

BONECARE
TITANIUM SHOCK ABSORBER

PRODUCT BROCHURE

A HEAD START THROUGH BIOMECHANICS



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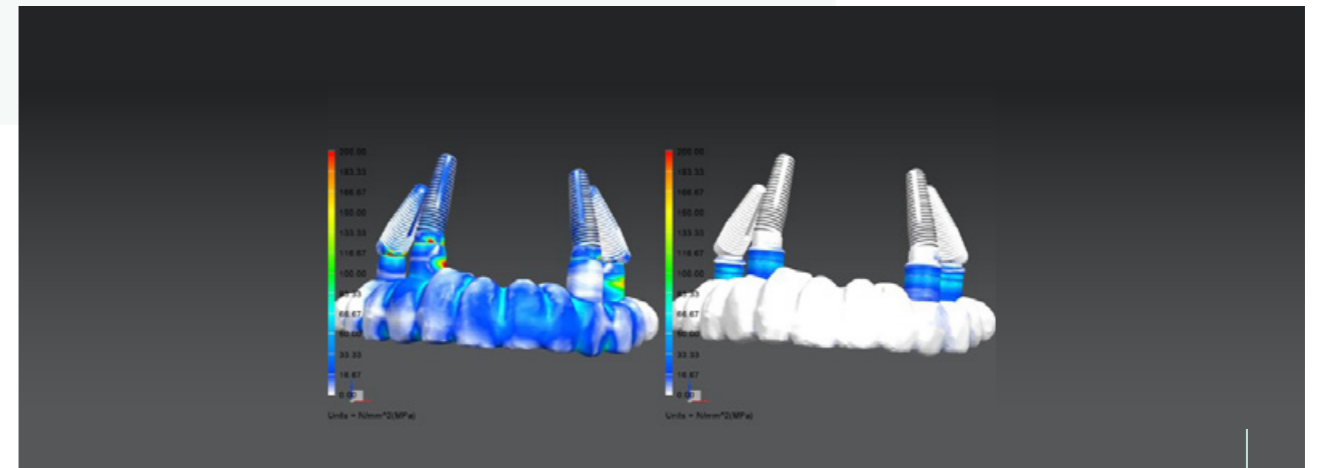
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SYMBOLS

PRINCIPLE

The human body is a dynamic entity. Introducing rigid elements such as dental implants, may cause issues:

- ☑ Insensitive patients will bite down harder due to the absence of proprioception. This results in chipped porcelain, fractured structures, acrylic teeth, screws ...
- ☑ Tension/stress in the jaw and/or joints



Left: situation with a standard intermediary abutment. Right: the dynamic TSA abutment.
(Image from the Design report: Grove + More: Comparison between stresses developed in the TSA Abutment versus a rigid abutment by finite element analysis, 2016)

WHAT IS TSA?



TITANIUM SHOCK ABSORBER

TSA is the only dental abutment that biomechanically supports the natural chewing function. It simulates the functioning of the periodontal ligament and allows for a micromovement. In return, the patient will experience the implant-supported suprastructure as a natural given.

SCREW-RETAINED

A fixed design of the top of the abutment, only for screw-retained constructions.

SUSTAINABLE

The spring allows the abutment to return to its original position every time.

UNIVERSAL

The variable base of the abutment connects to the implant and is available to be fitted to most conventional implant platforms and connections.

RESILIENCE/DYNAMICS

The abutment's interior is completely filled with a layer of dental elastomer. This layer allows a micromovement of +/- 20 micron.



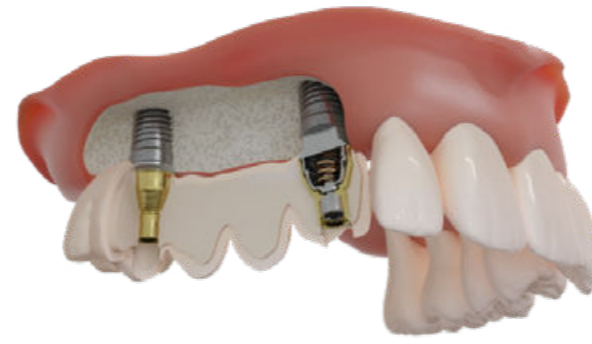
WHY CHOOSE THE TSA ABUTMENT?

03

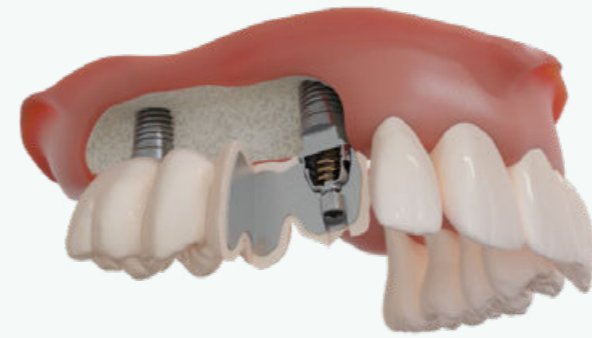


- ❏ The **natural chewing function is a dynamic process**: anatomic structures such as bone, the jawbone joint (TMJ) and the periodontal ligament all have a certain elasticity which **absorbs and distributes the chewing force**.
- ❏ This **absence of periodontal ligament in implants** (ankylosis) prevents any physiological mobility. This evidently results in **mechanical overburdening**, and an **increased fracture risk** for the implant, the abutment, the screw as well as the restoration. Furthermore, this overburdening is discussed as an **etiological factor** for the occurrence of **peri-implantitis**.
- ❏ The TSA abutment with its **unique resilient function** will decrease the risk of these issues. The mobility of the TSA abutment even **micromassages** the underlying soft tissue.
- ❏ For an **implant-supported bridge, connected to natural teeth**, the TSA abutment will provide a synchronous movement between the periodontal ligament and the rigid implant, resulting in a continuous **even distribution of the chewing force** on completely different connectors. In particular cases, the number of implants can be reduced, omitting expensive and time-consuming bone augmentation.
- ❏ Compared to the fixed and rigid connection of the bridge to dental implants, the use of **TSA in implant-supported bridges, not connected to natural elements** renders a more natural feeling for the patient.
- ❏ **Pressure tests** (1.200.000 cycles) in a moist and warm environment demonstrate that this resilient function is **sustainable**.
- ❏ The TSA abutment warrants a **higher chewing comfort, healthier gingiva, an improved bone quality and a wider indication area**.
- ❏ TSA guarantees a **patient-friendly solution**. This unique and revolutionary concept is available to fit **most conventional implant platforms**, in varying heights. For the treating dentist, this abutment is very **easy to apply** as well.

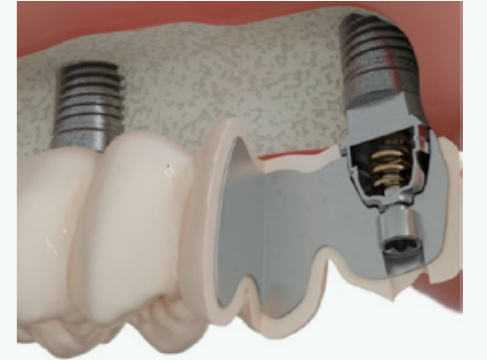
TSA BRIDGEWORK: INDICATIONS



TSA with interface for bridge construction in zirconia, PMMA and other dental materials.



TSA with machined metal fit (titanium or cobalt chrome) for bridges with ceramic layering or hybrid/wrap to finish with acrylic teeth or composite.

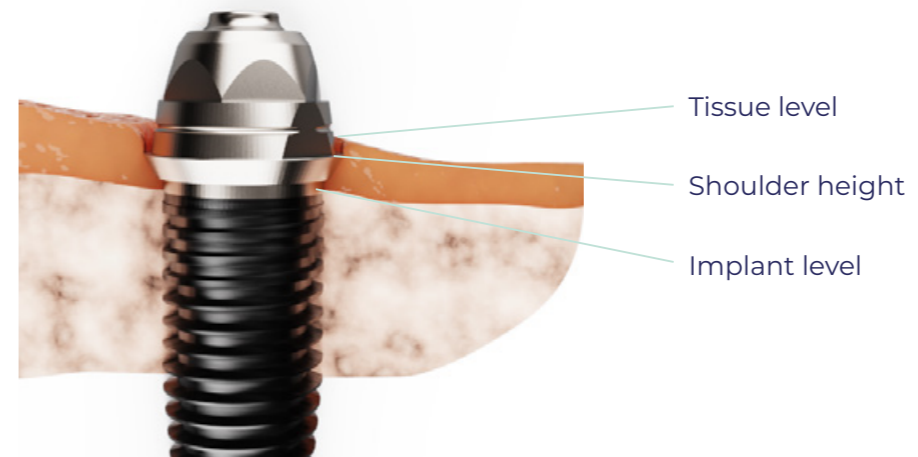


TSA combined with natural connectors for bridges in zirconia, titanium, cobalt chrome, PMMA ...



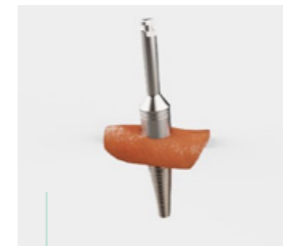
STEP 1: HEIGHT SETTING TSA ABUTMENT

- ☑ This can be determined based on a model with implant replicas (analogue impression) or based on an intraoral scan with scanbody (digital impression).
- ☑ It is important for the shoulder to be sufficiently imbedded below the gingiva, by analogy with the classical abutment.

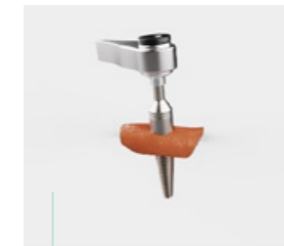


STEP 2: FITTING TSA ABUTMENT

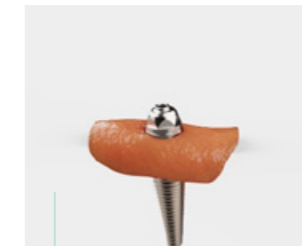
1. First turn the TSA with the Driver Insert onto the implant until hand-tight.
2. Then use a torque wrench to fix the abutment according to the values indicated on the packaging (see point 6. Label).



*Driver Insert
on TSA*



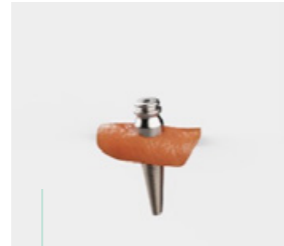
*Torque with
torque wrench*



*TSA fitted
onto the implant*

STEP 3: IMPRESSION TSA ANALOGUE

1. Fit the impression coping for closed tray or open tray onto the TSA abutments.

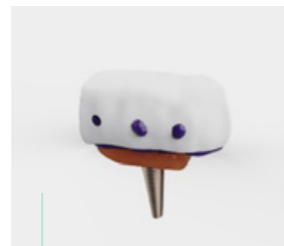


*Closed tray
impression coping*



*Open tray
impression coping*

2. Perform the impression with closed tray or open tray and conventional impression material.



Closed tray



Open tray

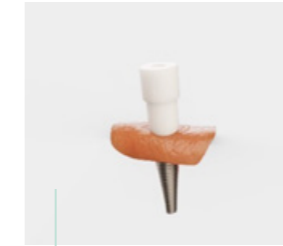
3. Remove the impression tray from the mouth. When employing the closed tray technique, the impression posts need to be repositioned in the impression.
4. Mount the TSA replicas onto the impression posts and manufacture a master model in plaster with gingival mask.



*Replica
for plaster
model*

STEP 4: IMPRESSION TSA DIGITAL

1. Place the intraoral scanbody onto the TSA abutments.



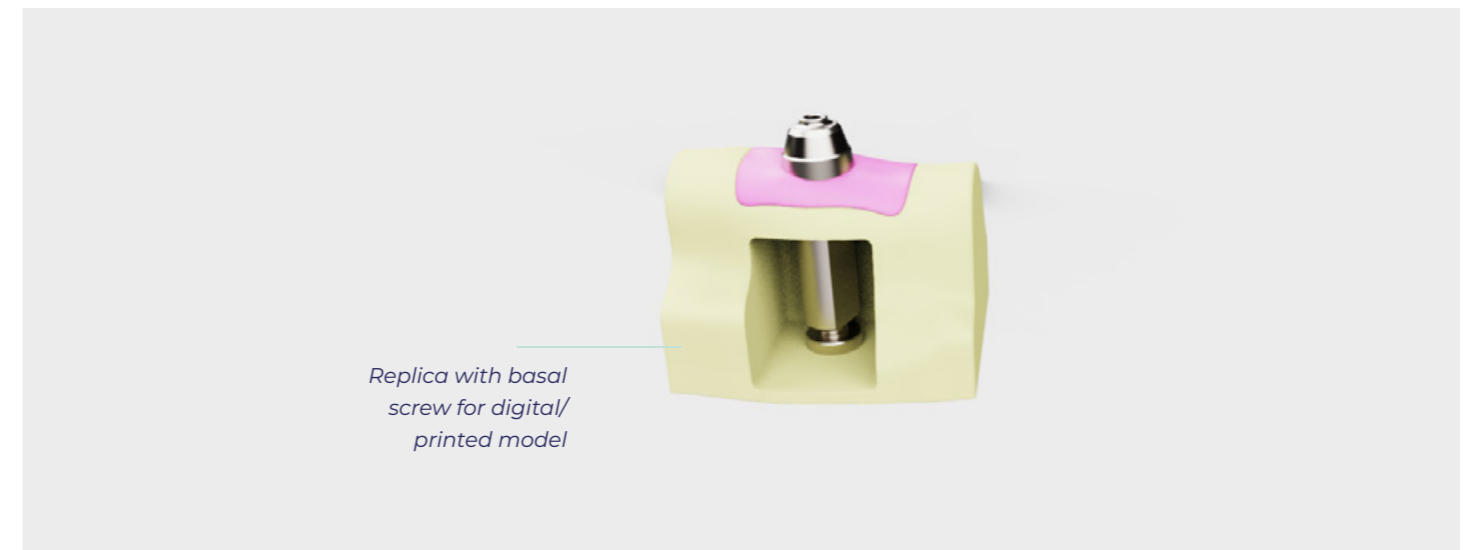
Intraoral scanbody

2. Scan the oral situation with an intraoral scanner.



Intraoral scan

3. Remove the intraoral scanbodies from the mouth.
4. Design and manufacture a digital model (database available at Bonecare).



*Replica with basal
screw for digital/
printed model*

STEP 5: MANUFACTURING THE SUPRASTRUCTURE

In case of analogue mode, proceed from step 1;
for digital mode, proceed from step 3

1. Mount the extraoral scan marker onto the TSA replicas.

2. Scan the extraoral markers with a desktop scanner. For better results, spray the markers if needed.

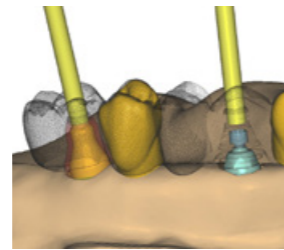


Extraoral scan marker



Scan with a desktop scanner

3. Design the suprastructure with the dental software (database available at Bonecare).



4. Manufacture the suprastructure with the exported data from the CAD file, using machining and/or printing technology.



5. Finish the suprastructure in accordance with manufacturer's guidelines.

6. Fit the final suprastructure.



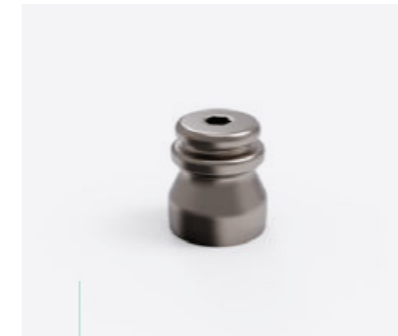
Replica for plaster model
(ref. AN-TF)



Replica for digital model
(ref. AN-TFD)



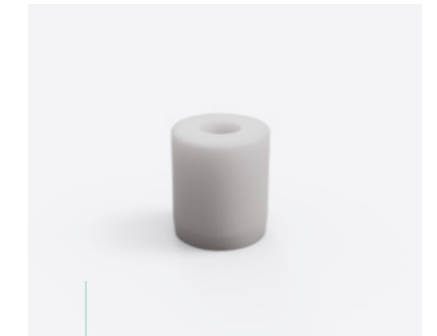
Impression coping open tray
(ref. IC-TF)



Impression coping closed tray
(ref. ICT-TF)



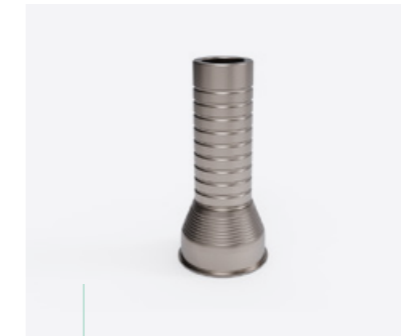
Intraoral scanbody Long
(ref. STI-TF-L)*



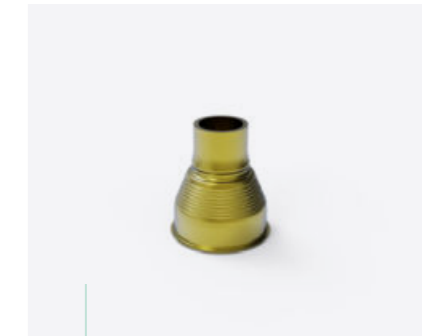
Intraoral scanbody Short
(ref. STI-TF)*



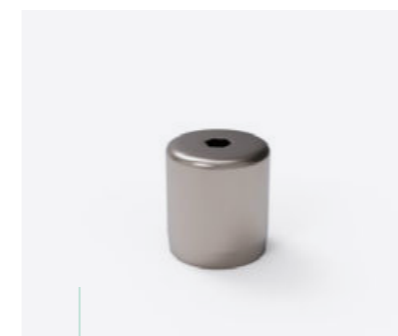
Extraoral scan marker
(ref. ST-TF)*



Temporary cylinder
(ref. TC-TF)*



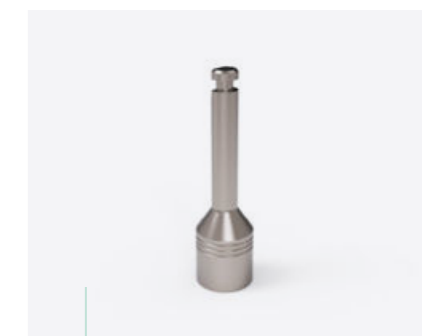
Interface
(ref. I-TF02)*



Healing abutment
(ref. HA-TF)



Driver Insert long
(ref. LT-TF-L)



Driver Insert short
(ref. LT-TF-S)

*Including screw

SYMBOLS



- 1 TSA details
- 2 TSA gingival height
- 3 TSA torque value

CE Mark		UDI Number	
Use in accordance with IFU		Production date	
Legal Manufacturer		Do not re-use	
Ref Number		Non-sterile	
Lot Number		MD	

BONE
CARE
Almost natural



BONECARE DYNAMICS NV

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