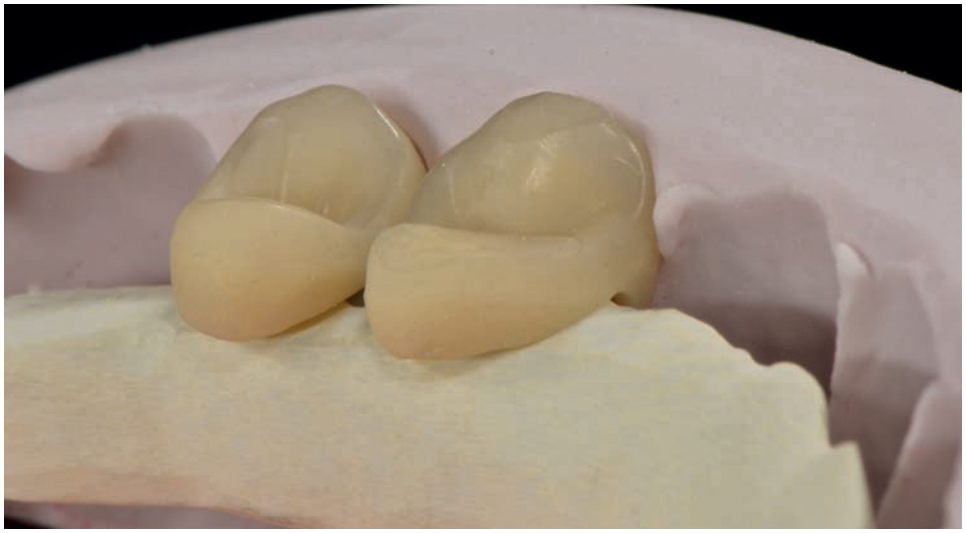


*Trilor is considered the framework of excellence in the Fixed - on - 2 and Fixed - on - 3 prosthetic protocol by Dr. Gioacchino Cannizzaro*

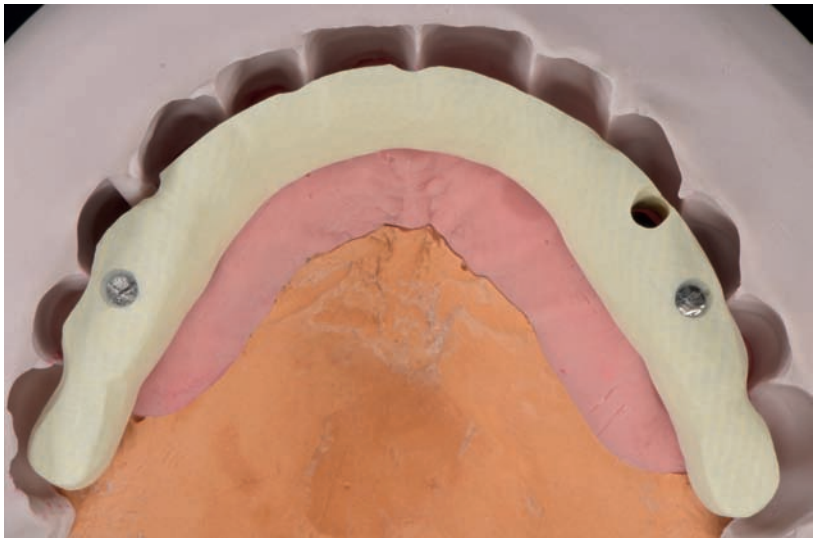
# *Indications for use*

- ✔ Reinforcement bar on implants for immediate or deferred loads
- ✔ Support for immediate bridges
- ✔ Toronto structures
- ✔ Removable, partial or total prostheses with attachments
- ✔ Full arches
- ✔ Transfer key of the exact position of the implants

Biocompatibility and resistance characteristics of Trilor® allow to make muscle releases or relaxation plates (bites) with low weight and high stability.



*The excellent compatibility between Trilor® and artificial teeth greatly reduces the risk of fractures unlike metals with resins. Due to the excellent adhesion of the parts , no mechanical retention is required*



# *Drilling protocoll with wax*

Trilor® Arch is ideal to create a connection among implants. It is required a model that hosts the implant analogous in the detected position and has the abutment inserted and screwed. On the analogous incorporated in the model previously made, the abutments or the cannulas are fixed by means of the proper screw.

**NB:** It is suggested to detect the distances among the abutments with a wax strip or a moldable thermoplastic material, in order to fix the exact positions of the abutments.

*Photo courtesy of Cdt. E. Riccomini*

Report the detected position, overlaying the wax strip on Trilor® Arch and mark with a pencil directly on the material. Position the wax strip over Trilor® Arch and mark the holes on the underlying structure with a pencil.

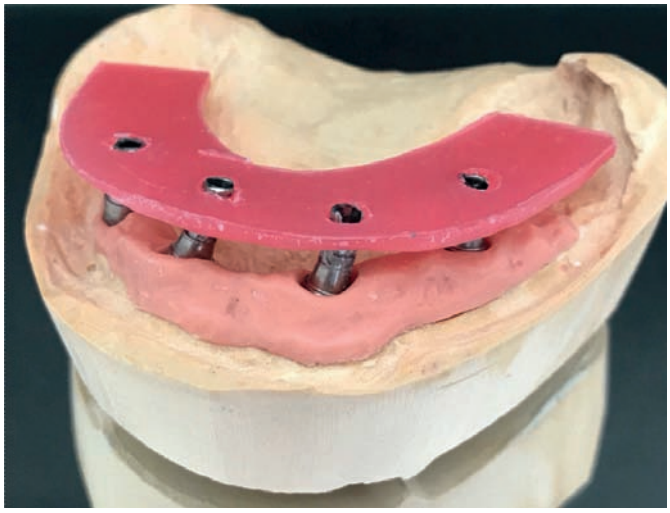


*Photo courtesy of Cdt. E. Riccomini*

Detection on a model of the positioning of the analogues.

Pierce Trilor® Arch to create the housing of implant abutments according to the needs of shape and length decided for the case, using tungsten carbide ball drills. The more accurate the passage hole, the more stable and resistant the structure will be.

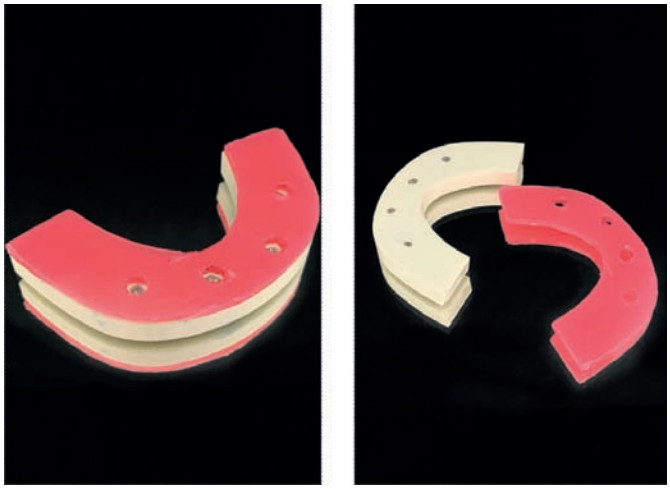


*Photo courtesy of Cdt. E. Riccomini*

# *Drilling protocoll with wax*

Detection on a model of the positioning of the analogues.

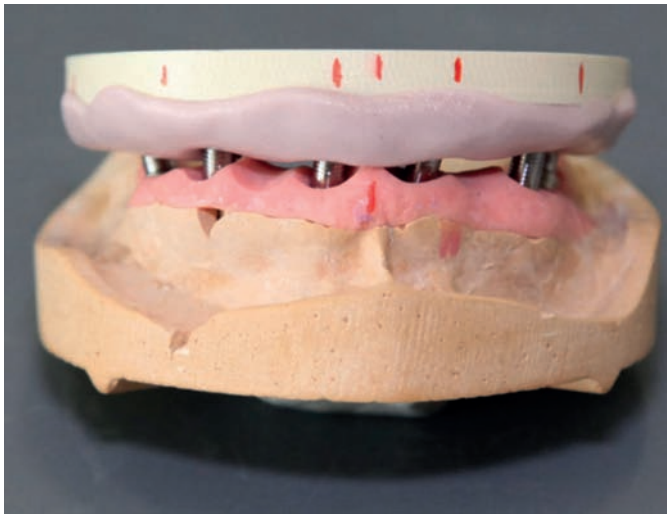


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*Photo courtesy of cdt E. Riccomini*

Draw with a pencil the shape of the bar on the arch.
Model with carbide tungsten drills using a micromotor at max speed of 15000 rpm. To speed up this roughing phase you can also use the trimmer, finishing the handpiece with carbide tungsten drills.

*Photo courtesy of cdt E. Riccomini*

# *Drilling protocoll with wax*

As for all fiber products during the hand milling of Trilor® Arch frameworks it is mandatory to use gloves, mask and protective eyeglasses, combined with a good suction system. After any treatment or processing, the prosthetic framework must be cleaned and disinfected according to the national guidelines before being put “in situ”. Trilor® Arch can be sterilized in autoclave according to international protocols.
Visualization of the use of the micromotor for the pierce of Trilor® Arch.

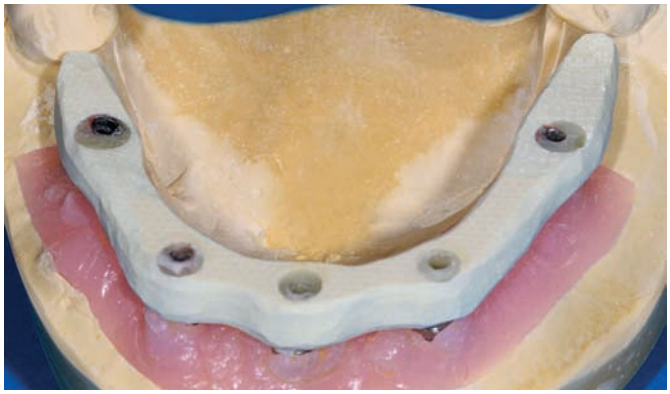
Intermediate phase of structure processing.

Final phase of structure processing

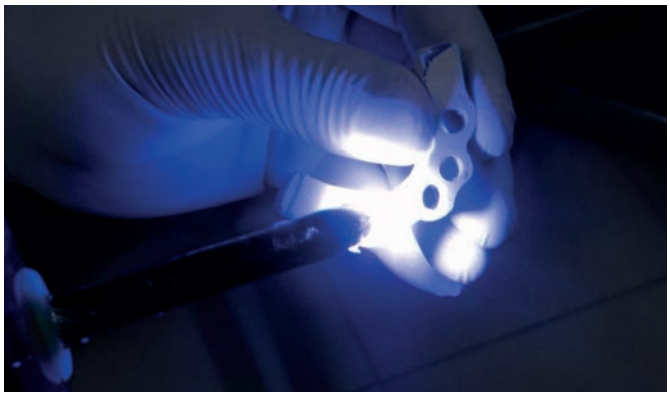
Final phase of structure processing

# *Drilling protocoll with wax*

Final structure

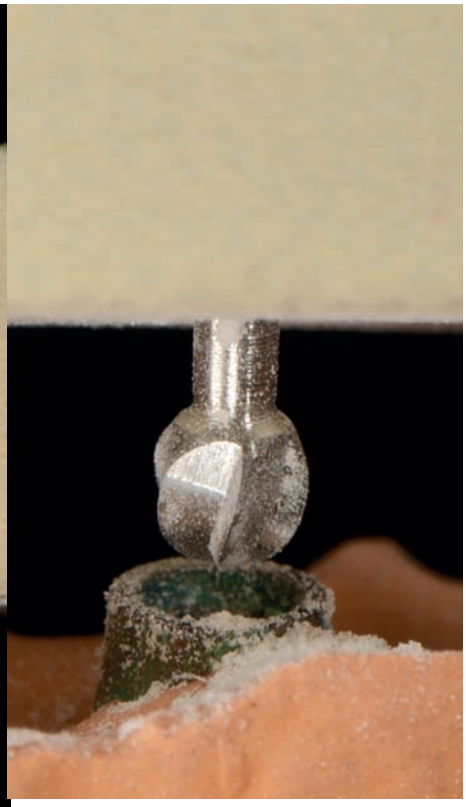


Accurate finishing of the through hole to ensure precise cementation



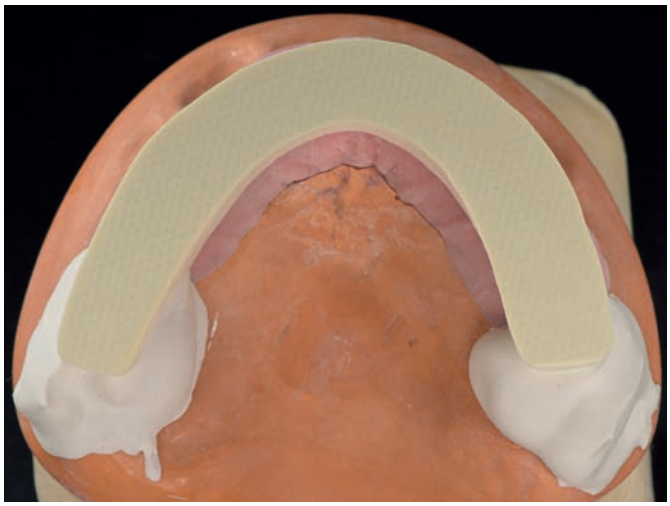
Temporary cementation phase directly in the mouth

# *Protocol with pantograph*



Analogic piercing (Drilling) technique with pantograph

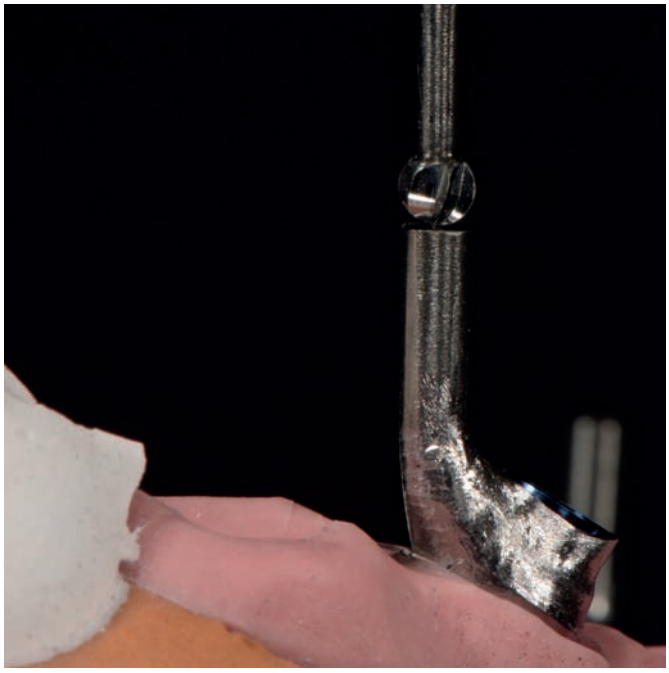
Fit Trilor® Arch directly on the model. Make plaster keys so that it can be removed and repositioned.



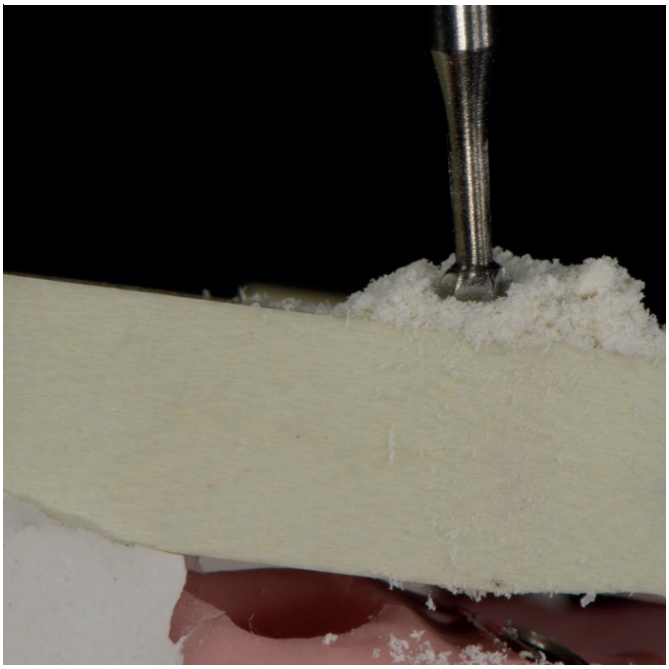
Technique developed by CDT Paolo Viola

# *Protocol with pantograph*

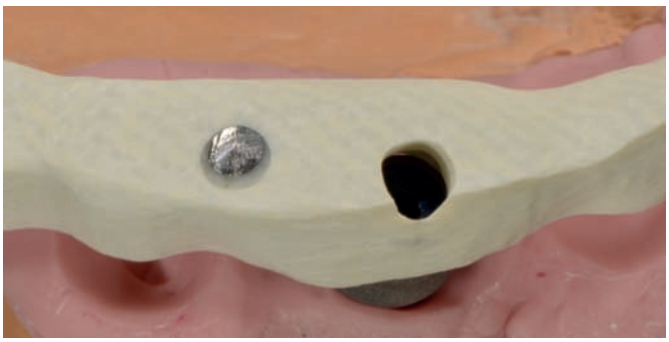
Remove the arch and screw the abutment. Position the millimiter cutter (drill) of the pantograph in axis with the abutment or with the directional beam.



Remove the abutment, reassemble the arch and drill. The pantograph mills following the axis of the abutment forming the seat with the predefined tolerances for the cementation space.



Check the passive insertion and proceed with the adhesive cementation.

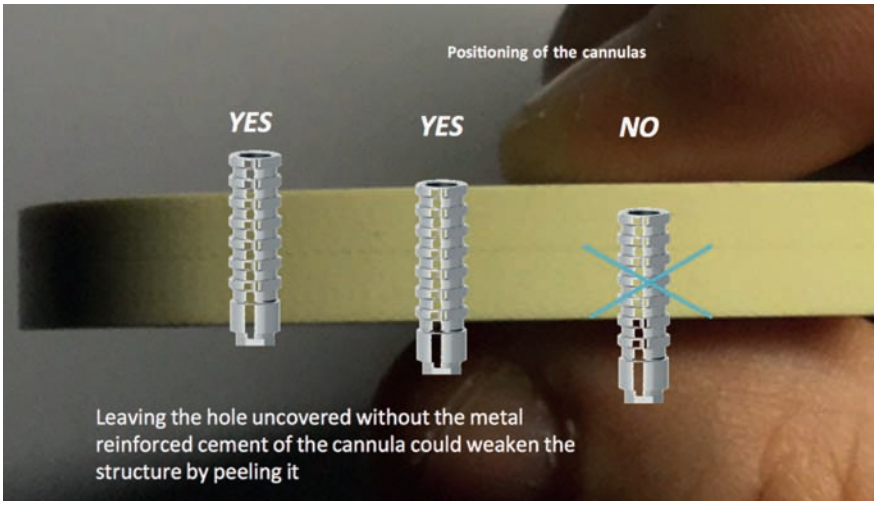


# *Protocol with pantograph*

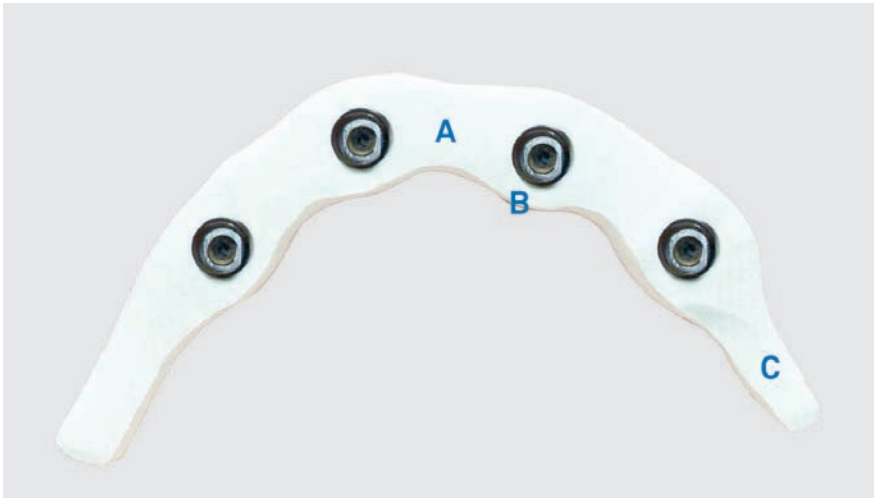
The technique of directional beams and pantograph drilling provides a simple and effective solution even in situation of extreme disparallelism. Of course it is possible to perform these procedures digitally with Trilor® Disk.

# General indication

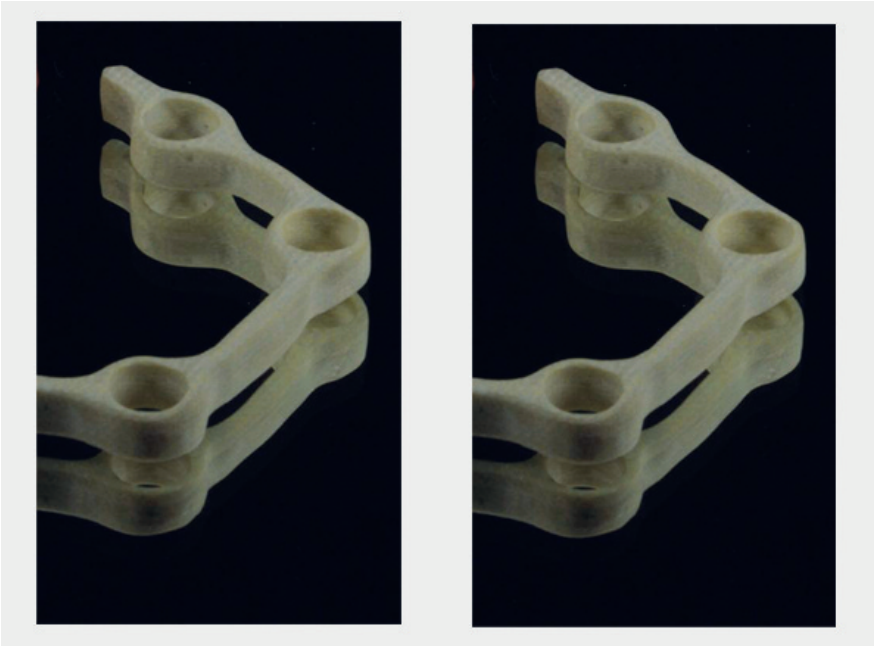
Positioning of the cannulas.
Leaving the hole uncovered without the metal reinforcement of the cannula could weaken the structure by peeling it.
For a correct implementation of the framework, the height of the pillars or cannulas must be equal or greater than the thickness of the Trilor® Arch used, never lower. For this purpose it is recommended to shorten the pillars only after trying the framework.
Positioning of the cannulas.
Leaving the hole uncovered without the metal reinforcement of the cannula could weaken the structure by peeling it.




Recommended thicknesses.
The minimum thickness of the free part between the two abutments shall be of 7 mm² (3,5x2 mm) (A)
The possible cantilever (C ) shall be at maximum 10 mm
The minimum thickness near the holes for cementation with cannulas shall not go under 0,8 mm (B)
For longer cantilever increase the section till 10-12 mm².




For bonding to titanium cannulas choose a self-etching, self-silanizing dual resin cement for metals, ceramics and composites.



# General indication

URC Bioloren e AD+mono adhesive system
The frameworks made of Trilor® Arch can be used as scaffold hosting inside the matrices of implant attachments for mobile prostheses like ball attachments, Locators or similar ones.
According to the clinic needs it is possible to create a housing at the partial thickness inside Trilor® Arch or totally pierce the framework.


Once the cap are positioned, it is possible to proceed making the aesthetic with pressure method or pouring with masks.
The fixing caps steps inside Trilor® Arch can be made with direct method inside the patient's mouth in case of temporary, or with indirect method, that is in the laboratory over model
Once the caps are positioned, it is possible to proceed making the aesthetic with pressure method or pouring with masks.

*Photo courtesy of Cdt. G. Malvisi*

The Trilor® Arch arches can also be used partially (cut in sections) for the creation of structures in separated occlusal sectors (posterior or anterior), considering however the indications for cementation and milling according to the instruction for use and of the present protocol.

*Photo courtesy of Cdt. G. Malvisi*

Gli archi Trilor® Arch sono utilizzabili anche parzialmente (tagliati in sezioni) per la realizzazione di strutture nei settori occlusali separati (posteriori o anteriori), osservando comunque le indicazioni di cementazione e fresaggio delle istruzioni d'uso e del presente protocollo.

# *Lightness*

Trilor® is characterized by lightness, in fact it weighs 3 to 5 times less than metals and zirconia. The lightness of a prosthesis is very important because it avoids decubitus and reduces bone resorption.

***Prosthesis in Zirconia:***


***Prosthesis in Titanium:***

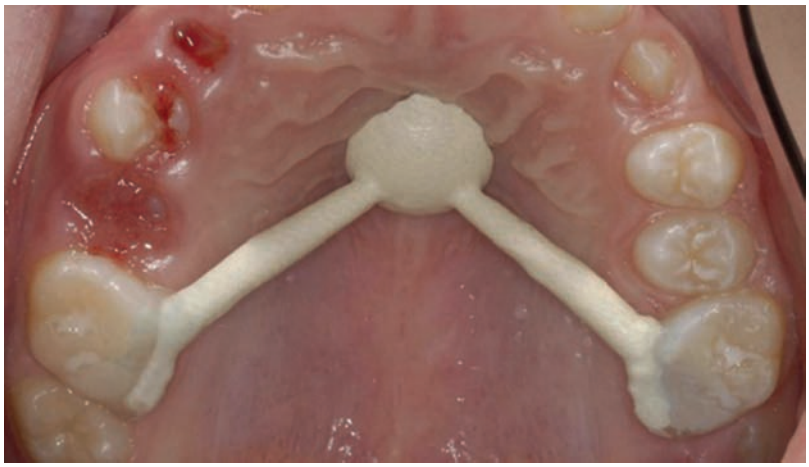

***Prosthesis in Trilor®:***


Photos courtesy of Alien Milling (USA)

# *Biocompatibility*

Trilor® can remain exposed to oral fluids and in contact with mucous membranes as demonstrated by the numerous biocompatibility tests carried out and by clinical works in orthodontics that have been in the mouth for years now. Trilor® can be “mirror” polished with silicone rubbers and diamond paste.

***Matteo Beretta DDS, orthodontic expander***



***Giovanni Malvisi CDT, orthodontic retainer***

Frameworks made from Trilor Disk

# How to complete aesthetic and function on stuctures made of Trilor®

**Acrylic resin (PMMA)**
Sandblast Trilor using disposable aluminum dioxide at 110 micron at 2 bars.
Clean with air jets and ethyl alcohol.
Treat with silane and let it evaporate for a few minutes (3-5).
Apply the acrylic resin directly on the Trilor, following the operating protocol indicated by the manufacturer of the aesthetic material.

**Composite (by layers)**
The composite veneer can be made with the layered or muffle pressing technique.
Composites improve aesthetics and stability over time, the possibility of repairing any fractures in the aesthetic material and better absorption of stress.
Sandblast Trilor using disposable aluminum dioxide at 110 micron at 2 bars.
Clean with air jets and ethyl alchol
Treat with silane and let it evaporate for a few minutes (3-5)
Apply the bonding of the composite you intend to use.
Follow the instruction for use of composite manufacturer.

**Lithium disilicate**
The reconstruction of aesthetic-functional parts in lithium disilicate on structures made of Trilor is carried out through the creation of elements (crowns or veneers) in disilicate which are “solidarized” to the support structure (Trilor) through adhesive cementation.
Sandblast Trilor using disposable aluminum dioxide at 110 micron at 2 bar.
Clean with air jets and ethyl alchol
Treat with silane and let it evaporate for a few minutes (3-5)
The lithium disilicate surface that will come into contact with Trilor (internal part) must be sandblasted using aluminium dioxide at 110 microns at 2 bar pressure.
Use 5% hydrogenated gel for 20 seconds and clean with water for 3 minutes in an ultrasonic bath.
Apply the silane in the lithium disilicate crown and proceed with cementation as directed by the manufacturer of the resin cement in use.

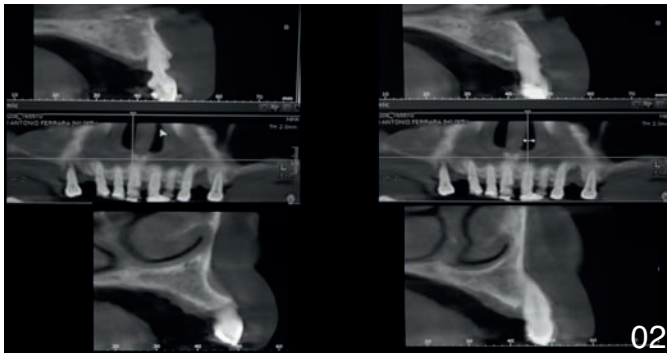
**Zirconia**
The reconstruction of aesthetic-functional parts in zirconia on structures made of Trilor is carried out with the creation of elements (crowns and veneers) which are “solidarized” to the support structure in Trilor through adhesive cementation.
In the presence of aesthetic reconstructions involving entire posterior quadrants or entire frontal groups in zirconia the use of single cemented crowns is recommended.
The use of extended zirconia solutions (multi-elements) on a less rigid material and with a very different elastic modulus, such as Trilor, can cause the zirconia cover to break or separate.

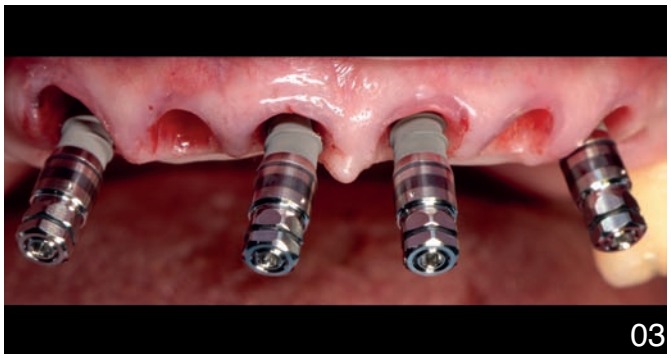
**Feldspathic ceramics Cerec**
The adhesion of Cerec type feldspathic ceramics is very good due to the contained silica component and the final aesthetic result is excellent as well as the resistance for a synergistic effect.

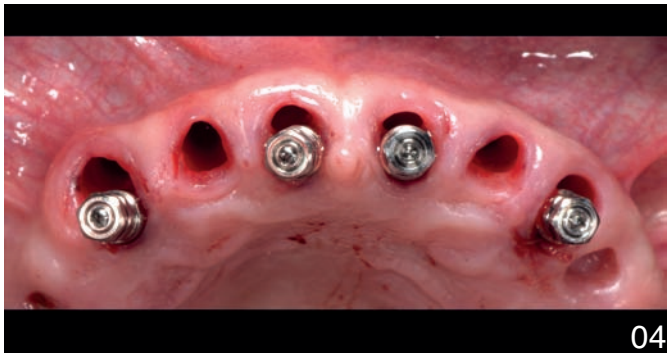
**Cementation of Trilor® restorations**
Proceed with sandblasting of internal surfaces with disposable aluminum dioxide at 110 micron at 2 bar.
Clean with jets of air or a light blow of steam. Do not contaminate the sandblasted surface.
Use the primer between the Trilor® framework and the tooth abutment or the metal implant component (abutment).
All adhesive cementations are suitable for Trilor®.

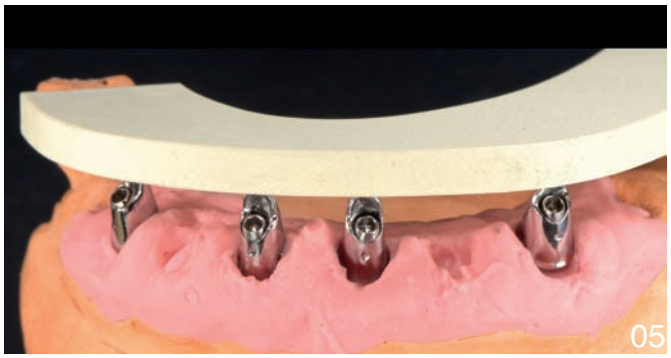
# *Clinical case: temporary cemented immediate loading*

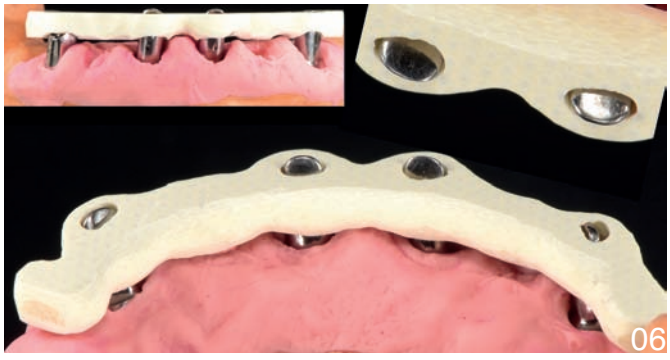
## *Dr. Gioacchino Cannizzaro - Cdt. Paolo Viola*



# Clinical case: temporary cemented immediate loading

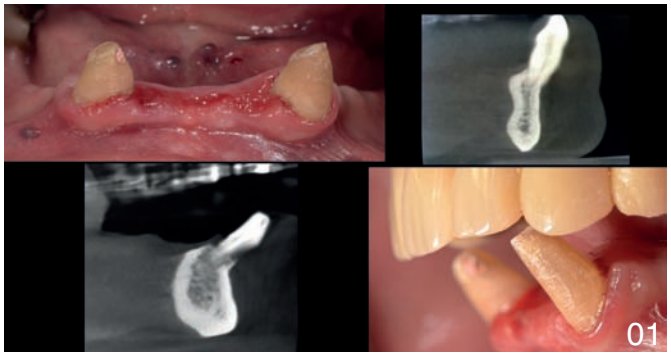
## Dr. Gioacchino Cannizzaro - Cdt. Paolo Viola


09


10

# Clinical case: Fixed - on - 2

## Dr. Gioacchino Cannizzaro - Cdt. Paolo Viola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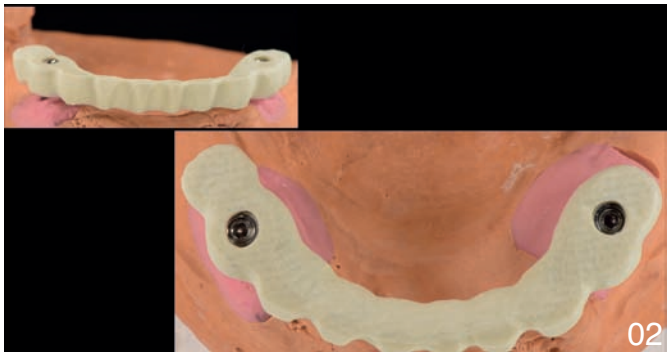
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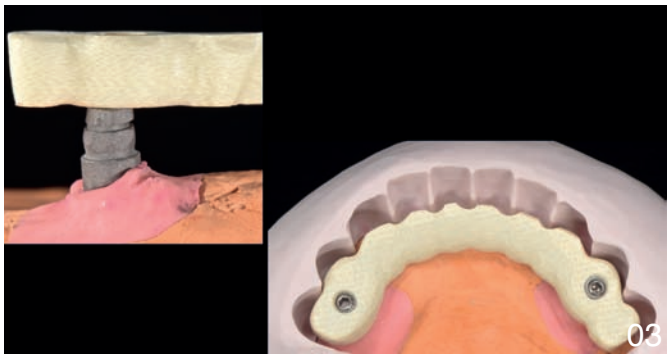
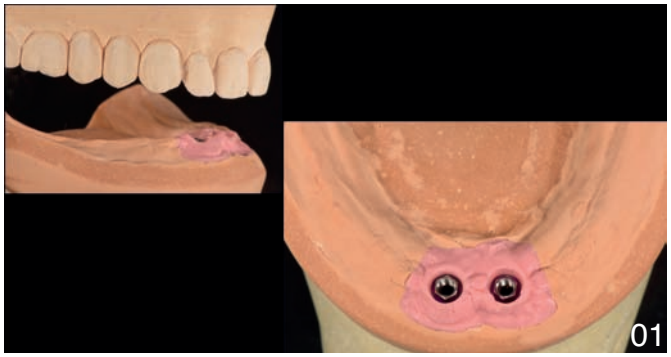

03

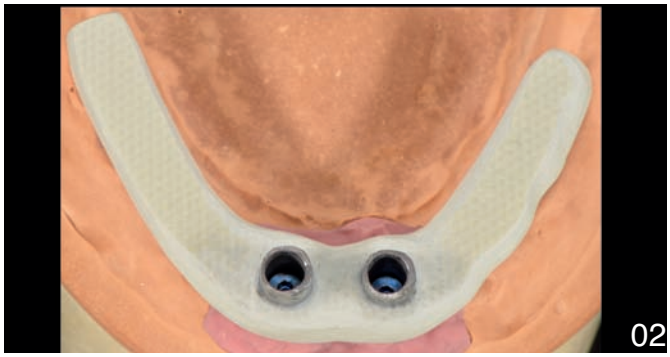

04

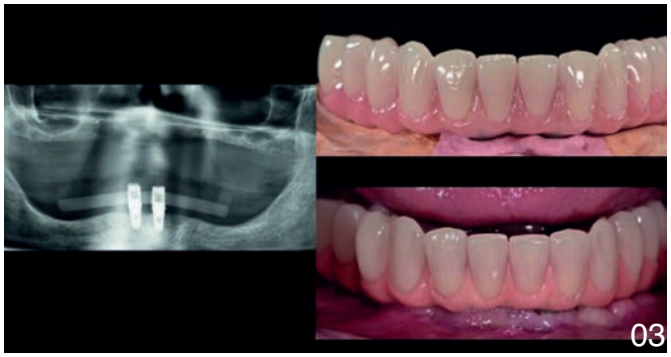

05


06

# Clinical case: Fixed - on - 2 with Syra Magnum
## (Sweden Martina - case 1)

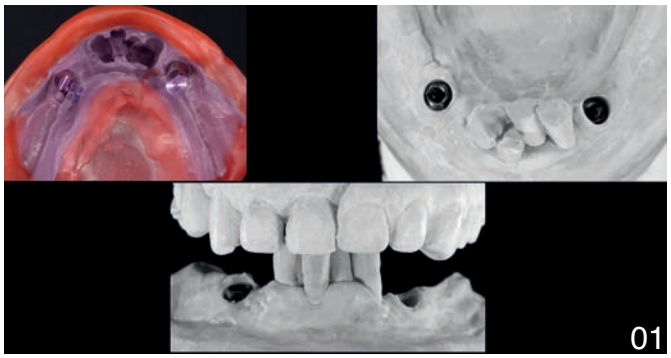


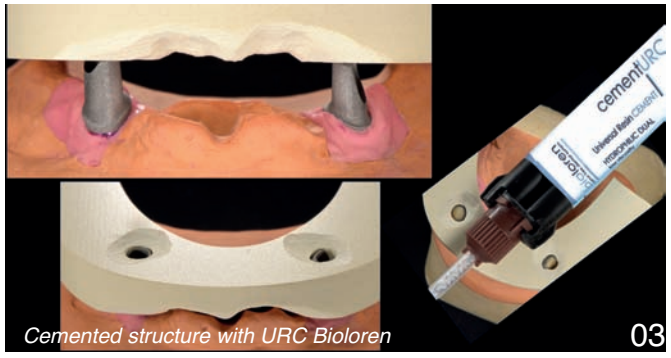




*Dr. Gioacchino Cannizzaro*
*Cdt. Paolo Viola*

# Clinical case: Fixed - on - 2 with Syra Magnum
## (Sweden Martina - case 2)



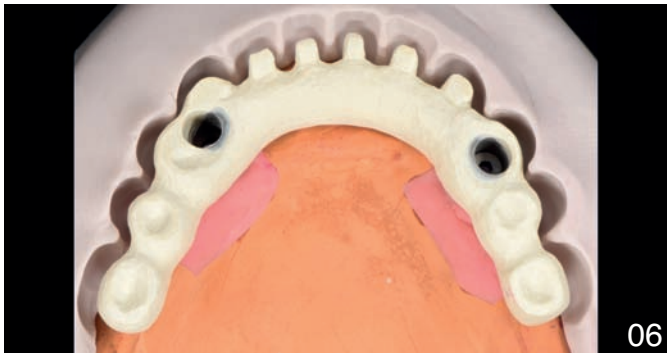




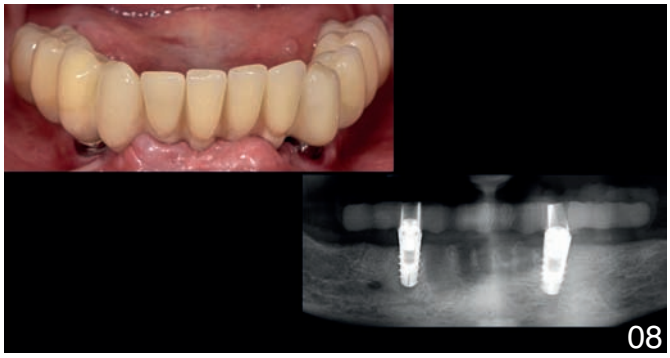

*Cemented structure with URC Bioloren*

# *Clinical case: Fixed - on - 2 with Syra Magnum*
## *(Sweden Martina - case 2)*


05

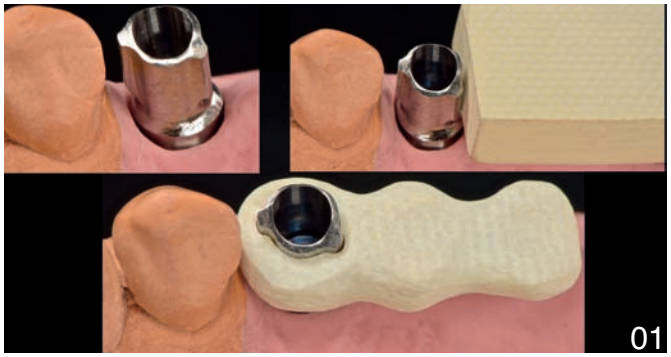

06


07


08

# *Clinical case: 3 - on - 1*

## *Dr. Gioacchino Cannizzaro - Cdt. Paolo Viola*


01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# *Clinical case: Fixed - on - 3 with directional beams*

## *with Prama - Sweden Martina*

*Dr. Davide Di Paola - Cdt. Paolo Viola*


01


02


03


04


05


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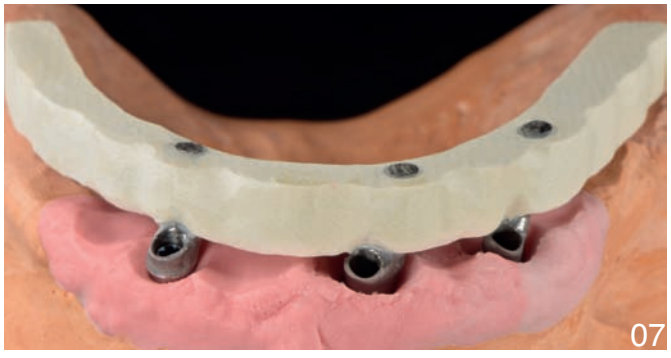
07


08

# *Clinical case: Fixed - on - 3 with directional beams*

## *with Prama - Sweden Martina*

## *Dr. Davide Di Paola - Cdt. Paolo Viola*


09


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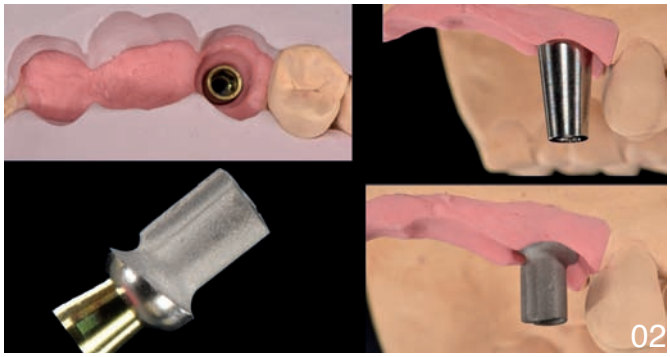
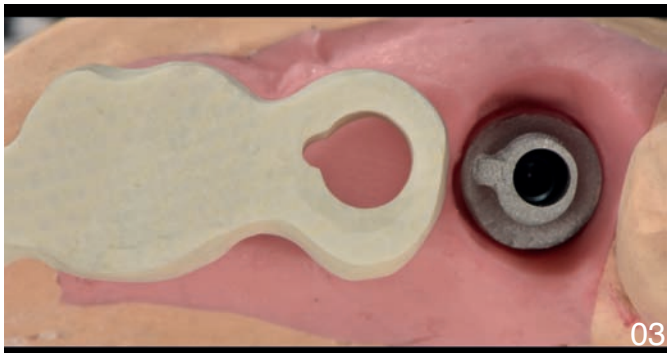
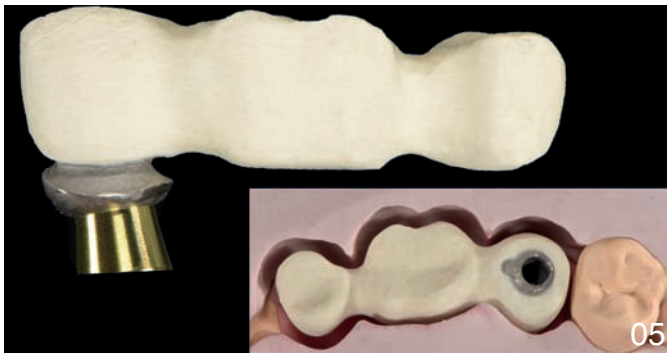
# *Clinical case: 3 on 1 Prama Long Neck - Sweden Martina*
## *Dr. Gioacchino Cannizzaro - Cdt. Paolo Viola*









*Trilor demonstrates excellent adhesion with composites*

# *Trilor Faq*

**What are the differences between Trilor® and other metal free materials on the market?**
Other metal free materials are Peek and PeKK, both thermoplastic. Even if reinforced with glass particles, they have an elastic modulus of less than 4 GPa (human bone ranges from 20 to 40 GPa, Trilor has 26 GPa).
They present adhesion difficulties. To guarantee tightness, the connectors cannot be less than 13 mm2. They are mainly used as provisionals. If exposed they cause bad smell.
Zirconia metal free ceramic material is very rigid. With 220 GPa of elastic modulus, it often represents a condition not suitable for the absorption of chewing loads, especially on implant supports. Its processing is burdened by the need for heat treatments for its stability (sintering at high temperatures), by difficulties in adhesion with other materials and by the impossibility of repair, therefore high costs and risks. Cases of decay over time are reported in the literature.
Beyond the structural differences, Trilor® can remain uncovered and in contact with mucous membranes by polishing it.

**Is Trilor® relining and repairable?**
Trilor® can be relined with normal composite materials which, having a glass component, bind perfectly to the prepared structure. Therefore, even in the event of a fracture, it is possible to easily repair the structure, which can be temporarily guaranteed.

**Is there an aesthetic Trilor® ?**
Trilor® cannot be considered an aesthetic material because its translucency is not sufficient to guarantee the common aesthetic requirements, but it can still be used for the realization on anatomical posterior and functional prosthetic structures, polishing it with rubber pads for composite materials. Trilor structures are recommended and suitable for supporting aesthetic materials such as composite, acrylic resin, lithium disilicate, aesthetic ceramic and zirconia.
Some of these materials do not have a chemical affinity with Trilor® due to the absence of a glass component, which does not allow the use of direct adhesion methods. To cover Trilor® structures with ceramic materials, over-bonding and cementation are recommended, using techniques and protocols subject to temperature never exceeding 150 °C.

If it is chosen to reconstruct the dental anatomies using composite materials, follow the specific directions for use of the materials for bridges and crowns.

**Is it possible to opacify the Trilor® structures?**
Yes, it is possible with an opaquer for resin or composite.

**Is it possible to put Trilor® in the oven?**
No, do not exceed 150 °C in order not to risk structural problems.

**What is the minimum vertical thickness on a thimbles structure?**
The minimum thickness for the Trilor® material is 3,5 mm, however a thimble can typically range 6-8 mm, so the vertical restorative space the patient exhibits will provide for the thimble thickness, which is a reduction of 1,0 mm to accommodate a crown. Meaning 3,5 mm is the minimum thickness, but it won't be very retentive for a crown to be cemented on it, so it is best to have a thimble 1,0 mm less than the final size of the crown.

# *Trilor Faq*

As far as minimum thickness, the indication for that with Trilor® is 3,5 mm, meaning it should not be reduced less than 2,5 mm in order to maintain its geometric stability; Nonetheless, when doing a thimble type of substructure be careful at the preparations and particularly at the gingival third to not go below 3,5 mm. Rather in CAD design, you want to have 1 mm less than the final design. That allows a uniform thickness on your crown and/or overdenture; the more uniform overall, the better support it enjoys. Also, the Anterior-Posterior spread really has to be adhered to and I would be on the more cautious side to prevent any failures. Trilor® is a fantastic product that is very strong, but maintaining thickness will provide you with greater yield strength and stability.

**Is Trilor® approved for permanent restorations?**
YES, from American FDA, from Canada Health, from Brazilian ANVISA and from European CE.

**What colors are available in Trilor® Arch?**
The white ivory is the best indicated for all restorative options including thimble style bar. Pink color ideal wrap around denture bar implant supported prosthetics. The pink color arch eliminates the need for opaquer for greater thickness under the denture.

**Can you add a cantilever to a posterior of a Trilor® bar?**
Yes, Up to one molar width and follow the Anterior/Posterior spread to avoid any fulcrum effects on the implant and reinforce connector width and height from abutment to pontic.
The minimum thickness of the free part between the two abutments shall be 7 $mm^2$ (3,5x2 mm)
The possible cantilever shall be at maximum 10 mm.
The minimum thickness near the holes for cementation with cannulas shall not go under 0,8 mm.

For longer cantilever increase the section till 10-12 $mm^2$. (see pag 18)

**Can I use Trilor® to make 12 unit bar, with 4 implants and Zirconium crown, pink gengiva?**
It all depends on the distance between the most anterior to the most posterior implant site(s), which is called A/P spread; and the bar should not encompass greater than 2 pontic distance. It further depends, on the patients bite and if they have any paranormal functions, like brushing or clenching. Not knowing much about the case, it would be difficult to truly assess it's success, but if done right and all indications are considered, it should be fine.
Ideally, if the implant sites are the laterals and the first premolars and the bar will only extend to the first molar and make sure to comply or exceed with all thickness measures, it should be fine. Individual preparations need to be 3,5 mm or greater and be careful to overly narrow the anterior thimbles. Furthermore, the wall of a multi-unit connection should be 1,5 mm or greater to absorb the forces adequately.

**Is the bonding steps necessary when bonding Trilor® to composite?**
Yes, every bit helps.

**What adhesive material can I use for Trilor® ?**
Bioloren adhesive system made of URC and Ad+Mono is very good. Other cements should be evaluated to ensure that they do not have dimensional changes such as shrinkages or expansions that have not been taken into account.

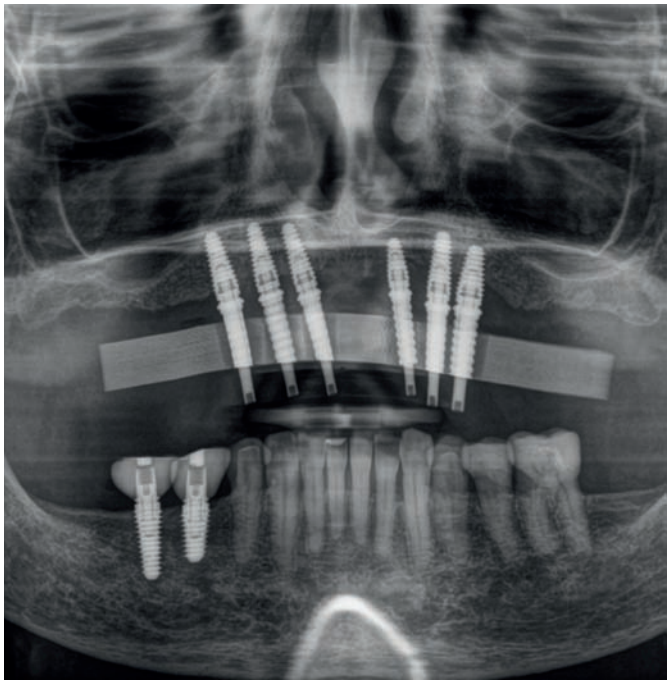
# *Trilor Faq*

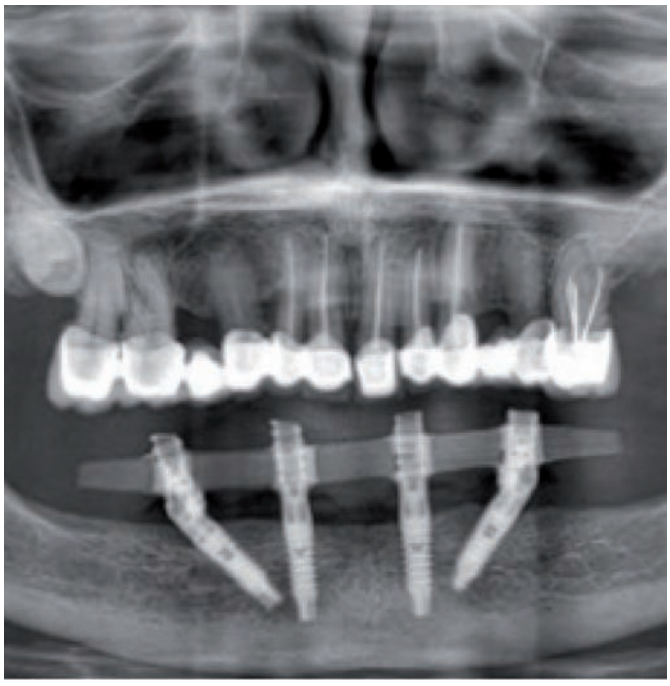
**How to behave in case of disparallelism?**
If there is an accentuated disparallelism between the cannulas, it is recommended to proceed one hole at a time, leaving the cannula inserted and blocking it with resin.

**How to finish (polish) the structures?**
The finishing of the surfaces in Trilor® must be performed with drills that allow to obtain uniformly smooth surfaces. We suggest to use the tools for PMMA surfaces.
Polishing instead of exposed areas, must be done with silicone rubber pads such as those used for composites and diamond paste.

**How to remove the restorations?**
Be careful when removing fixed restorations. Avoid leverage in thinner parts, such as Connectors.

**Is Trilor® Arch visible at X-rays?**
Yes, as demonstrated by the X-rays





# *Warnings*

**Disinfection**
After any treatment or processing, the prosthetic structure must be cleaned and disinfected according to national guidelines before being placed “in situ”.

**Preventive security measures**
Trilor® Arch produces dust when manually milled, therefore it is recommended to wear protective gloves and a mask and use a vacuum system.guanti e mascherina protettivi ed utilizzare un sistema di aspirazione

**Side effects**
There are no known undesirable side effects if the Trilor® material is used as directed.

**Contraindications to use:**
- Insufficient oral hygiene
- Application of ceramic (high process temperature)
- Insufficient space available (ex; us of Link Ti-base too low: <4 mm).

**Disposal**
Trilor® waste can be disposed of with normal household waste.

# *Packaging: Trilor Arch Standard and New*




# *Kit Intro Arch*

The kit consists of 2 Trilor Arches (1 arch of 3,5 mm and 1 arch of 5,5 mm) and a Universal Resin Cement syringe URC of 5 grams with 5 straight mixing tips. The Kit Intro Arch can be completed with the sale of commercial teeth in acrylic resin or composite (Bioloren does not sell commercial teeth) providing the technician with all the materials for a quick and complete construction of the implant prosthesis.

**Trilor® Arch traditional shape**

| | |
|---|---|
| TA 3.5 | Trilor arch 3,5 mm box 3 pieces |
| TA 5.5 | Trilor arch 5,5 mm box 3 pieces |
| TA 7,5 | Trilor arch 7,5 mm box 3 pieces |
| TA KIT | Trilor arch kit 3 pieces (one for each size) |

**Trilor® Arch New**

| | |
|---|---|
| TA 5.5 N | Trilor arch 5,5 mm New box 2 pieces |
| TA 7.5 N | Trilor arch 7,5 mm New box 2 pieces |
| TA 5,5 R | Trilor arch 5,5 mm New Pink box 2 pieces |

**Kit Intro Arch**

2 Trilor arch
1 URC and mixing tips

# *Testimonial Trilor® Arch*

**Guillermo Cabanes Gumbau, DDS, University of Valencia, Spain**

In atrophied jaws, the use of Trilor® Arch with the All on 4 technique provides adequate functional and aesthetic results after 2 years of follow-up.

**Jeremy Wohlers, CDT , Estetic in Function Dental Lab, Yakima, WA, US**

I was impressed by the ease of use, adhesion and lightness of the final prosthesis. Trilor® Arch allows me to earn more on cheaper cases than Full Arch premium solutions.

**James Devige, CDT , Dental Works West, Arroyo Grande, CA, US**

With the preformed Trilor® Arch I can fabricate a structure in a few minutes in my own laboratory, saving time and money, while providing a lighter and stronger restoration.

**Jason Dumbar , CDT , Guided Dental Ceramics, Naples, FL, US**

From the laboratory's point of view Trilor® material is hard, but not so hard that it cannot be worked easily. So despite its hardness, it works with standards carbide or diamond drills. The first time I started working on it, I had no idea how the material could be worked. I found pleasantly that it is a very strong material, but at the same time quite easy to work with.

**Cory Gleen DDS Winchester TN , US**

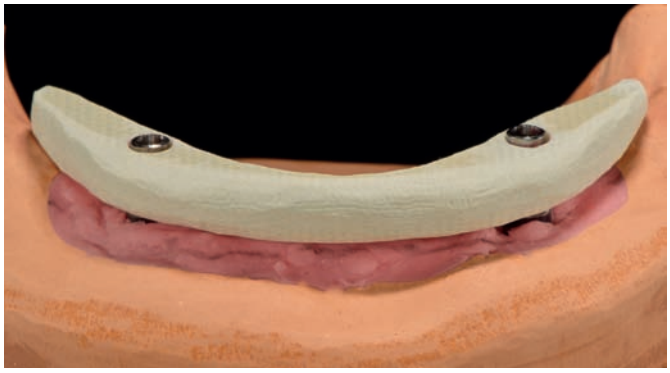
It is very important that Trilor® is an incredibly resistant material, I do not have a frail physique and I squeezed it with all my strength and was unable to break it.

**Elie Fares, CDT Beirut Lebanon**

Trilor's innovation and simplicity are the key to the success of restorations in modern and complex dentistry.

# *Trilor's innovation and simplicity are the key to successful restorations in modern and complex dentistry.*

Cdt. Giovanni Malvisi



Off. Cdt. Viola

*The commercial names of the products Locator, Cerec, Peek, Pekkton, Prama, Syra Magnum are not owned by bioloren*

**A special thanks for the realization of this report goes to:**

Dr. Matteo Beretta

Dr. Gioacchino Cannizzaro

Dr. Davide Di Paola

Dr. Mauro Fazioni

Dr. Alessandro Vichi

Cdt. Luca Allegrini

Cdt . Giovanni Malvisi

Cdt. Vito Minutolo

Cdt. Luigi Miscioscia

Cdt. Emanuele Riccomini

Cdt. Paolo Viola

Cdt . Massimo Visdomini

Alien Milling (USA)

bioloren®
metal free dental solutions

# Solutions for **Metal Free** Dentistry

## TRILOR® DISC


## TRILOR® ARCH

**Trilor**, technopolymer developed by Bioloren, represents the ideal solution for metal free dentistry.

• **Permanent** • **Resistant** • **Cost saving** • **Light** • **Biocompatible**

*Both for CAD/CAM and for manual use*

***FDA – CE – CANADA – ANVISA***

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www.bioloren.com

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metal free dental solutions


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**www.bioloren.com**

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