HTL
CAD/CAM-Lab

SOLUTIONS *for* RECONSTRUCTIONS IN CAD-CAM

bti
Human
Technology

HTL is a centre for design and production of structures by means of CAD/CAM. It belongs to the BTI business group and was created with the intention of providing an excellent implant rehabilitation service.

We are at the forefront of technology and new materials, making a wide range of solutions available to our customers to rehabilitate their prostheses using excellent materials.

We have 5-axis milling machines, equipped to operate with a precision of 5 microns, to manufacture prostheses and a wide variety of materials including Cr-Co, titanium, zirconium and disilicate.

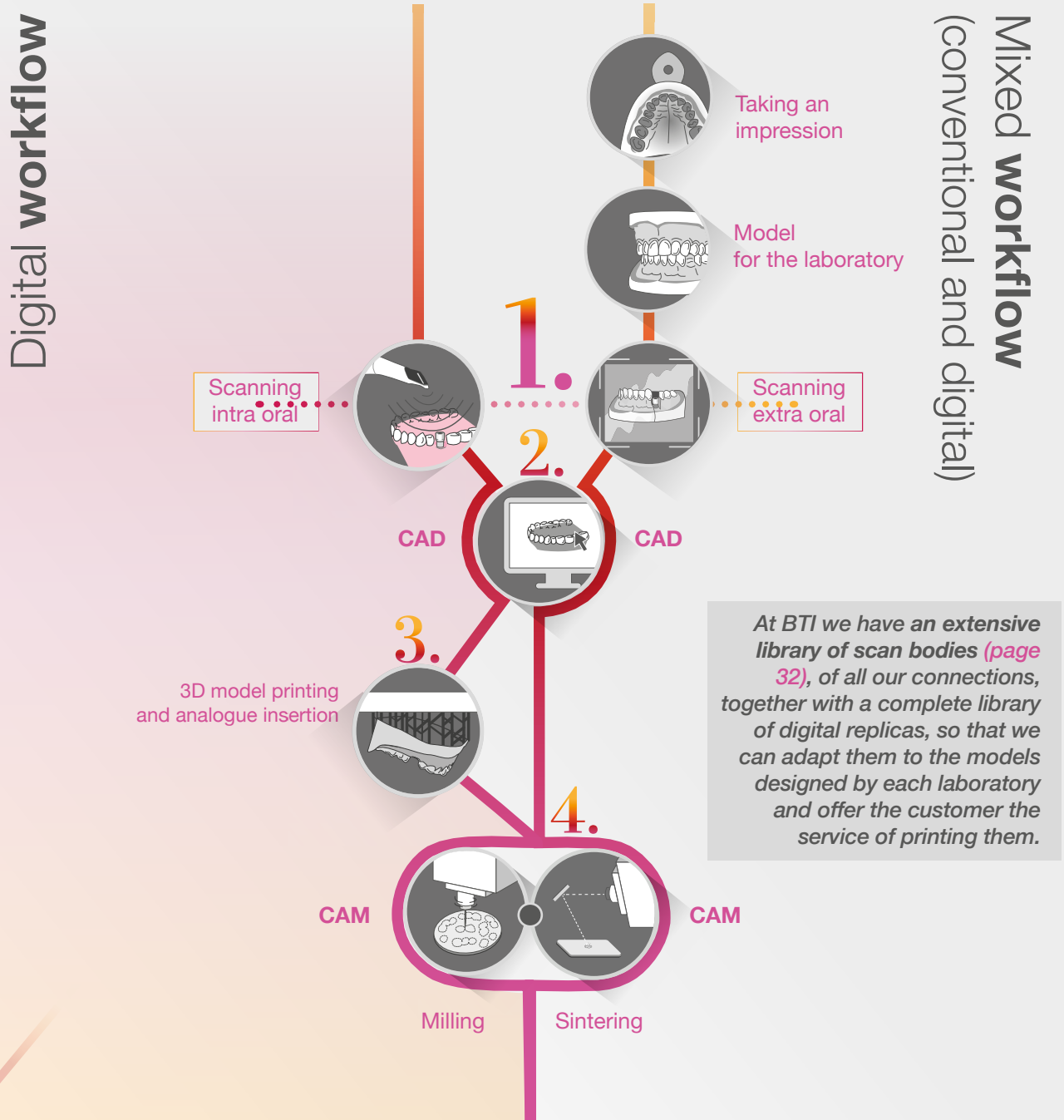
WHO WE ARE

INDEX

WORKFLOW

We currently have various ways of making prostheses; we can work with a fully digital workflow, or with a mixed workflow which combines conventional and digital methods.

At HTL, we want to help our customers to choose the working method that best suits their needs, offering a scanning, design and milling service (CAD-CAM), or simply milling (CAM) if they already have access to a scanner.



*At BTI we have **an extensive library of scan bodies** (page 32), of all our connections, together with a complete library of digital replicas, so that we can adapt them to the models designed by each laboratory and offer the customer the service of printing them.*

Types of WORK

Structures made using different materials, **Ti, Cr-Co, PMMA, PEEK...** on **5-axis** milling machines and **on any platform**, ensuring a **high-precision passive fit** on structures of **up to 14 teeth**.

We help our clients, users of any implant system, to achieve their objective:

WE DESIGN STRUCTURES ADAPTED TO YOUR NEEDS.

Cr-Co

Ti

MATERIALS AVAILABLE

Cr-Co

Ti

Cr-Co

Ti

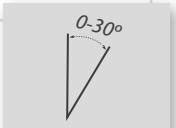
Zr

PM MA

COMPO-SITE

SCREW-MOUNTED ANATOMICAL UNIT

CUSTOMISATION OPTIONS:

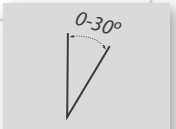


Adjustable angle

Ti-Golden®

CUSTOMISED ABUTMENT

CUSTOMISATION OPTIONS:

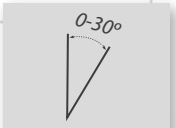


Adjustable angle

Ti-Golden®

SINGLE ON INTERFACE

CUSTOMISATION OPTIONS:



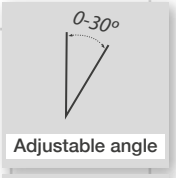
Adjustable angle

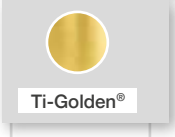
Ti-Golden®

CEMENTED CROWN OR BRIDGE

SCREW-MOUNTED ANATOMIC BRIDGE

CUSTOMISATION OPTIONS:





MATERIALS AVAILABLE

Cr-Co

Ti

Zr

PMMA

COMPO-SITE

Cr-Co

Ti

Cr-Co

Ti

Zr

PM MA

COMPO-SITE

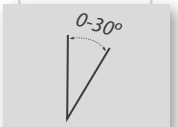
MATERIALS AVAILABLE

Cr-Co

Ti

BRIDGE ON INTERFACE

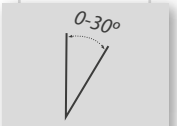
CUSTOMISATION OPTIONS:



Adjustable angle

SCREW-MOUNTED ANATOMICAL REHABILITATION

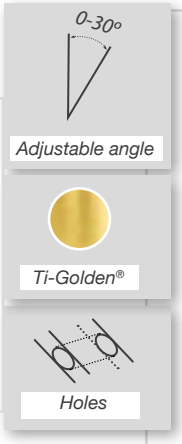
CUSTOMISATION OPTIONS:



Adjustable angle

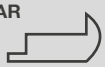
HYBRID BAR

CUSTOMISATION OPTIONS:



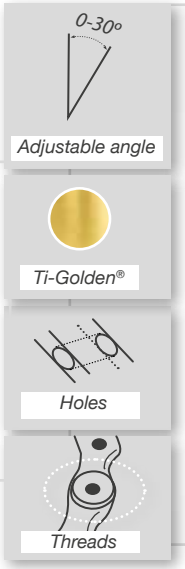
Design options:

HYBRID BAR No 1 

HYBRID BAR No 2 

SINGLE BAR

CUSTOMISATION OPTIONS:



Design options:

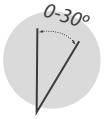
FREE FORM BAR 

U-SHAPE DOLDER BAR® 

BAR HADER 

OPTIONS TO IMPROVE THE AESTHETIC FINISH

Available for all our rehabilitations

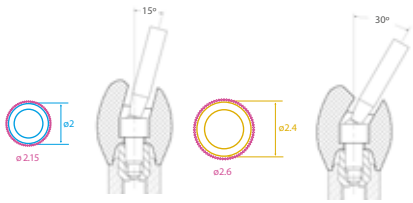


1. Changing the angulation of the emergences

Our CAD technology **allows us to internally angle the structure between 0-30º.**

INITIAL ***CORRECTION***

*Anatomical structure for ceramics in Cr-Co with angle **correction up to 30º***



ANGULATION OF THE CONNECTIONS

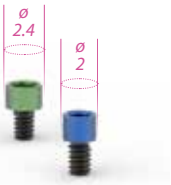
The use of BTI's own design of **small-headed screws in Ti Black** (specific surface treatment) facilitates the securing of the prosthesis that we have angled, with a preload similar to gold.

HEXAGONAL SCREWS

REDUCED HEAD TO ENABLE ANGULATION TO BE CHANGED BY UP TO 30º

The **TTMIR** *screw for Multi-Im® with the smallest bendable head on the market for CAD/CAM structures.*

direct to implant



for Multi-Im®

2. Ti-Golden® surface treatment

The machined structures in our CAD/CAM, **laboratory can now have a specific surface treatment, Ti GOLDEN®, added to them, which gives them a number of biological and aesthetic advantages.**

OPTIONS TO IMPROVE THE AESTHETIC FINISH

Available for all our rehabilitations

OTHER FINISHES

Available for all types of bars

1. Transverse holes

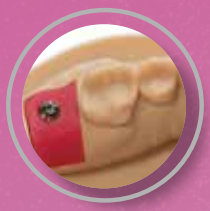
2. Locator threads

3. Ball attachment

HOW TO SUBMIT
work

SEND A MODEL

In order to do a good job in CAD-CAM, all the models sent should have the following characteristics:

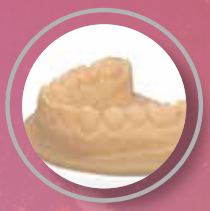


EXPOSED ANALOGUE

REMOVABLE GUMS

ADJACENT TEETH REMOVABLE

(sometimes it will be necessary because they interfere with the scan).



MODEL OF THE ADJACENT TEETH

Required for single teeth or bridges of up to 3 teeth.

The better the preparation of the model in the laboratory, the better the CAD/CAM result.

Receiving a poorly prepared model means we are not able to do our best work and causes delays, repetitions and inconvenience to the end customer.

SEND STL

New platform online

customer.htlcadcam.com

to place STL orders QUICKLY and EASILY

Terms and Conditions

DELIVERY TIMES

- *3 working days for STL*
- *5 days for model or pattern*
- *For Ti-Golden® coating an additional 2 days*

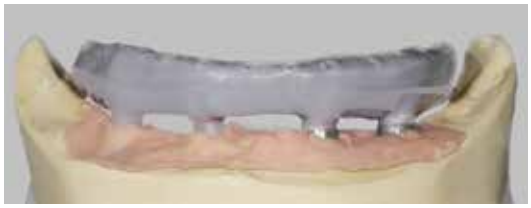
SUPPLEMENTS

- *In STL, for adjustments of **less than 4 implants,** there will be an extra charge per implant*
- *For orders of less than €150 shipping will be charged*

EXAMPLES OF HOW TO SUBMIT WORK

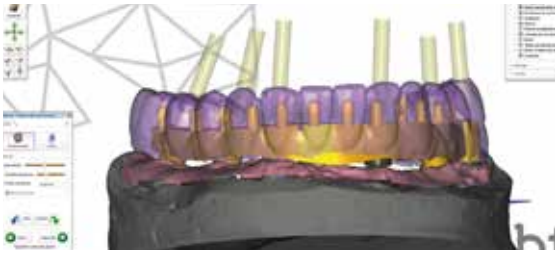
Structures with wax pattern

Suitable for sending all kinds of jobs.
Here we copy the pattern we received, adjust it and machine it:



Hybrid bar

We need a screw-mounted wax-up to know where to place the bar.



Rehabilitation metal-ceramic:

The screw-mounted wax-up must be sent prepared for reduction ***(figure 1)***.
Samples of teeth which are not screw-mounted are not valid.
In cases where there is no wax pattern, a proposal will be sent to the laboratory, which will be confirmed by them, always by e-mail.


1

.stl file:

In this case, we just mill what the customer has designed.
If it is a complete rehabilitation, it is advisable to send us the model in order to ensure the best fit.

IMPORTANT: *remember that we don't undertake designs or adjustments without models.*

MATERIALS
we work with

At HTL, we are in continuous development with new materials, looking for the option which is most suitable so that we can offer the best solution to our customers.

pages 18-19

Cr-Co

Ti

page 20

pages 21-24

Zr

PMMA

page 25

page 26

PEEK

E-MAX

page 27

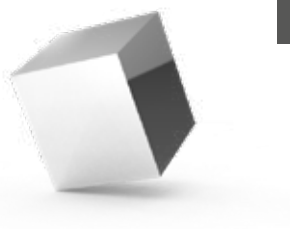
page 28

COMPO-SITE

3D Printing

page 29

Cr-Co Machining



COMPOSITION BY PERCENTAGE (IN MASS)

Co 61.0 % | Cr 28.0 % | W 8.0 %

OTHER COMPONENTS < 1%

Si | Mn | C | Fe

The tolerances in the alloy composition (percentage by mass) remain within the limits allowed by the currently valid DIN standards.

PROPERTIES

Our alloy is CoCr type 4 based on nickel and beryllium free and carbon free. It is characterised by its high resistance to corrosion and its biocompatibility.

DIN EN ISO 22674

TECHNICAL DATA (INDICATIVE VALUES)

This CoCr alloy is classified as a medical product according to European Directive 93/42/EEC with the marking 0124. CE

Density g/cm³:	**8.3**
Vickers hardness HV 10:	**285**
Expansion coefficient m CET (20-600 °C):	**14.5 x 10-6**
Melting range °C:	**1,390 – 1,475**
Modulus of elasticity (GPa):	**190**
Elongation to break A5%:	**10**

CERAMIC FIRING

All high sintering point ceramics can be used.

Please observe the corresponding instructions for use, taking into account the CTE of the ceramic used.

1. The structure is then reworked with diamond drill bits.
2. Blast the surface with aluminium oxide of 95 - 100 µm at a pressure of 2 bars.
3. Steam-clean the structure.
4. Conduct an oxidation firing without a vacuum for 10 minutes at a temperature of 950 °C.*
5. Re-blast the oxide layer and clean the structure again after the oxide firing.
6. Apply a fine layer of opaque for the wash firing. The layer for the second opaque firing should be applied in such a way that the metal is covered by a layer of uniform thickness. As an alternative to the wash firing, the bonding agent (bonder) can be used, in order to obtain a better adhesion.*
7. Bake the ceramic according to the relevant manufacturer's instructions. Clean the structure before each new firing.
8. For each dentine firing, correction and glazing with or without slow cooling depending on the expansion coefficient of the ceramic used.

**** It is recommended that an active carbon filter is used whenever the structure enters an oven.***

HTL QUALITY CARD

PROPERTIES

ST2724G powder is a CoCr type 5 dental alloy developed for the additive manufacture of dental prostheses.

The minimum wall thickness for all types of elements is 0.3mm and the smallest fixed prosthesis connection section is 3mm x 3mm.

Cr-Co Sintering

CHEMICAL COMPOSITION

Cobalt **Co**:	**Balance**
Chromium **Cr**:	**29%**
Molybdenum **Mo**:	**5.5%**
Mn, Si, Fe:	**<1%**

MATERIAL CHARACTERISTICS

Elastic limit:	**815MPa**
Elongation:	**10%**
Vickers hardness:	**375HV5**
Elastic modulus:	**229GPa**
Density:	**8.336gcm-3**
Corrosion resistance:	**<4ug/cm²**
Thermal expansion (25-500ºC):	**14.5 (10-6.K-1)**

TREATMENT OF THE PIECES

Sandblasting of the framework with aluminium oxide from 100 to 250 µm at a pressure of 3-4 bars, treatment with a VHM drill and re-blasting with a 100 to 150 µm aluminium oxide single-use blasting agent at a pressure of 3-4 bars.

It should be steam-cleaned and after cleaning it should not be touched, only held with hemostatic forceps.

The maximum temperature of ceramisation is 980ºC

This additive material can be coated with any ceramic that is suitable for CrCo alloys and adapted to the physical/ chemical characteristics of the material, respecting the manufacturer's instructions.

No welding connections can be made for biocompatibility reasons according to Directive 93/42/EEC as modified by amendment 2007/47 concerning medical devices.

For dental laser welding, it is advisable to use only material of the same chemical.

Guarantee of 30 years

Guarantee applicable to Cr-Co and Ti.
Excludes Zirconium, PMMA and other provisional materials.
This guarantee does not cover maladjustment and design problems caused by the customer.

Ti

COMPOSITION BY PERCENTAGE

Ca 90.0% **Al** 5.5-6.75 % **V:** 3.5-4.5 %

OTHER COMPONENTS:

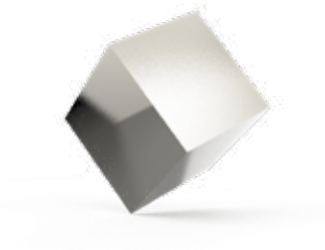
Fe **O2** **C**

Alloy composition tolerances (% by mass) are within the range of current DIN standards.

PROPERTIES

Non-precious dental disc based on titanium, grade 5 for crown and bridge work and for metal-ceramic prosthesis. Type 5 alloys.

DIN EN ISO 22674



TECHNICAL DATA (INDICATIVE VALUES)

Density g/cm³:	**4.5**
Elongation to break, minimum (%):	**10**
Minimum tensile strength (MPa):	**895**
Stress test 0.2% (MPa):	**828**
Modulus of elasticity (GPa):	**125**
Melting point (°C):	**1,650**
WAK (25-500 °C):	**10.2 x 10-6 K-1**
Vickers hardness HV:	**10 350**
Melting temperature (° C):	**1,660-1,700**
Max. ignition temperature (° C):	**880**

CERAMIC FIRING

Use only titanium ceramics. Always follow the ceramic manufacturer's instructions.

Firing temperature should not exceed 880 °C, as a higher temperature would cause molecular and structural alterations to the material.

After coating, polish all visible metal areas with brushes and polishing pastes.

Safety advice: Metal dust is hazardous to health. Wear personal protective clothing (goggles, dust mask, aspirator) during the process. For finishing and sanding, use a suitable extraction system and/or mask.

HTL QUALITY CARD

Guarantee of 30 years

Guarantee applicable to Cr-Co and Ti.
Excludes zirconium, PMMA and other provisional materials.
This guarantee does not cover maladjustment and design problems caused by the customer.

COMPOSITION

Zirconium dioxide ZrO_2

with approximately 5% **Yttrium (Y)**

Zr

3M
Lava Esthetic

Guarantee of 5 years

TECHNICAL DATA (INDICATIVE VALUES)

Average particle size:	**Approx: 1µm**
Crystal phase composition:	**Approx: 53% cubic and 47% tetragonal**
Radioactivity:	**< 0.1 Bq/g** $_{23}$
Three-point bending strength after sintering:	**800MPa**
Vickers hardness:	**>1200**
Density:	**>6.05g/cm^3**
Translucency:	**40%**
Sintering temperature:	**1450ºC**
Material class:	**Type II / Class 4**

RECOMMENDATIONS FOR USE

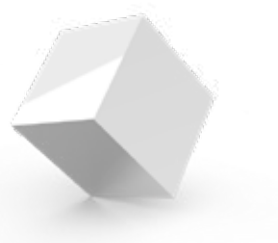
- Crowns
- Bridges with a maximum of one pontic between 2 crowns
- Inlays – Onlays and veneers
- The design parameters in anterior parts:
  - Wall: ≥0.8mm / Cross-section of the bridge connector ≥12mm^2
- The design parameters in posterior parts:
  - Wall: ≥0.8mm / Cross-section of the bridge connector ≥14mm^2.
- Finishing after sintering:
  - Use turbine at 30,000-120,000 rpm or fast handpiece up to 30,000 rpm.
- Water cooling is recommended
- Use only fine-grained diamond tools ≤30µm
- Use rubber polishers to smooth.
- It is recommended that a minimum wall thickness of 0.8mm is maintained.
- Glazing is recommended to achieve the best shade match.
- Use low temperature (<900ºC) dyes and glazes for zirconium.
- It is not recommended to use a vacuum during the waiting time.

Before sending it to the dentist, sand the bonding surfaces with alumina, with a grain size ≤50µm at 2 bars. Clean with alcohol and dry with grease-free air.

3M RelyX self-adhesive resin cement is recommended for cementing.

Colours: A1, A2, A3, A3.5, A4, B1, B2, B3, B4, C1, C2, C3, C4, D2, D3, D4.

Zr
Zirlux
Anterior Multi



Guarantee of 5 years

COMPOSITION BY PERCENTAGE

· *Zirconium dioxide* ZrO_2 + HfO_2 + Y_2O_3	> 98%
· Er_2O3	> 0.3%
· Fe_2O3	> 0.3%
· Pr_2O3	> 0.3%
· *Other oxides:*	> 0.5%

TECHNICAL DATA (INDICATIVE VALUES)

Average particle size:	**Approx: 1µm**
CTE after sintering: **(25-500°C):**	**(10.5 ± 1.0) x10 -6K-1**
Cytotoxicity test:	**level 0**
Radioactivity:	**< 0.1 Bq/g** $_{23}$
Three-point bending strength after sintering:	**600MPa**
Vickers hardness:	**> 1200**
Density:	**> 6g/cm^3**
Translucency:	**40%**
Sintering temperature:	**1450ºC**
Material class:	**Type II / Class 4**

RECOMMENDATIONS FOR USE

- The design parameters in anterior parts:
  - Wall: 0.3-0.7mm. Cross-section of the bridge connector ≥12mm2
- The design parameters in posterior parts:
  - Wall: 0.5-0.7mm. Cross-section of the bridge connector ≥12mm^2
- Crowns
- Bridges with a maximum of one pontic between 2 crowns
- Inlays – Onlays and veneers
- The number of restorations with a pontic should have a maximum of 3 units.
- Finishing after sintering:
  - Use turbine at 30,000-120,000 rpm or fast handpiece up to 30,000 rpm.
  - Fine finishing should be done with low-speed polishers, max 12,000 rpm.
  - Water cooling is recommended
  - Use only fine-grained diamond tools
  - Use rubber polishers to smooth.
  - Glazing is recommended to achieve the best shade match.
  - Use low temperature (<900ºC) dyes and glazes for zirconium.
  - It is not recommended to use a vacuum during the waiting time.

Before sending it to the dentist, sand the bonding surfaces with alumina, with a grain size ≤50µm between 1.0-2.5 bars for 10-15 seconds, to create a retention texture to create the final bond.

Clean with alcohol and dry with grease-free air.

Colours: A1, A2, A3, A3.5, B1, B2, C2

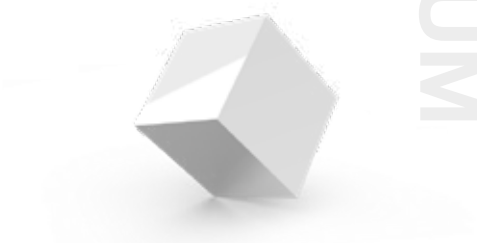
PROPERTIES

Monolayer monolithic zirconium, for effective solutions and good aesthetic results.

Zr
STANDARD

TECHNICAL DATA (INDICATIVE VALUES)

Average particle size:	**Approx:1µm**
Cytotoxicity test:	**level 0**
Three-point bending strength after sintering:	**1100MPa**
Translucency:	**30-39%**
Sintering temperature:	**1530°c**



Guarantee of 5 years

RECOMMENDATIONS FOR USE

- Rehabilitations on interfaces or stumps.
- Veneers
- Inlays
- Onlays
- Partial crowns
- Anterior and posterior crowns

The design parameters in anterior parts:

Wall: 0.3-0.7mm.

Wall: 0.5-0.7mm.

Finishing after sintering:

- Use turbine at 30,000-120,000 rpm or fast handpiece up to 30,000 rpm.
- Fine finishing should be done with low-speed polishers, max 12,000 rpm.
- Water cooling is recommended. Use only fine-grained diamond tools.
- Use rubber polishers to smooth.
- Glazing is recommended to achieve the best shade match.

Before sending it to the dentist, sand the bonding surfaces with alumina, with a grain size ≤50µm between 1.0-2.5 bars for 10-15 seconds, to create a retention texture to create the final bond.

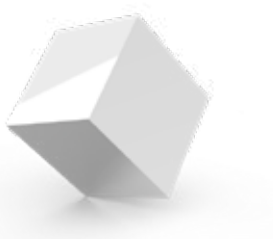
Clean with alcohol and dry with grease-free air.

Colours: A1, A2, A3, A3.5, A4, B1, B2, B3, B4, C1, C2, C3, C4, D2, D3, D4.

Zr
ZirCAD Prime
Ivoclar

PROPERTIES

Multilayer zirconium is valid for almost any indication (crowns, bridges, anatomical structures, etc). It has extraordinary aesthetic properties and is suitable for most processing techniques.



Guarantee of 5 years

TECHNICAL DATA

Bending strength*:	**1200MPa (*mean value)**
Fracture strength:	**>5.0 MPa · m1/2**
Chemical solubility:	**<100µg/cm²**
Type / Class:	**Type II / Class 5**

Tones: BL1, BL2, BL3, BL4, A1, A2, A3, A3.5, A4, B1, B2, B3, B4, C1, C2, C3, C4, D2, D3, D4

CHEMICAL COMPOSITION

Zirconium oxide (ZrO2):	**88-95.5%**
Yttrium oxide (Y2O3):	**>4.55-≤7.0%**
Hafnium oxide (HfO2):	**≤5.0%**
Aluminium oxide (Al2O3):	**≤1.0%**
Other oxides:	**≤1.5%**

INDICATIONS

- Total volume crowns
- 3-piece anatomically contoured bridges
- Monolithic bridges of 4 or more pieces with 2 pontics max.
- Crown structures
- Bridge structures with 3 or more teeth with 2 pontics max.

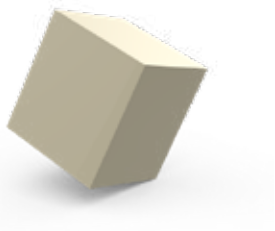
CONTRAINDICATIONS

- Bridge constructions with more than 2 connected pontics
- Patients with very few remaining teeth
- Bruxism
- Two or more teeth connected at the free-end
- Any application not included in the indications.
- Provisional insertion

COMPOSITION BY PERCENTAGE

· *Polymethyl methacrylate*	99.898%
· *Non-toxic pigments:*	
Biocompatible iron oxide pigment	0.05%
Biocompatible titanium dioxide pigment	0.05%
· *EDMA*	
· *Fluorescent*	
Calcium sulfide	0.000667%
Strontium sulfide	0.000666%
Magnesium oxide	0.000666%

PMMA



Guarantee of 6 months

TECHNICAL DATA (INDICATIVE VALUES)

Modulus of elasticity:	**> 2.200MPa**
Bending strength (min. 50MPa):	**>100MPa**
Impact resistance: **(Charpy):**	**>10KJ/m²/(Izod): >1.3KJ/m²**
Impact and abrasion resistance (MW: 1,000,000):	**3.5x PMMA**
Tensile strength:	**<75MPa**
Vickers hardness (0.05/10):	**<110**
Sorption of water ISO 10477	**<20µg/mm³**
Solubility in water	**<0.8µg/mm³**
Residual monomer (24h at 37ºC and 30min in the open air)	**<0.7%**

RECOMMENDATIONS FOR USE

- PMMA used in milling for making cemented or screwed-in provisional pieces, crowns, interfaces.
- Max. 2 fixed elements and a bridge.
- Minimum thickness: 1mm occlusal and 0.6mm in cervical.
- Minimum connection diameters: anterior 3.6mm - posterior 4.4mm
- Provisional pieces can be fixed using any cement.

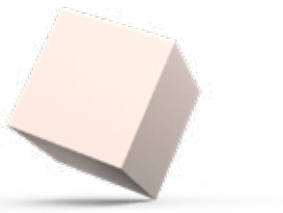
Colours: A1, A2, A3, A3.5, A4, B1, B2, B3, B4, C1, C2, C3, C4, D2, D3, D4.

PEEK

PROPERTIES

Inert and non-toxic material used for the production of:

- **Dental prosthesis on implants**
- **Implant bars**
- **Anterior and posterior crowns**
- **Posterior bridges with a maximum of 3 teeth (maximum 1 artificial tooth)**



Guarantee of 2 years

TECHNICAL DATA

Form:	**solid**
Odour:	**Odourless**
PH (value):	**Unknown**
Boiling point (ºC):	**Unknown**
Melting point (° C):	**343 ºC**
Autodefining temperature (ºC):	**595 ºC**
Fire point (ºC):	**Unknown**
Solubility (water):	**Insoluble**

RECOMMENDATIONS FOR USE

- The minimum thickness of secondary crowns should not be less than 0.7mm and the minimum thickness of (conventional) retention racks should not be less than 2mm.
- The minimum size of the horizontal retainer for the lower jaw is 2mm x 8mm.
- The minimum size of the horizontal band of the upper jaw is 2mm x 8mm.

COMPOSITION BY PERCENTAGE

SiO_2 Li_2O K_2O
MgO Al_2O_3 P_2O_5

OTHER COMPONENTS:

Other oxides

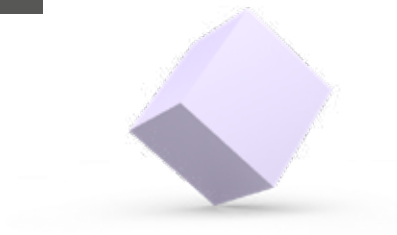
PROPERTIES

Lithium disilicate glass ceramic block.

The different shades and degrees of translucency of the IPS e.max CAD blocks are based on the overall shade system, IPS e.max.

See thicknesses according to type of work.

E-MAX



Guarantee of 5 years

TECHNICAL DATA (INDICATIVE VALUES)

Material resistance intermediate phase:	**130-150MPa**
Final material resistance:	**360MPa**
Modulus of elasticity (GPa):	**95**
Fracture strength (MPa $m^{0.5}$):	**2.25**
Vickers hardness:	**5800MPa**
Crystallisation temperature:	**840-850ºC**

RECOMMENDATIONS FOR USE

- Veneers
- Inlays
- Onlays
- Partial crowns
- Anterior and posterior crowns

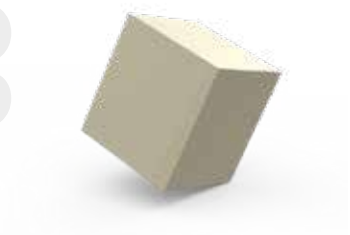
Colours: A1, A2, A3, A3.5, A4, B1, B2, B3, B4, C1, C2, C3, C4, D2, D3, D4.

COMPO-SITE

3M Espe Lava™Ultimate

PROPERTIES

Nanoceramic resin containing 80% (by weight) of particles of nanoceramics fused in a resin matrix. Highly aesthetic and wear resistant.



Guarantee of 10 years

TECHNICAL DATA (INDICATIVE VALUES)

Two-point bending strength:	**200MPa**
Flexural modulus:	**12MPa**
Modulus of elasticity:	**12.5MPa**
Compressive strength:	**380MPa**

RECOMMENDATIONS FOR USE

- Restorations *(Inlay and Onlay)*:
  The incisal/occusal reduction space is between 1.5 and 2 mm in centric occlusion and in excursive movements.
- Veneers: The standard reduction of the vestibular surface is 0.6mm and 0.4mm in the gingival third and the reduction of the vestibulo-lingual incisal angle is between 0.5 and 1.5mm.
- For finishing, clean the restoration with ultrasound or steam and air dry gently.
- Sandblasting with ≤50μm grain aluminium oxide at 2 bars pressure until the bonding surface acquires a matt appearance.
- Remove sand with alcohol and dry with air which is free of oil and moisture.
- It does not require any heat treatment after milling.

Colours: A1 (HT/LT), A2 (HT/LT), A3 (HT/LT), A3.5 (LT), B1 (HT/LT), C2 (LT), D2 (LT).

Three types of resin:

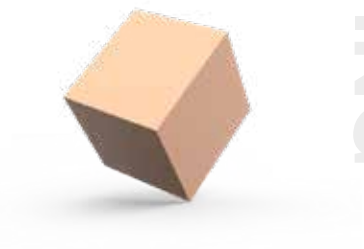
DENTAL MODEL	FLEXIBLE RESIN	LIGHT-CURING COMPATIBLE RESIN
For models	*For gums*	*For splints*

3D

DENTAL MODEL

Dental Model Resin is a resin for creating implant models, crown and bridge models, and models for orthodontics. It meets the requirements for high precision within approx. 35 microns.

This resin is beige in colour in order to highlight any detail.



TECHNICAL DATA

·Tensile strength before curing:	**33MPa**
·Tensile strength after curing:	**61MPa**
·Traction modulus before curing (GPa):	**1.6**
·Traction modulus after curing (GPa):	**2.7**
·Flexural modulus before curing (GPa):	**0.95**
·Flexural modulus after curing (GPa):	**2.5**
·Flexural strength at 5% deformation before curing:	**33.9MPa**
·Flexural strength at 5% deformation after curing:	**95.8MPa**
·Impact with notch before curing	**27J/m**
·Impact with notch after curing	**33J/m**
·Heat deflection temperature at 264psi before curing	**32.8ºC**
·Heat deflection temperature at 264psi after curing	**32.8ºC**
·Heat deflection temperature at 66psi before curing	**40.40ºC**
·Heat deflection temperature at 66psi after curing	**48.5ºC**

COMPONENTS:

- **Methacrylate oligomers**
- **Methacrylate monomers**
- **Pigments**
- **Special additives.**

FLEXIBLE RESIN

This resin makes it possible to print parts for models that require a certain amount of flexibility.

The flexible resin can be used in combination with the model material.

SPECIFICATIONS

PROPERTY	MODEL	VALUE
Colour	Pink	——
Brookfield viscosity at 23 °Celsius	1.1 – 1.6 Pa · s	ASTM D2162
Elongation to break	15 – 25%	ISO 527-1:2012

LIGHT-CURING COMPATIBLE RESIN

Light-curing compatible resin for 3D printing orthodontic appliance bases, templates for drilling and X-rays, occlusal and fixation splints.

Benefits: maximum reliability of the construction process, mechanical resistance, easy to polish. Resistance to breakage, elasticity and the influence of humidity in accordance with the orthodontic standard. Validated processes for sterilisation in autoclaves.

Resistant to oral conditions. Neutral smell and taste. Lla Class medical device, colour: transparent. The minimum material thickness for the design is 1.5mm.

Minimum thickness of the side walls 1.0 mm
Compensation ("Blocking of retention areas") >= 0.1 mm

PRODUCT OVERVIEW

Thanks to our boxes
specifically designed for prostheses,
we avoid damage during transport.

HTL-BTI
Rehabilitations

By combining BTI's **prosthetic attachments** with the **HTL prosthesis**, we offer the best solution for our patients.

INDEX

HTL-BTI

SCAN BODIES AND DIGITAL ANALOGUES

For the digitalisation of the patient's mouth, BTI has developed a range of scan bodies which allow transfer of the geometry of the teeth and the position of the implants to the CAD software. They are used with both laboratory and intraoral scanners.

A number of analogues are also available for the 3D printed models, allowing the digital flow to be completed.

We have libraries for all our connections. With the same physical scan body, we can select several options from our virtual library, directly to the implant or over any square connection.

GENERAL INFORMATION

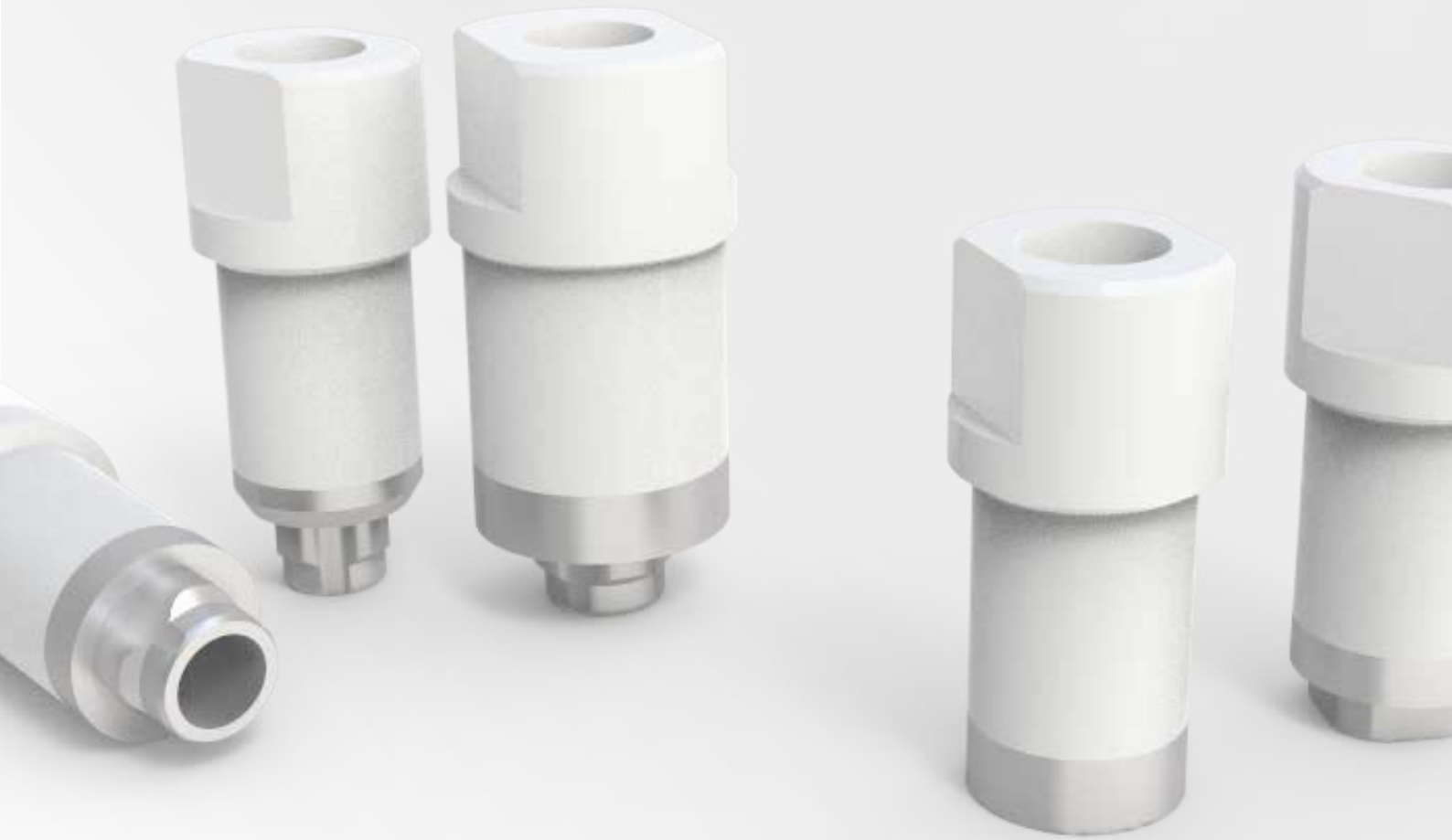
The scan bodies are supplied without screws.

- *Height 10 mm*
- *2 faces*

Tightening torque of screws: 10 Ncm

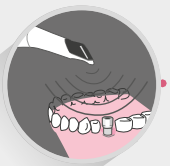
Scan Bodies and Analogue libraries are available for Exocad, 3Shape and Dental Wings software.

The analogues are supplied with a fixing, to attach them to the model.



Intra oral Scanning

1.



Extra oral Scanning

DIRECT **TO IMPLANT** PROSTHESIS

INTERNA® CONNECTION

	Scan Body	Screw
	SBII31	INTTUH
	SBIIE1	INTTUH
	SBIIU1	INTTUH
	SBIIA1	INTTUH

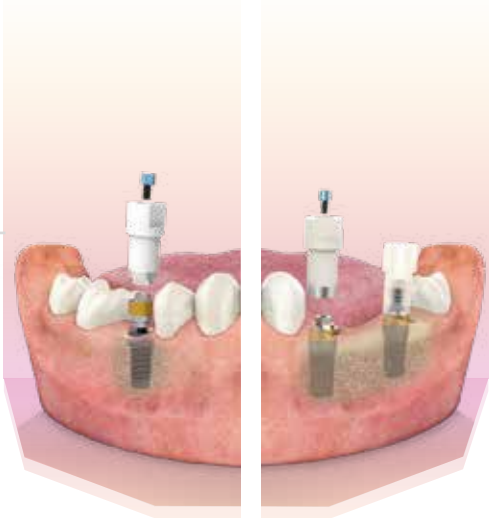
EXTERNA® CONNECTION

	Scan Body	Screw
	SBIT1	TTTH
	SBIEU1	TTUH
	SBIEA1	TTUH

DIRECT **TO IMPLANT** PROSTHESIS

UNIT®

	Scan Body	Screw
	SBIMIUPE	TTMIR
	SBIMIUPU	TTMIR
	SBIMIUPA	TTMIUPA



Multi-Im® STRAIGHT

	Scan Body	Screw
	SBIMIPEU	TTMIR
	SBIMIPA	TTMIR

Multi-Im® ANGLED

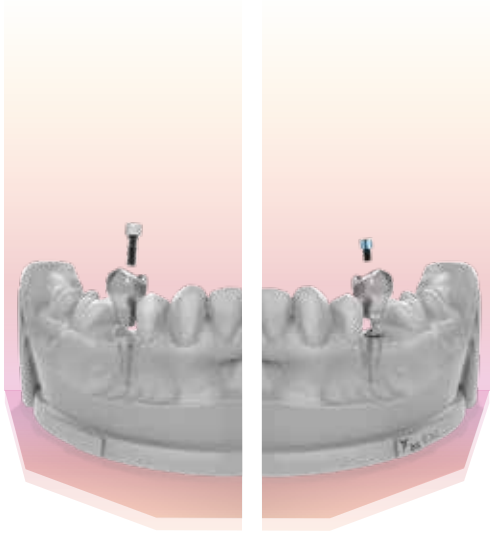
	Scan Body	Screw
	SBIMIEUA	TTMIR

Digital Workflow 3. Analogue Insertion

DIRECT **TO IMPLANT** PROSTHESIS

INTERNA® CONNECTION	EXTERNA® CONNECTION
INRDII3	—
INRDIIE	RIDIE
INRDIIU	RIDIU
INRDIIA	RIDIA

DIGITAL **ANALOGUE**



INDIRECT PROSTHESIS **ON ABUTMENTS**

INTERNA®/ EXTERNA® CONNECTIONS	UNIT®	Multi-Im® STRAIGHT	Multi-Im® ANGLED
	RDIMIUPE	—	—
	RDIMIUPU	RDIMIEU	RDIMIEUA
	RDIMIUPA	RDIMIA	—

STERILISATION IN AUTOCLAVE

1. Insert the Scan-body into sterilisation bags with sterilisation indicator and seal the bag according to the supplier's specifications. Make sure the package is large enough to contain the part without putting stress on the packaging.

IMPORTANT: Use only wrapping materials and systems (sterile barrier systems) that comply with DIN EN ISO 11607-1. Using the appropriate wrapping correctly is essential for successful sterilisation.

2. Insert the sterilisation bags into a prevacuum autoclave (e.g.: CELITRON MEDICAL TECHNOLOGIES, STING 11) with paper on top or on a side. Make sure not to exceed the maximum load of the autoclave specified by the supplier and not to stack the bags.

3. Sterilise at 134 ºC + 5 ºC / (pressure according to supplier specifications, e.g. 2 bars) for 6 minutes. The change in colour of the bag indicator shows whether the sterilisation process has been carried out correctly.

4. Ensure that the sterilisation requirements (pressure, temperature and time) are as described in these instructions for use.

5. Once the sterilisation cycle is complete, leave the bags to cool and dry inside the autoclave for at least 20 minutes before removing and storing them.

IMPORTANT: Use only steam sterilisers which are EN 13060 compliant. Make sure that the sterilisation programme has been set to the indicated temperature, pressure and time. If in doubt, contact the supplier of the steam steriliser.

HTL-BTI

BIOBLOCK®

A biomechanical and biological concept

THE BEST CLINICAL DECISION FOR THE PREVENTION OF PERI-IMPLANTITIS AND THE SUCCESS OF IMPLANT TREATMENTS.

• The prosthesis is joined to the implant by an intermediate abutment screwed into the implant.
• The surface of each integral component (implant and abutment) is adapted specifically to the different tissues it will interact with.

BIOLOGICAL SEAL

The bond between the tissue and the abutment is established at the moment it is inserted.

The prosthesis can be removed easily without damaging this junction, as the prosthetic platform is located at the gingival level.

BIOMECHANICAL IMPROVEMENT

By using 2 screws, the Bioblock concept ensures a better distribution of the stress in the joining components, optimising the mechanical behaviour.

*Adjust to the implant at **35 Ncm** and the screw that fixes the prosthesis to the abutment - at **20 Ncm***

PROSTHETIC VERSATILITY AND REVERSIBILITY

BTI abutments ensure the reversibility of the screw-retained prosthesis, enabling the height to be modified in situations of gingival morphology alterations.

GUARANTEE OF HERMETIC SEAL

The right design and high-precision machining of the BTI transepithelials' connection provides a hermetic seal at the implant-platform level and therefore prevents bacterial invasion.

INSTANT STABILITY

The surface topography of the BTI implant system (triple roughness modified with calcium ions) maximises the initial anchoring of the implant to the bone.

To achieve the biomechanical and biological advantages of the**BioBlock® concept**, BTI has developed **a wide range of abutments**, available for all platforms of its implant system.

UNIT®
TRANSEPITHELIAL ABUTMENT

SINGLE RESTORATIONS
A SELECTION OF SCREWS AND COMPONENTS FOR IMMEDIATE LOADING

Interna connection with the prosthesis

UNIT STRAIGHT
Same gingival and prosthetic emergence

Connection with the implant

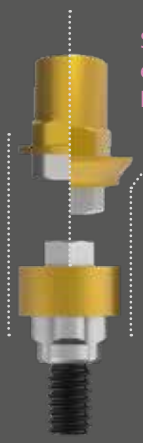
Hexalobular | Hexagonal | Tetra-lobed

UNIT® TRANSEPITHELIAL + SQUARE INTERFACE

Have your prosthesis restored with an emergence profile adapted to your needs.

Square straight Interface

Square expanded Interface



UNIT EXPANDED
Change in platform for a wider prosthetic emergence

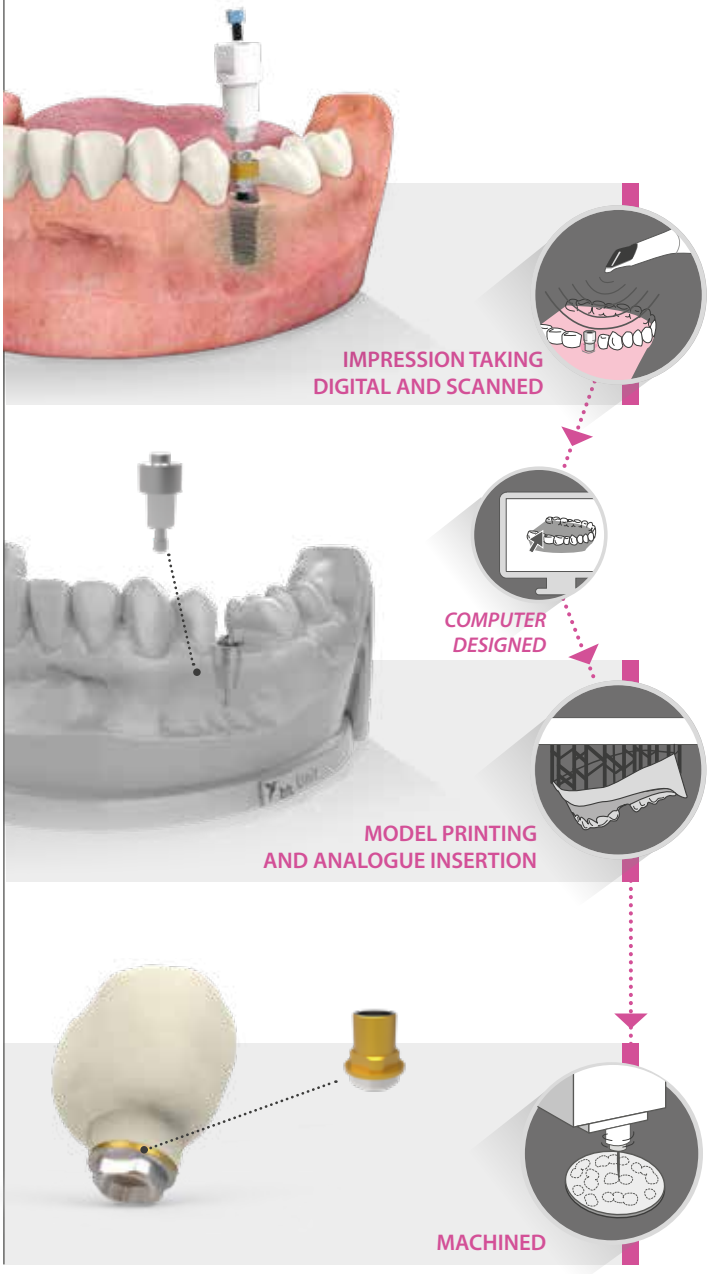
AVAILABILITY BY PLATFORM and CONNECTION

Interna
Externa

	STRAIGHT prosthetic emergence Ø		EXPANDED prosthetic emergence Ø	
3.0	———	———	3.5 mm	○
NARROW	3.5 mm	○	4.1 mm	○ ○
UNIVERSAL	4.1 mm	○ ○	5.5 mm	○ ○
WIDE	5.5 mm	○ ○	———	———

WORKFLOW  with UNIT®

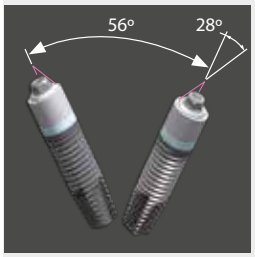
Digital **workflow**



Multi-Im®
TRANSEPITHELIAL ABUTMENT

SINGLE RESTORATIONS
A SELECTION OF SCREWS AND COMPONENTS FOR IMMEDIATE LOADING

MAXIMUM ANGLE SUPPORTED BY A MULTI-IM®



It allows a ***divergence between implants of up to 56º***, making it easier to take impressions and screw in the prosthesis with an excellent passive fit without the risk of stress on the implant or the prosthesis.

Rotating **connection** with the prosthesis

MULTI-IM STRAIGHT
Same gingival and prosthetic emergence

Rotating **connection** with the implant

MULTI-IM EXPANDED
Change in platform for a wider prosthetic emergence

ANGLED MULTIPLE
With rotational components

Correction of non-parallel appearance

17º - 30º

Non-rotating **connection** with the implant

AVAILABILITY BY PLATFORM and CONNECTION

Interna
Externa

	STRAIGHT prosthetic emergence Ø	STRAIGHT	EXPANDED prosthetic emergence Ø	EXPANDED	ANGLED prosthetic emergence Ø	ANGLED 17º	ANGLED 30º
3.0	——	——	4.1 mm	●	——	——	——
NARROW	——	——	4.1 mm	●●	5.0 mm	●●	——
UNIVERSAL	4.1 mm	●●	5.5 mm	●●	5.0 mm	●●	●
WIDE	5.5 mm	●●	——	——	——	——	——

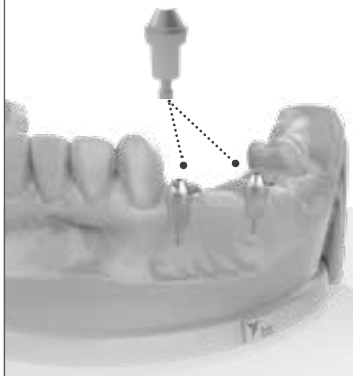
WORKFLOW

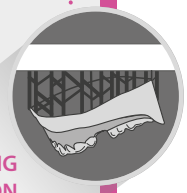
with Multi-Im®

Digital **workflow**

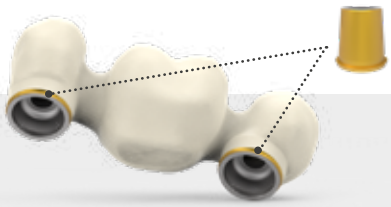
DIGITAL IMPRESSION TAKING
AND SCANNING

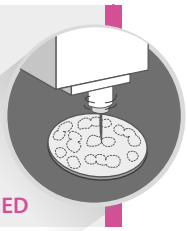
COMPUTER
DESIGNED





MODEL PRINTING
AND ANALOGUE INSERTION

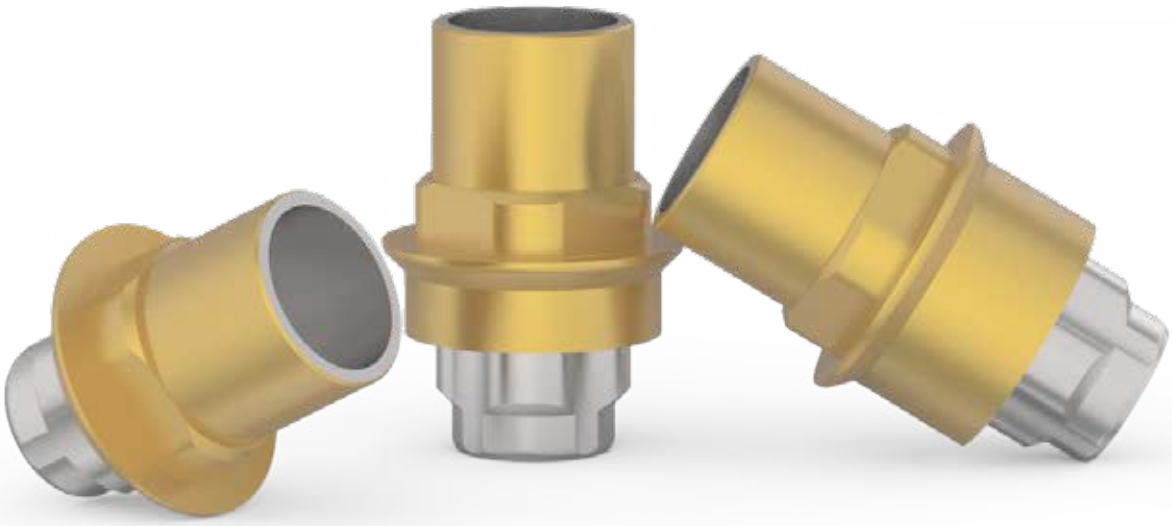




MACHINED

HTL-BTI

SQUARE
Aesthetic abutment



EXCELLENT AESTHETICS
AND GREAT VERSATILITY

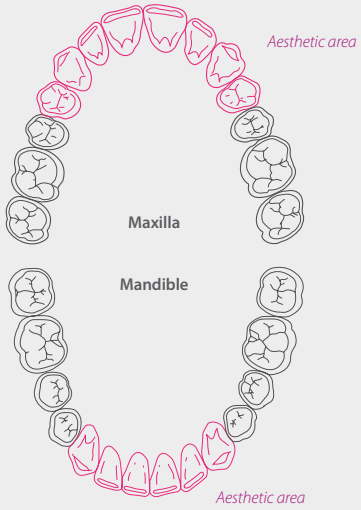
New range of Square abutments for direct to implant prostheses, with a BIO Profile for long-term maintenance of the gingival mucous membranes.

Highly versatile, they can be used with or without a casting cylinder, for the manufacture of conventional prostheses and systems of CAD/CAM.

COMPETITIVE ADVANTAGES

1. SINGLE AND MULTIPLE PROSTHESES DIRECTLY TO THE IMPLANT: SCREW-MOUNTED OR CEMENTED

2. IMMEDIATE LOAD IN SINGLE AESTHETIC ZONE



BIO EMERGENCE PROFILE:

THE LONG-TERM MAINTENANCE OF THE GINGIVAL MUCOUS MEMBRANES

- Enables you to create **a BIO emergence profile** suitable for the needs of each patient
- **Simplifies the manufacture** of posts in terms of time and experience
- **Hermetic** implant-prosthesis seal
- **The versatility in the height** allows you to select the abutment according to the gingival biotype.

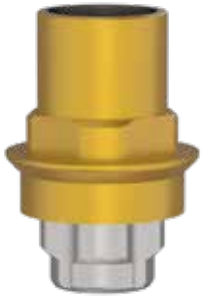
IT ALLOWS THE USE OF ANY LABORATORY METHOD

BIO PROFILE

BIO prosthetic profile to maintain the vascularisation of the gingival mucous membrane and minimize the risk of recession in cases of thin biotypes.

CONNECTION

NON-ROTATIONAL:
For unitary prosthesis (screwed and cemented) and multiple cemented.



MATERIALS

Manufactured in Titanium (Ti) with Ti-Golden® surface treatment.

ANTI-ROTATION DESIGN

Square anti-rotation design to facilitate the prosthetic work in CAD/ CAM.

PLATFORMS

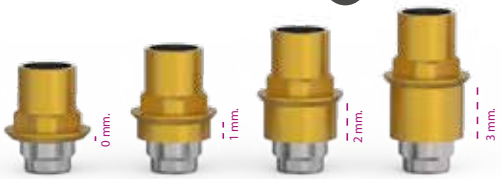
EXTERNA® Tiny®, universal and wide
INTERNA® 3.0, narrow, universal and wide

HEIGHTS

Square abutments are available in various gingival heights:
INTERNA: 0, 1, 2, 3 mm.
EXTERNA: 0, 1, 2 mm.

CONNECTION

INTERNA®



EXTERNA®

DIRECTIONS FOR USE

For prostheses designed in CAD/CAM. Used as machined bases, on which you can model Zr, e-max, Ti, Cr-Co and resin sleeves.

HTL

CAD/CAM-Lab

HTL
CAD/CAM-Lab

Dental prosthesis laboratory
HTL CAD / CAM - Lab, S.Manual
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