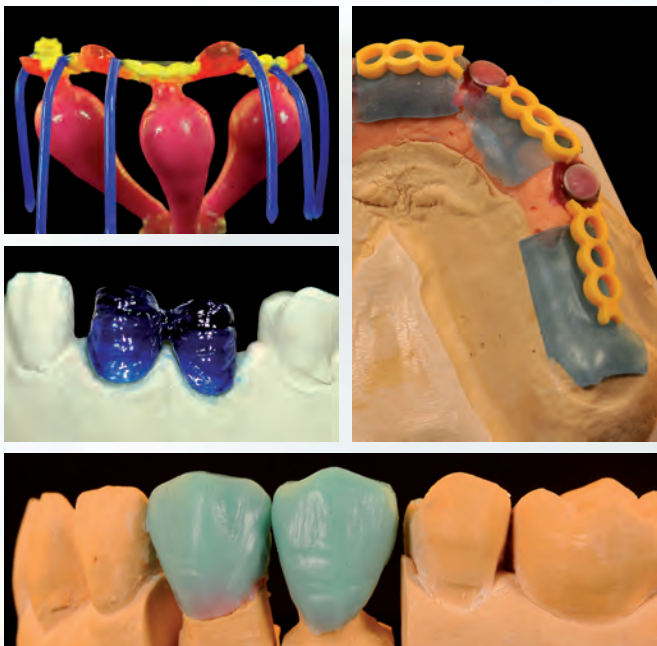


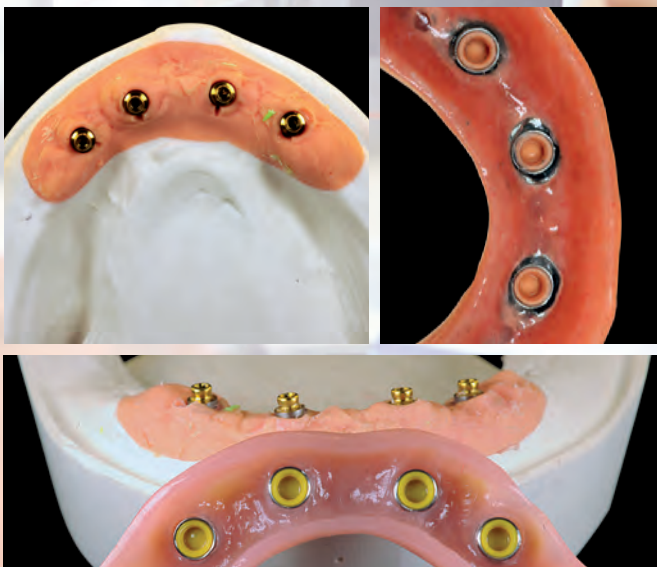
BASIC LEVEL

Introduction to the Rhein83 techniques in intra-coronal and extra-coronal prosthesis. Innovative procedures allowing to reduce working times and costs by using pre fabricated castable components. Direct overdenture concepts in implantology on all implant brands and platforms.



MASTER LEVEL

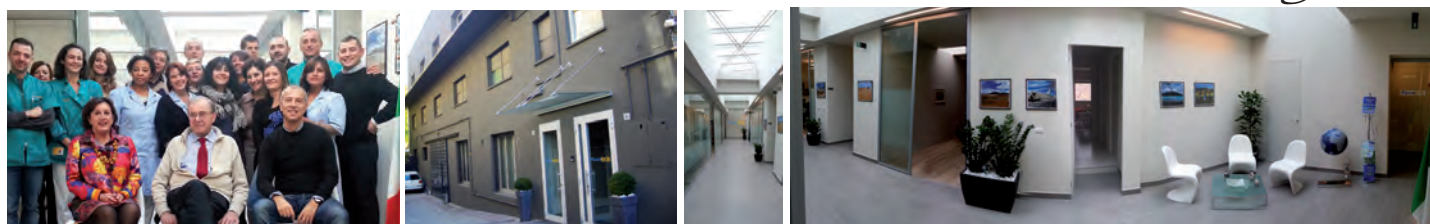
Deeper insight into the themes presented during the basic course with special focus on implant prosthesis and new digital cad cam working procedures. Simple and useful solutions in complex implantology clinical cases.



RHEIN83 BIRTH, GROWTH AND EVOLUTION

Metallic spherical attachments exist since many years. But these attachments were not widely accepted, by the dental professionals. Then came the idea to render these mechanisms elastic! A smoothed head and the elastic cap are the result of these innovative changes; today this technique is amongst the most widely used. Rhein83 has been in business since 1983 and today these products have been copied throughout the entire world, copies that in many cases reflect the forms of the objects but not the materials they are made from, and therefore it significantly changes the functional result. Research is not only oriented towards the study of new products, but also continually trying to perfect those that have been used for many years. Dental attachments are small mechanisms subjected to continuous movement, stresses and oral changing, requiring periodic maintenance and revisions. Some products in this have been made for maintaining and restoring the functionality, to all the prostheses, directly while they are in the mouth of the patients. The commitment of Rhein83 with its knowledge and skills continually being enriched by the contributions of dentists and laboratory technicians, is to be able to improve the actual standards and develop new products by means of original projects.

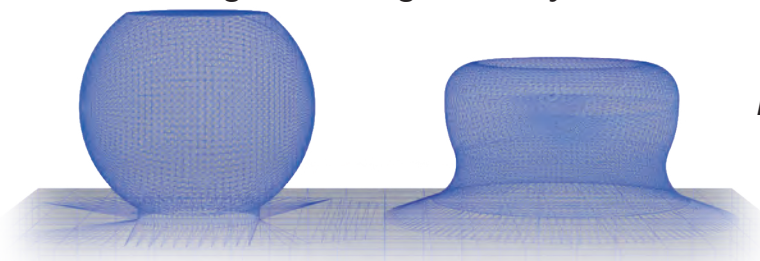
Ezio Nardi



1983 - 2017

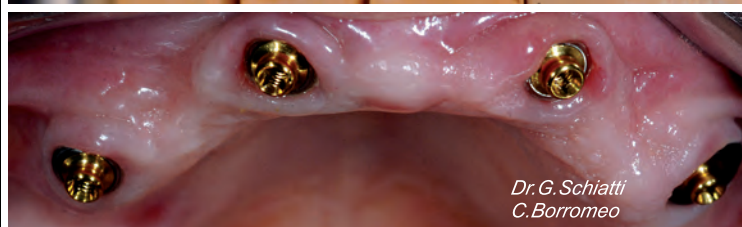
RESEARCH AND INNOVATION TODAY

By over 34 years Rhein83 is continuously innovating the dental attachments world with materials and designs allowing to satisfy the technical requests of the dental specialists.



NEW OT EQUATOR PROFILE
Evolution from the sphere to the semi-sphere, reduced dimensions allowing the same stability and functionality!

TECHNICAL INNOVATIONS AVAILABLE TO ALL!



| | |
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COMPARISON OF RIGID CAPS vs. ELASTIC CAPS

Characteristics and retentive functionality

**FRICITION FIT CAPS:
RIGID MATERIALS**
• ACETALIC PLASTICS
• METALS
(thin layer)

Friction fit contact zone is very thin because of non-elastic material

FRICITION CONTACT ZONE

With rigid materials, only minimal friction retention is achieved due to the smaller friction contact zone

FLEXION OF THE WALL

With rigid materials, there is an "outward flex" of the wall of the cap

RIGID RESILIENCE

In spite of the flat surface of the sphere, rigid materials do not allow vertical resiliency

**RETENTIVE FIT CAPS:
ELASTIC MATERIALS**
• NYLON
(thick layer)

The elastic materials allow a wide contact zone of retention by the equator on the undercuts of the sphere

RETENTIVE CONTACT ZONE

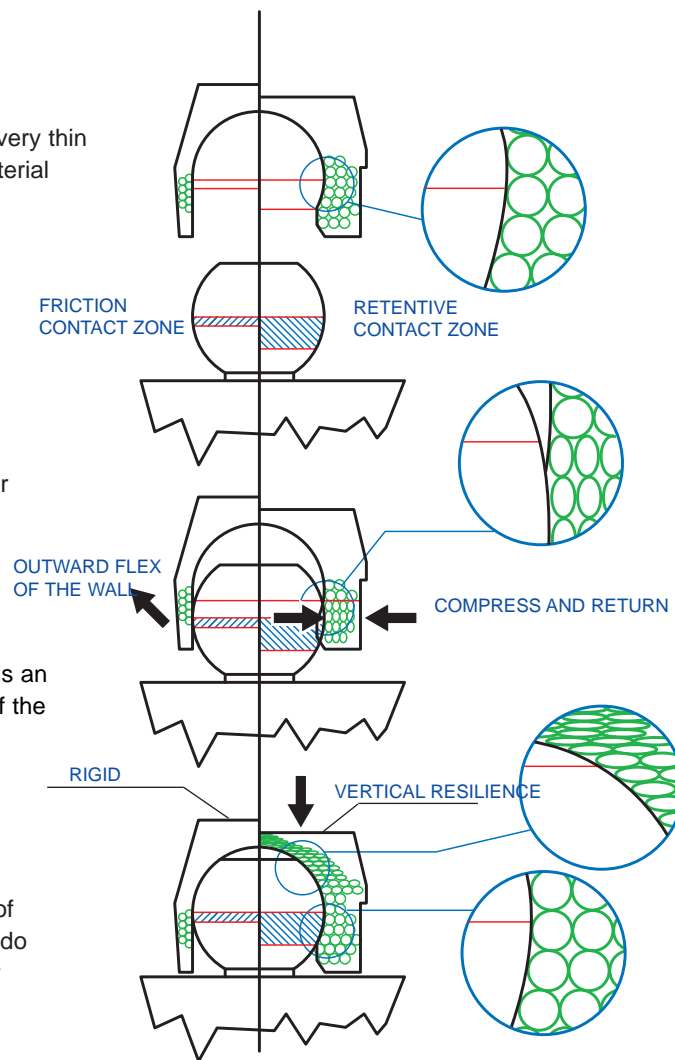
With elastic materials, greater friction and mechanical retention is achieved with a higher degree of functionality

COMPRESS AND RETURN

With elastic materials, the wall of the cap is compressed and then returns to its original shape

VERTICAL RESILIENCE

The space between the flat surface of the sphere and elastic cap allows for vertical resiliency and reduces stress



RHEIN83 - DESIGN AND FUNCTION

Rhein83 continues to manufacture female caps with elastic retention with the intention of eliminating as much vertical stress and trauma to the restoration as possible. For Rhein83 the important thing is to make a system of components available to the dental technician and dentist that will allow for the fabrication of a rigid, shock absorbing or resilient prosthesis. With the use of elastic retention, the function of Rhein83 attachments are extended.

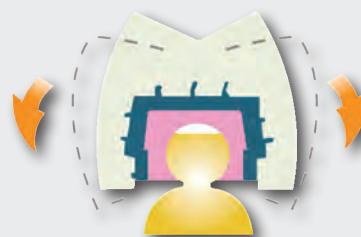
With overdenture prosthetic devices or cases involving edentulous saddles, resiliency can be controlled with a wide range of retentive caps that have various levels of elasticity and retention.



Vertical movement



Rigid retention



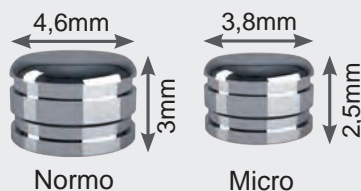
Movement in all directions

CLASSIC CAPS SIZES AVAILABLE: NORMAL AND MICRO

Retentive cap colors and retention

| | | |
|--|---|---|
| CLEAR CAPS STANDARD RETENTION |  | Slightly Elastic Maximum suggested time of duration in mouth: 12 months Retention in grams: Normal 1300g / Micro 1100g |
| PINK CAPS SOFT RETENTION |  | Elastic Maximum suggested time of duration in mouth: 12 months Retention in grams: Normal from 900g / Micro 800g |
| YELLOW CAPS EXTRA SOFT RETENTION |  | Very elastic Maximum suggested time of duration in mouth: 12 months Retention in grams: Normal 500g / Micro 450g |
| GREEN CAPS ELASTIC AND GUMMY |  | Characteristics Extremely elastic retention, "GUMMY" type. Minimally hydroscopic, with a good adhesion on the sphere. Retention in grams: Normal 350g / Micro 200g |
| EXTRA RESILIENT GOLD CAPS SLIGHTLY ELASTIC |  | Characteristics To be used in overdenture prostheses, where resilience and vertical movements are necessary. Retention in grams: Normal 500g / Micro 450g |
| EXTRA RESILIENT SILVER CAPS ELASTIC AND GUMMY |  | Characteristics To be used in overdenture prostheses, where a vertical movement is necessary and a light initial retention is requested. Retention in grams: Normal 350g / Micro 200g |
| PROCESSING CAPS |  | Characteristics Caps to be used only for laboratory processing. |
| TITAN CAPS NYLON CAPS WITH INTERNAL TITANIUM RING |  | Characteristics Extremely durable. To be used especially in combination with pre-fabricated spheres such as titanium spheres, concave spheres, etc. Retention in grams: Normal 1500g / Micro 1300g |
| UNDERSIZED INTERNAL DIAMETER CAPS STANDARD RETENTION |  | Characteristics Internal diameter reduced (Normal 2.2mm Micro 1.6mm), for 2.25mm - 1.6 spheres Retention in grams: Normal 1300g / Micro 1100g |
| UNDERSIZED INTERNAL DIAMETER CAPS SOFT RETENTION |  | Characteristics Internal diameter reduced (Normal 2.2mm), for 2.25mm spheres Retention in grams: Normal 900g |
| UNDERSIZED INTERNAL DIAMETER CAPS EXTRA SOFT RETENTION |  | Characteristics Internal diameter reduced (Normal 2.2mm), for 2.25mm spheres Retention in grams: Normal 500g |
| UNDERSIZED INTERNAL DIAMETER CAPS ELASTIC AND GUMMY |  | Characteristics Internal diameter reduced (Normal 2.2mm Micro 1.6mm), for 2.25mm - 1.6 spheres Retention in grams: Normal 350g / Micro 200g |

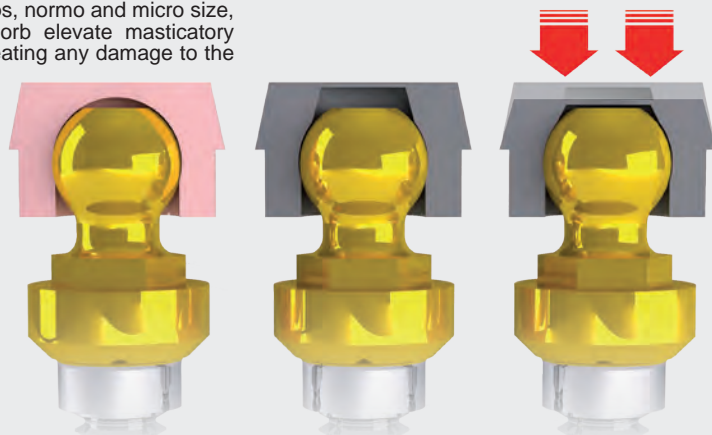
STAINLESS STEEL AND TITANIUM HOUSING FOR CAPS, PRE-FABRICATED, NORMAL AND MICRO SIZES



The new stainless steel housing design offer reduced size and additional stability, it can be embodied directly in the resin, welded or bonded to the frame. The new design is also available in titanium.

EXTRA RESILIENCY FUNCTIONALITY

Extra resilient caps, normo and micro size, will allow to absorb elevate masticatory forces without creating any damage to the implant or root.



OT EQUATOR CASTABLE

Single Attachment for Overdentures



-  OT EQUATOR
CASTABLE MALE ATTACHMENT
-  RETENTIVE CAPS
OT EQUATOR
-  STAINLESS STEEL HOUSING
-  TITANIUM HOUSING
-  VIOLET CAP
RIGID RETENTION (2.7Kg)
-  CLEAR CAP
STANDARD RETENTION (1.8Kg)
-  PINK CAP
SOFT RETENTION (1.2Kg)
-  YELLOW CAP
EXTRA-SOFT RETENTION (0.6Kg)
-  BLACK CAP
PROCESSING



IMPRESSION
TRANSFER
pick-up impression



IMPRESSION
TRANSFER
individual tray



STAINLESS STEEL
ANALOG FOR
PLASTER MODEL

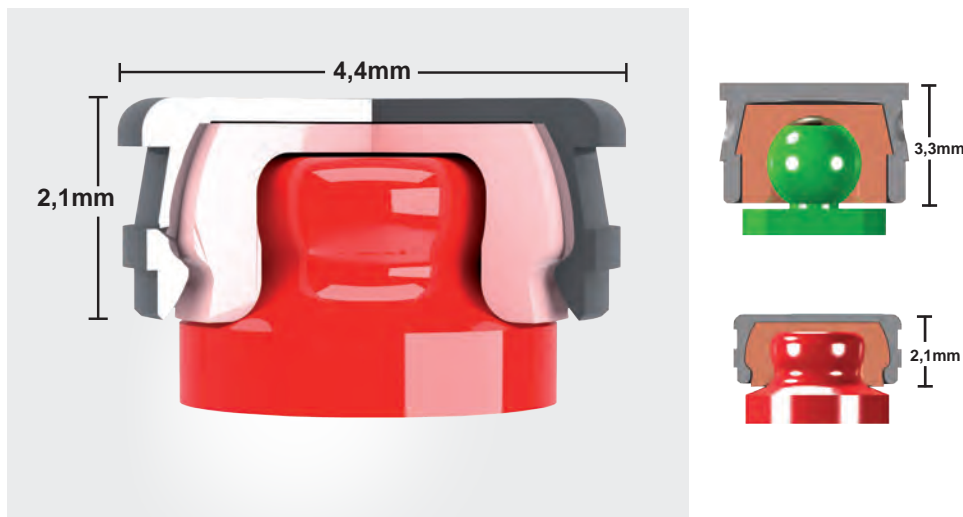


new
OT EQUATOR CAPS
INSERTER/EXTRACTOR TOOL
for the insertion/removal of the caps
into/from the metal housing

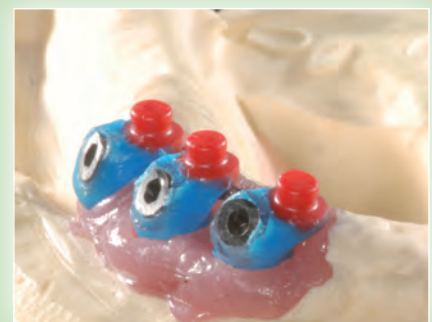


PARALLELOMETER
MANDREL

CLINIC



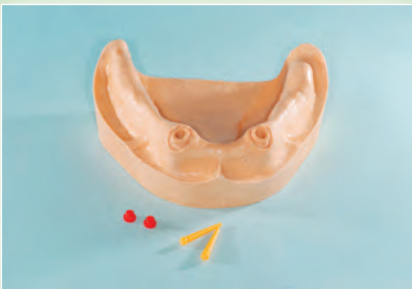
If additional retention is needed to secure the prosthesis, OT Cap Normal retentive caps and metal housings can be placed over any OT Equator Profile spheres. The prosthesis will be retained in the same way and the connection will be more rigid. Only the dimension of the attachment will be changed.



SEVERE DIVERGENCY MAY REQUIRE THE OT EQUATOR IN COMBINATION WITH A CASTABLE UCLA

LABORATORY

OT EQUATOR CASTABLE = INDIRECT TECHNIQUE



Use separating material on the stone model in the prepared areas to receive the castable posts.



Use longer castable posts in the root channels for easy removal. Reline with castable resin, for higher accuracy.



Place posts and finish margins with composite material. Once resin is cured, cut posts to the required length at root level.



Position OT Equator on the occlusal surface with the paralleling key and continue waxing technique.



OT Equator in the final position. The wax-up has been completed.



For the best results, create the casting with an alloy that has a vickers hardness of 220 or greater.

BUILD UP THE FRAME DIRECTLY ON MASTER MODEL



The plaster model with the OT Equator analog in position. The stainless steel housing and black processing cap are also visible.



Apply a thin layer (.5mm) of wax to the model. Fill the undercuts on the stainless steel housing and attach the connectors.



Connect the parts using a castable resin. Be sure to cover the stainless steel housing.



Add sprues to the framework and remove it from the model. Be sure that the stainless steel housing does not remain inside. The framework is now ready to be invested.



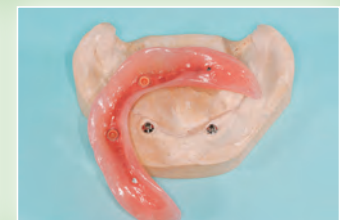
Cast the metal frame and verify the position on the model.



Use composite to bond the stainless steel housing to the frame.



The metal frame with the stainless steel housing in place.



The finished prosthesis on metal frame. After processing, the black caps are replaced with pink caps.

OT EQUATOR FOR IMPLANTS

Low Profile Titanium Abutment

OT EQUATOR

4,4mm
2,1mm

RETENTIVE CAPS OT EQUATOR

- STAINLESS STEEL HOUSING
- TITANIUM HOUSING
- VIOLET CAP RIGID RETENTION (2.7Kg)
- WHITE CAP STANDARD RETENTION (1.8Kg)
- PINK CAP SOFT RETENTION (1.2Kg)
- YELLOW CAP EXTRA-SOFT RETENTION (0.6Kg)
- BLACK CAP PROCESSING

OT EQUATOR TITANIUM + TIN ATTACHMENT

IMPRESSION TRANSFER (pick-up impression)

IMPRESSION TRANSFER (individual tray)

STAINLESS STEEL ANALOG FOR PLASTER MODEL

SQUARE SCREWDRIVER 1.25mm + OT EQUATOR HOLDER for implant abutment usable with manual wrench torque device

SQUARE DRIVER CONNECTOR 1.25mm for contra angle torque controller

INTERCHANGEABLE OT EQUATOR HOLDER

RATCHET TORQUE CONTROL DEVICE For Sphero block - flex and Ot Equator 15/35Ncm Strength - Max 50Ncm torque, suggested 25Ncm.

OT EQUATOR CAPS INSERTER/EXTRACTOR TOOL for the insertion/removal of the caps into/from the metal housing

The unique design and exceptionally low 2.1mm profile of the OT Equator 4 in 1 System provides exceptional stability and superior retention when compared with other attachment systems. Due to its lower radius, OT Equator is indicated to correct divergence up to 25 degrees between implants without affecting the functionality of the elastic nylon cap. Caps are available in a wide variety of retention levels. ATTENTION; Where implant divergence exceed the maximum 25 degrees, Sphero Block and Sphero Flex are recommended case plan options. See Sphero Block and Sphero Flex page 40-41

Smart BOX

the self-aligning Ot Equator Housing

Metal to metal rotational core

Titanium anodized housing

Titanium liner

Elastic cap

25°

new

TITANIUM HOUSING WITH BLACK CAP

new

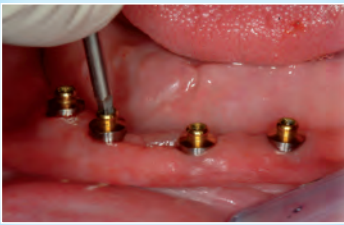
SMARTBOX BLACK CAP ONLY FOR LABORATORY

Passive insertion reduces trauma

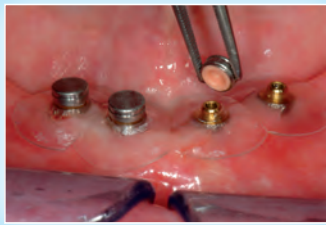
Correct divergency up to 50°

CLINIC

ATTACHING THE CAPS IN CLINIC



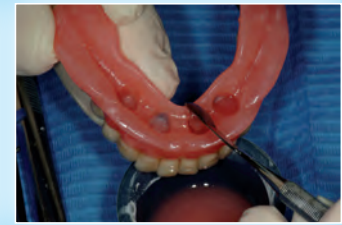
Select the OT Equator with the appropriate cuff height. Screw the OT Equator into the implant.



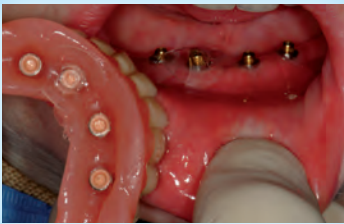
Place the protective disk over the OT Equator. Then, place the stainless steel housing with cap on the attachment.



Verify the positioning of the prosthesis before bonding the stainless steel housing.



On the prosthesis, fill the implant sites with a self curing resin and insert into the patient's mouth.



Remove the prosthesis and verify that the positions of the attachments are correct.



Remove the protective disks.



Carefully trim away the excess resin.



The completed prosthesis.

IMPRESSION TRANSFER



Place the impression coping on the OT Equator.



Insert the analog into the impression coping and pour the master model.

LABORATORY

BUILD UP THE FRAME DIRECTLY (for the full technique go to page 7)



Add sprues to the framework and remove it from the model. Be sure that the stainless steel housing does not remain inside.



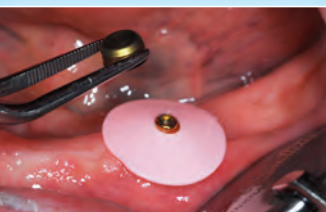
The metal frame with stainless steel housings bonded in place.

CLINIC

CHAIRSIDE PROCEDURE FOR SMARTBOX POSITIONING



Select the OT Equator with the appropriate cuff height. Screw the OT Equator into the implant.



Position the protective disk over the OT Equator.



Fully engage SMARTBOX with Black cap securely onto OT Equator.



Fill the space corresponding to the housings with self curing resin. Insert the prosthesis into the final position.



Once the resin has cured, remove the protective disk.



Remove excess resin with bur and polish for passive connection.



Remove SMARTBOX black cap with cap extractor tool.



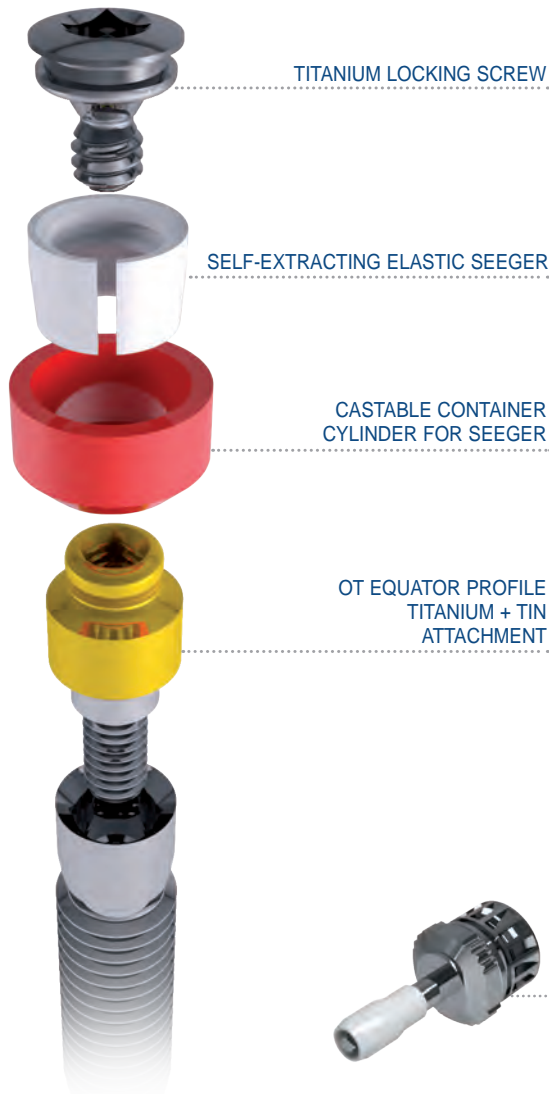
Using the cap insertion tool, select 1 of 4 Ot Equator frenal caps for desired retention.

ELASTIC SEEGER

Passive bar connection

OT EQUATOR

New SEEGER



new



SQUARE SCREWDRIVER
1.25mm + EQUATOR HOLDER
for implant abutment
usable with manual wrench
torque device



CAPS EXTRACTOR
WITH HOUSING FOR
INSERTER.
curved tool for seeger
insertion



STAINLESS STEEL
ANALOG
for plaster model

The purpose of the OT Equator "seeger" system is to create a passive connection for implant supported bars. The elastic seeger will correct small imperfections created by the chairside impression technique or laboratory casting process. This reduces the risk of the implant bar to not seat passively.

LABORATORY

OT EQUATOR castable attachments for direct overdentures on endodontically treated roots

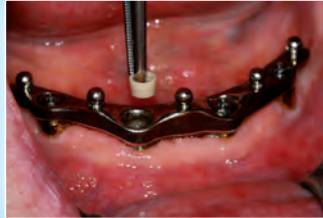
OT EQUATOR castable attachments are placed on the connecting bar creating a "balance" with the removable prosthesis. Alloys with a Vickers Hardness of 240 or greater are recommended for casting.

CLINIC

POSITIONING SYSTEM WITH BAR "ELASTIC SEEGER"



OT Equator titanium attachments screwed into the implants. The elastic seeger system will be used to position the bar.



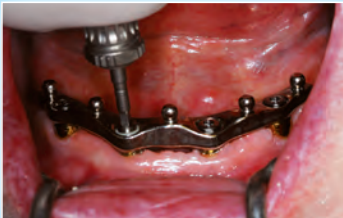
The cast bar in position. Insert the PEEK elastic seeger ring into the cylindrical space.



Using the insertion tool, push down the PEEK elastic seeger ring until it is fully seated.



PEEK seeger ring in position, ready to screw the titanium locking screw.



After the elastic seeger ring has been inserted, lock the bar into place using the titanium locking screw, (Torque suggested 15 Ncm)



The finished bar secured in the mouth. A passive connection has been achieved due to the elastic PEEK seeger rings.



The completed prosthesis. For best results a reinforced superstructure is always recommended.



In case of a future check, the special internal design of the PEEK seeger ring allow the self extraction together with the titanium locking screw

WAX-UP OF THE BAR DIRECTLY ON MODEL MASTER



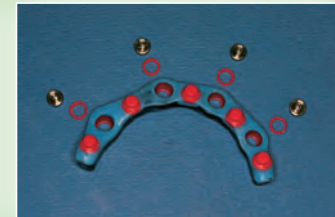
Screw the OT Equator attachments into the implant analogs.



Position the seeger castable cylinders, followed by the red plastic seeger for laboratory use on the attachments (Thinner part lower). Screw the titanium sealing lid into position. Do not overtighten.



Connect the castable abutments with wax or resin.



Before casting, remove the red plastic seeger ring.



The cast bar in position on the model.



The cast framework in position. Undercuts on the stainless steel housing can be blocked out using composite material to maintain a passive connection.



Fit and stability of the prosthesis can be regulated using nylon caps. Various levels of retention are available.



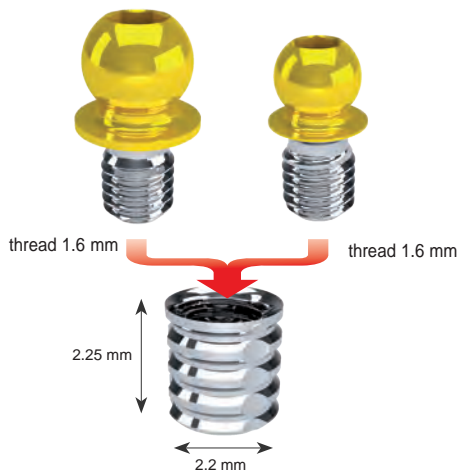
The final prosthesis.

INTERCHANGEABLE THREADED ATTACHMENTS with threaded sleeve system

OT CAP

NORMAL SPHERE
HEX 1.3 mm

MICRO SPHERE
HEX 0.9 mm



THREADED SLEEVE FOR BONDING



OT CAP SLEEVE
SPACERS
Normal/Micro

HEX
SCREWDRIVER
HEX 0.9 mm

HEX
SCREWDRIVER
HEX 1.3 mm

RETENTIVE CAPS
OT CAP



Clear
Standard

Pink
Soft

Yellow
Extra Soft

Green
Elastic

Black
Processing

S.STEEL HOUSING
OT CAP NORMAL / MICRO

TITANIUM HOUSING
OT CAP NORMAL / MICRO

OT EQUATOR

OT EQUATOR
SQUARE HEAD



THREADED SLEEVE FOR BONDING



SCREWDRIVER
OT EQUATOR SQUARE
+ INTERCHANGEABLE
HOLDER

S.STEEL OR
TITANIUM
HOUSINGS
OT EQUATOR

OT EQUATOR
SLEEVE SPACER

RETENTIVE CAPS
OT EQUATOR



Violet
Strong

Clear
Standard

Pink
Soft

Yellow
Extra Soft

Black
Processing

PARALLELOMETER
MANDREL Normal / Micro



OT EQUATOR CAPS
INSERTER/EXTRACTOR TOOL
for the insertion/removal of the caps
into/from the metal housing



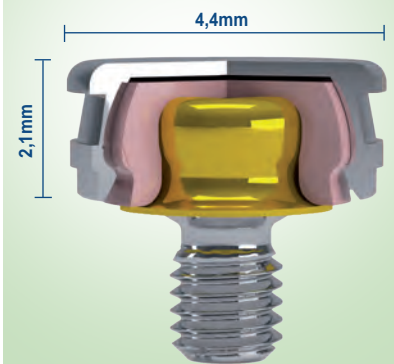
OT CEM COMPOSITE MATERIAL
Metal to Metal Bonding



LABORATORY



OT EQUATOR



OT CAP - OT EQUATOR FOR CAD-CAM MILLED BARS

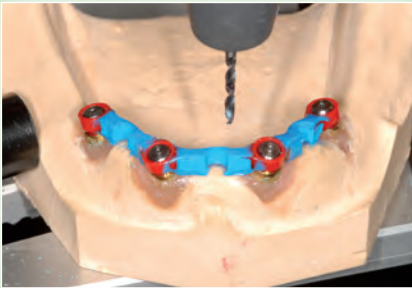
NORMAL SPHERE

MICRO SPHERE

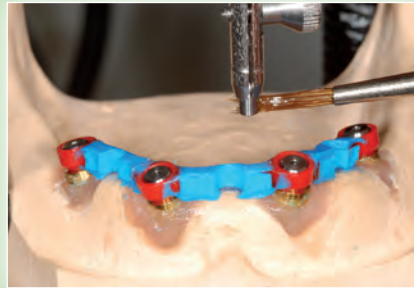
OT EQUATOR



STEP BY STEP THREADED SLEEVE BONDING PROCEDURE



Once the bar has been connected with wax, create an area where the attachment spacer will be placed.



Apply separator to the base of the attachment spacer and position using the parallelometer key.



With the attachment spacer in position, complete the wax-up design.



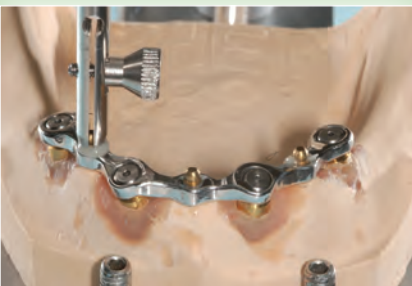
Carefully remove the attachment spacers and proceed with the normal casting procedure.



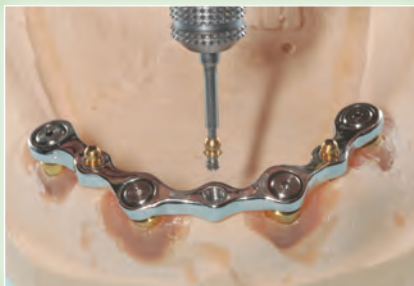
Screw the threaded attachment of choice (Micro Ball shown) into the threaded sleeve.



Place the assembled attachment into the parallelometer key. Use a self curing metal to metal bonding composite on the sleeve and in the cylinder.



After the composite is cured, remove any excess material.

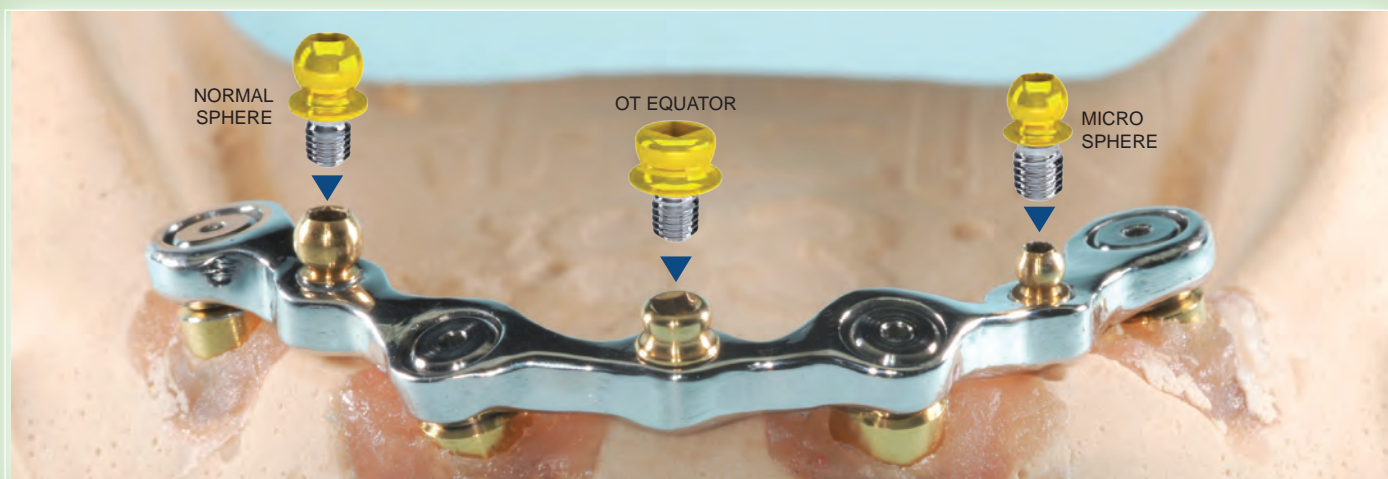


Unscrew the attachment to verify if the threaded sleeve is securely bonded in place.



The finished bar complete with attachments.

3 ATTACHMENT OPTIONS



THE TECHNIQUE IS THE SAME FOR ALL THREE OPTIONS

EXTRACORONAL CASTABLE ATTACHMENTS

OT CAP - OT CAP TECNO

OT CAP



CASTABLE BARS
Normal / Micro

STAINLESS STEEL AND TITANIUM HOUSINGS
Normal / Micro
for curing, welding or bonding



OT BOX MONO
Normal / Micro



RETENTIVE CAPS
Normal / Micro



TITAN CAP
Normal / Micro

OT CAP TECNO



PARALLELOMETER MANDREL FOR OT CAP TECNO
Normal and Micro

PARALLELOMETER MANDREL FOR OT CAP
Normal / Micro



REGULATING TOOL FOR RETENTION
Normal / Micro



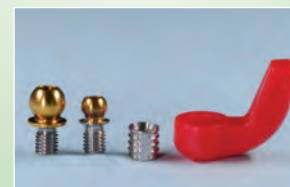
OT EQUATOR CAPS INSERTER/EXTRACTOR TOOL
for the insertion/removal of the caps into/from the metal housing



LABORATORY



OT CAP TECNO



View of the Ot Techno system, Normo or Micro sphere can be used with the same threaded sleeve.

OT MONO BOX



OT BOX MONO: The positioning ring to be inserted on the sphere before model duplication.

OT Cap is a resilient distal extension attachment. It is indicated to be used with combined prostheses and removable partial dentures.

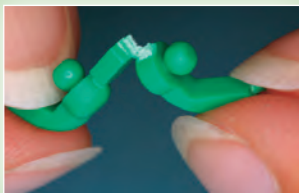
For treatment plans that require a rigid substructure with milling and adequate counter attachments, OT Cap functions as a stabilizing retentive connector. In addition, for treatment plans which require resiliency, OT Cap provides a "Cushion Effect" similar to a shock absorber. This is achieved by the design of the sphere in conjunction with the elastic retentive caps.

The OT Cap Tecno consists of a titanium sphere and ring that is incorporated into the nylon cap which has been machined with a tolerance that assures high precision. While fabricating the prosthesis, the Tecno titanium sphere is not exposed to any of the risks associated with the laboratory fabrication procedures and ceramic firing cycles.

COMBINED PROSTHESES with extracoronary castable attachments



OT CAP CASTABLE



Cut the plastic bar and use only the section that you need.



Using the mandrel, position the spheres in parallel. Complete the wax-up with a "ledge" along the crown. The "ledge" must not be lower than the sphere.



The cast crowns. It is suggested to use a retentive cap to protect the sphere from any damage.



The cast attachment. The "ledge" along the crown helps select and redirect the vertical loads.



Using the mandrel, position the Ot Tecno castable extension in parallel. Complete the wax-up with a "ledge" along the crown and cast.



Place the assembled attachment into the parallelometer key. Use a self curing metal to metal bonding composite on the sleeve and in the cylinder.



After the composite is cured, remove any excess material.

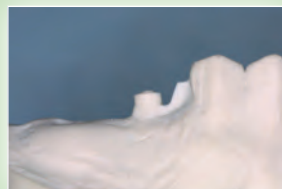


Unscrew the attachment to verify the threaded sleeve is securely bonded in place.

CAST HOUSING WITH DUPLICATED MODELS



The OT Cap positioning ring on the sphere.



The duplicated model in investment.



The OT Mono Box castable housing in position and incorporated into the final wax design.



The final OT Mono Box casting with retentive caps inserted into the housing.

The castable **OT MONO BOX** reproduces the shape of the housing which incorporates the retentive cap into the framework. Use the OT CAP insertion tool to place the retentive cap into the housing.

CASTABLE HOUSING

Customized solution for frames with single castable sphere housing for caps



CASTABLE HOUSING

SINGLE HOUSING
Castable Normal size



POSITIONING RING

SINGLE HOUSING
Castable Micro size



POSITIONING RING

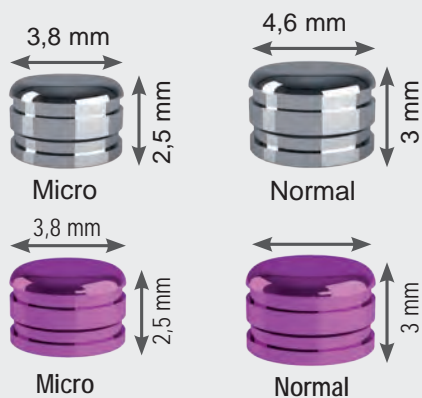
HOUSINGS:

STAINLESS STEEL - TITANIUM

The new stainless steel housing design offer reduced size and additional stability, it can be embodied directly in the resin, welded or bonded to the frame.

The new design is also available in titanium.

SIZE FOR RESIN OR SOLDERING



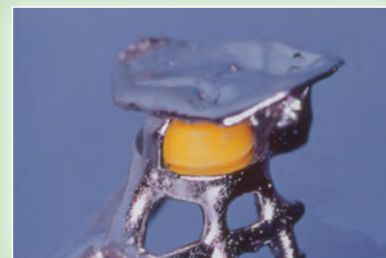
LABORATORY

When vertical space is limited, use reinforced pins to reduce the risk of breakage of the denture teeth.

SOLUTION A



Place a piece of .5mm calibrated wax over the wax-up design for additional protection.



The finished casting with retentive cap in place.

SOLUTION B



Small wax pins are added for reinforcement of the denture acrylic as well as additional retention for the denture teeth.

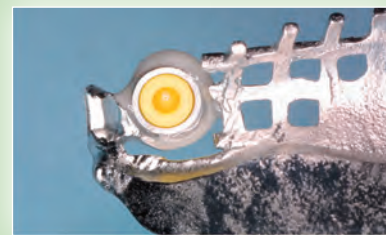


The final cast housing with reinforced metal pins.

STAINLESS STEEL PRE-FABRICATED HOUSINGS

For bonding or soldering to the frame

To obtain the right position use the POSITIONING RINGS. NORMAL and MICRO sizes are available.



Rhein83 continues to be the world leader in spherical attachments and implant components. Largely due to continuous research and development, active participation in exhibitions as well as providing practical hands-on technical training for dentists and dental laboratory technicians. In addition, the company utilizes state of the art technology to constantly develop new products and improve existing product design as well as promote product awareness.

Rhein83 attachment systems are technically supported in over 75 countries worldwide.



Ezio Nardi Claudia Nardi Gianni Storni
 Founder President VP Technology



CERTIFICATIONS:

Since 1996 Rhein83 has been operating with a quality control system that conforms to:

- UNI EN ISO 9001:2008 Standards
- UNI CEI EN ISO 13485:2012 Standards
- Directive 93/42/EEC

Rhein83 received this certification from Clementi, Italy, which is the certifying body for all activities associated with C€ certification.

That same year, the company passed the rigorous requirements for the United States Food and Drug Administration, permitting it to sell attachments and implant components in the United States market.

All of the components are designed, manufactured and sold with respect to the D.Lgs 37/10.

CASTABLE VERTICAL ATTACHMENT MICRO



FOR DUPLICATION TECHNIQUE



FOR INSERTION INTO THE PRE-FABRICATED HOUSING

CAPS



Clear • Standard



Pink • Soft

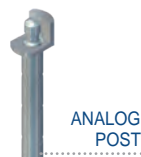


Yellow • Extra Soft



Black • Processing

STANDARD BASE Sphere Ø 1.8 mm LONG BASE Sphere Ø 1.8 mm



ANALOG POST

CAPS

Clear • Standard



Pink • Soft



Yellow • Extra Soft



Black • Processing



OT STRATEGY CAPS INSERTER/EXTRACTOR TOOL



PARALLELOMETER MANDREL



STAINLESS STEEL HOUSING to be welded or bonded to the frame



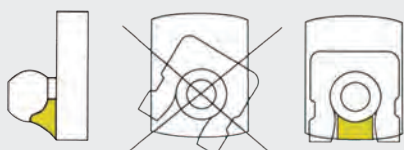
STRATEGY POSITIONER for correct positioning of the cap housing on the frame

PARALLELOMETER KEY PROFILE



SIDE A: For SPHERE positioning
SIDE B: For STEADY positioning

REINFORCEMENT FOR THE SPHERE



- Increased shear force strength
- Prevents rotation of female cap
- Increased lateral stability

OT Strategy from Rhein83 is a vertical micro-sized 1.8 mm castable sphere that is placed distally on abutments for removable partials or utilized in implant bar combination case design. The male component is designed with an additional support strut located under the sphere, increasing strength and preventing rotation of the female cap during paralleling. The optional Steady, when connected to OT Strategy, provides lateral stability without any additional milling.

OT Strategy caps are available for both duplication and fabrication using a stainless-steel housing technique. Rhein83 caps are manufactured from an elastic material that increases the contact zone with the sphere, giving mechanical and friction retention. Caps are color-coded indicating five levels of retention. Tools for paralleling, inserting, and removing caps are available.

CLINIC



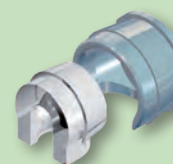
LABORATORY



Insert the OT Strategy male into the mandrel and place in position with base of attachment in contact with the stone.



The entire cap must be covered with a thin layer of wax during the frame wax-up procedure.



Once the casting is complete, proceed to use the cap and the prefabricated **STAINLESS STEEL HOUSING**. The housing can be bonded or laser welded to the frame. In addition, it can also be used for direct chairside procedures.



For best results during the **DUPLICATION TECHNIQUE**, it is suggested to use the **YELLOW** retentive cap.



DUPLICATION TECHNIQUE: USING CASTABLE HOUSING



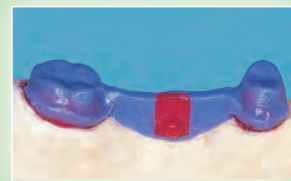
OT Strategy casting is complete with mandatory lingual milling to accept partial bracing arm.



Yellow retentive cap is placed on the sphere and the model is ready for duplication. Use wax to remove any undercuts.



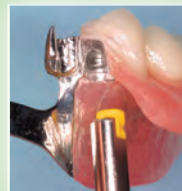
Model is duplicated and the shape of the cap is reproduced.



Insert the black cap into the skeletal cast frame cast partial with the OT Strategy Insertion Tool.



Frame is complete and placed on the model.

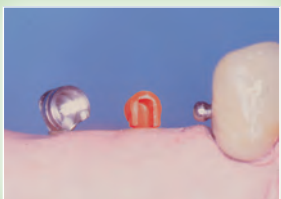


Using the insertion tool, insert the cap.



The finished prosthesis.

WELDING TECHNIQUE: USING PRE-FABRICATED STAINLESS STEEL HOUSING



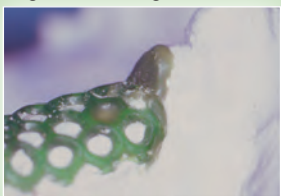
Crown and OT Strategy attachment cast. Positioning ring and housing.



Positioning ring on the sphere.



Stainless Steel Housing in position on the attachment.



Wax-up on the duplicated model.



First Option: Stainless Steel Housing welded to the frame.

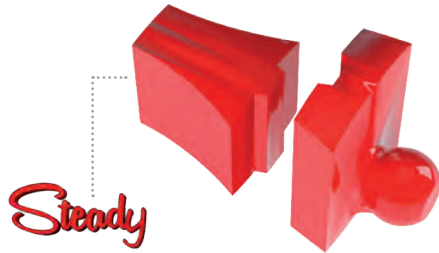


Second Option: Stainless Steel Housing bonded to frame with anaerobic self-curing resin.



ATTENTION:
Insertion of the cap from the mesial.

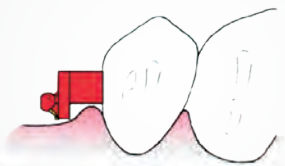
CASTABLE VERTICAL MICRO ATTACHMENT STRATEGY + OPTIONAL STEADY



Optional = STEADY



Steady + standard base



Steady + long base

The castable Steady is an optional conical shaped support intended for use in cases where milling is not performed. Steady can be used with the OT Strategy Standard or Long base.

It is an object in line with the philosophy of the personalization of each single prosthesis and is used with both the OT Strategy bases; Standard or Long and offer various technical solutions.

CLINIC



LABORATORY

TECHNIQUE WITH STANDARD BASE



Lute the two parts together using an adhesive and insert the sphere into the mandrel of the parallelometer.



The Steady can be used with its original height or it can be shortened and modified to accommodate the adjacent tooth and ridge.



Finish the wax-up and give the Steady the necessary shape for duplication in the sphere.



The duplicated model.



The frame wax-up.



The finished casting.

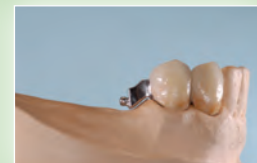
TECHNIQUE WITH LONG BASE



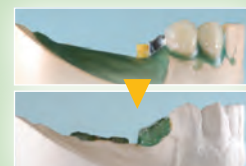
Lute the Steady to the Long base. Be sure to position the two parts according to the resorption of the ridge.



Position the attachment as close to the ridge as possible. Fill the space between the Steady and the ridge with wax.



The finished attachment design. The Steady has been adapted to the contour of the ridge.



Crown and Steady for duplication and retentive cap on the sphere.



Cast framework seated on the model.



Finished prosthesis.

When the **STEADY** base is utilized it provides superior lateral support when milling is not indicated. In the case of free saddles, the **STEADY** base avoids movement in all directions during mastication.

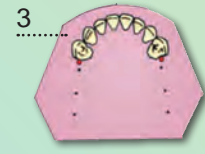
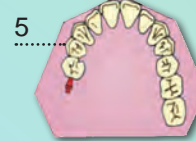
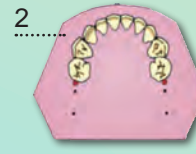
OT STRATEGY & OT CAP

Case design options

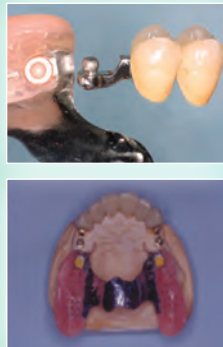
CLINIC

LABORATORY

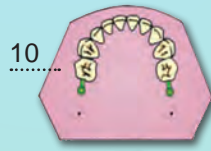
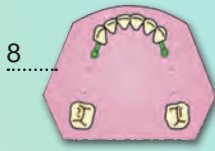
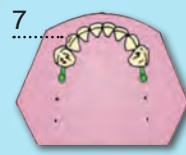
OT
STRATEGY



OT
CAP



OT CAP
LOWER
ARCH



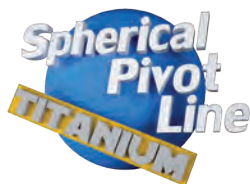
OT CAP
UPPER
ARCH



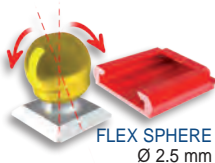
SINGLE SPHERES OT CAP



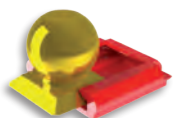
STAINLESS STEEL AND TITANIUM HOUSINGS
Normal / Micro size for curing welding or bonding



SINGLE SPHERES TITANIUM + TIN
1600 Vickers Hard
FOR WELDING OR BONDING



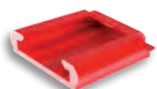
FLEX SPHERE
Ø 2.5 mm



FIXED SPHERE
NORMAL SIZE
Ø 2.5 mm



FIXED SPHERE
MICRO SIZE
Ø 1.8 mm



CASTABLE
SLIDING BASE

CASTABLE SINGLE SPHERES



NORMAL
Green
Ø 2.5 mm



MICRO
Red
Ø 1.8 mm

ELASTIC RETENTIVE CAPS Normal / Micro



Clear • Standard



Pink • Soft



Yellow • Extra Soft



Green • Elastic



Black • Processing

Undersized caps for worn or damaged spheres are also available. They are also compatible with 1.7mm and 2.2mm spheres. See parts list for item codes and descriptions.

PLASTIC PIVOTS for impression of the root canals



Normal



Micro



IMPRESSION
COPING
Normal / Micro



PIVOT ANALOGS
Normal / Micro



MOOSER BURS



PROTECTIVE
DISKS



PARALLELOMETER
MANDREL
Normal/Micro size



OT EQUATOR CAPS
INSERTER/EXTRACTOR TOOL
for the insertion/removal of the caps
into/from the metal housing

The design of the sphere with a FLAT head in addition to the spherical inner surface of the elastic cap, permits vertical movement during mastication. Rhein83 female caps are manufactured out of a special nylon material that remains stable and continues to function in the oral cavity over long periods of time.

Clinical data is available showing that stability is obtained with a minimal amount of trauma.

CLINIC



TRANSFER IMPRESSION TECHNIQUE



Put the impression coping on the sphere in the patient's mouth. Different levels of retention are available depending on the color of the cap used.

Impression coping in position, the external profile ensures a stable position in the impression.



Insert analogs into the impression copings and pour the model.



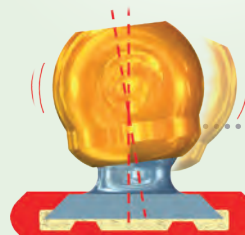
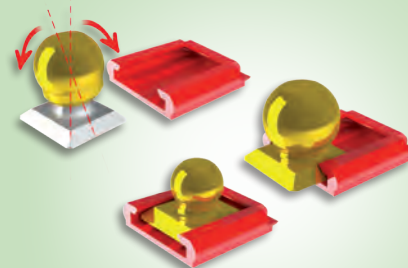
Stone model with analogs in place.

LABORATORY



ATTENTION:

These attachments can be cast with all types of alloys, but it is important to use a metal with a high Vickers hardness in order to avoid the risk of wearing the spheres.



NEW DESIGN

EASY FIT

OVERDENTURE PROSTHESIS

Indirect System

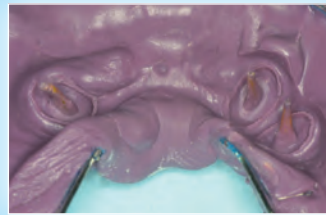
IMPRESSION OF ROOT CANALS



Prepare the roots.

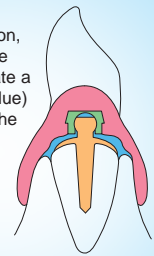


Apply adhesive to the post.



Impression with elastomer.

ATTENTION:
To obtain proper function, it is important to mill the resin with a bur to create a space (highlighted in blue) between the root and the prosthesis.



OT CAP - EMBODING STAINLESS STEEL HOUSING TO DENTURE



Protective discs on the cast metal spheres.



Fill the space corresponding to the housings with self curing resin. Insert the prosthesis into the final position.



Once the resin has cured, remove the disc and trim the excess material around the housing.



Finished prosthesis.

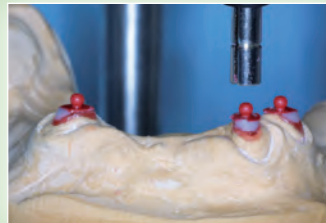
OT CAP - CASTABLE SINGLE SPHERE TECHNIQUE



Insert the castable plastic post into the prepared root cavity.



Cut the post to the level of the root and remove the sphere.



Position the single spheres in parallel with each other.



Cast post and sphere. It is also possible to place the sphere off center in respect to the long axis of the post.

OT CAP - TITANIUM SINGLE SPHERES + TIN FOR CURING WELDING OR BONDING



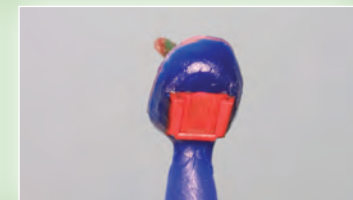
Wax-up the root cap. Insert the titanium sphere into sliding base and position it on the root cap.



Wax-up with titanium sphere in position. Do not cover the "open" side of the base with wax.



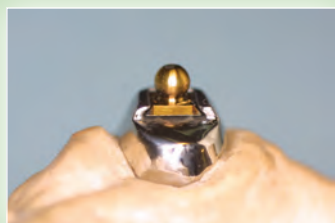
Remove the titanium sphere from the base before attaching sprue.



The finished wax-up with sprue. The root cap and post is ready to be invested.



Using the tool, check the fit of the cast cap by inserting the sphere into the base.



Titanium sphere inserted in the cast root cap base.

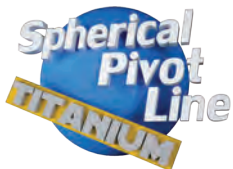


Bond the titanium sphere to the base using anaerobic or self curing composite material.



Finished root cap. The sphere is bonded and locked in position.

PIVOTS FOR DIRECT OVERDENTURE



PIVOT FLEX
TITANIUM +TIN
1600 Vickers Hard
"self-parallel" sphere



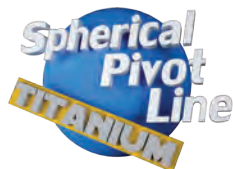
STAINLESS STEEL AND
TITANIUM HOUSINGS
Normal / Micro size curing
welding or bonding



ELASTIC RETENTIVE CAPS
Normal / Micro



SUPER-RESILIENT CAPS



**TITANIUM
PIVOT BLOCK**



PIVOT FLEX
TITANIUM + TIN
Ø 2.5 mm
3 lengths



PIVOT BLOCK
TITANIUM WITH STATIONARY SPHERE
NORMAL Sphere
Ø 2.5 mm
3 lengths



PIVOT BLOCK
TITANIUM WITH STATIONARY SPHERE
MICRO Sphere
Ø 1.8 mm
3 lengths



MOOSER BURS



PROTECTIVE
DISKS

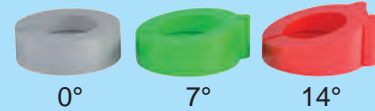
The Pivot Flex line of titanium posts was developed as an economical solution for direct "in root" supported overdentures. The self-aligning Pivot Flex post features a rotating ball with a 2.5 mm diameter and is indicated for divergent roots. When the posts are used with directional rings to align retentive caps before the resin curing stage, the insertion of the denture is easy and trauma-free.

The Pivot Block line of milled titanium posts has a stationary ball and can be used for a temporary or as a permanent solution. The Pivot Block titanium posts are available in 2.5 mm and 1.8 mm sphere diameters. The Rhein83 elastic caps ensure optimal retention and function while minimizing wear.

There are five levels of retentive caps, including extra resilient caps for precarious root situations. The levels of retention are identified by different colored caps.

CLINIC

DIRECTIONAL RINGS



The WHITE directional ring is used for parallel roots. GREEN and RED directional rings are used when angle correction is indicated. Directional rings must be used to position the retentive caps in parallel and in the same horizontal plane to correct the divergence.



PIVOT FLEX AND PIVOT BLOCK

OVERDENTURE PROSTHESES

Direct System

DIRECTIONAL RINGS - FOR FIXED AND ROTATING SPHERES



Pivot Flex posts in divergent roots.



Nylon caps without directional rings. Caps are not supported in the same horizontal plane.



Nylon caps with directional rings. Caps are now supported in the same horizontal plane.

PIVOT BLOCK - FOR TEMPORARY OR PERMANENT ECONOMICAL SOLUTIONS



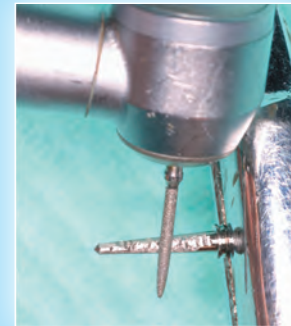
Pivot Block cemented with oxyphosphate cement for a temporary solution.



To remove the post from the root, grasp the sphere with the pliers and rotate carefully in both directions.



Due to the conical shape and smooth surface, the post is removed easily.



For permanent solutions, create notches in the post and roughen the surface before cementation.

TITANIUM PIVOT BLOCK: PERMANENT FIXATION IN THE PATIENT'S MOUTH



Prepare the root by the mucosal level and adjust the radicular cavity by using a Mooser Bur with the proper dimensions.



Fill-up the radicular cavities with proper composite cements, insert than the spherical titanium pivots.



Cemented micro block pivot in position, retentive notches were applied to support the permanent fixation.



Place the directional rings in position between the roots and retentive caps. Proceed by taking the imprint.



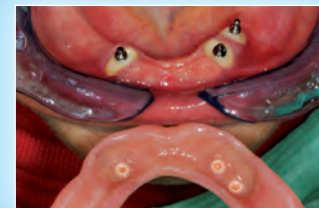
Alginate impression: attachment placements in evidence.



Place the protective disks between the directional rings and the retentive caps. Feel with self curing resin and then place the prosthesis in the patient's mouth.




When the resin will be hard enough remove the protective disk and clean up any excess of resin.



Completed prosthesis.


CASTABLE BAR CAP HOUSINGS



OT Classic BOX
+ CONNECTOR

CLASSIC BARS
NORMAL - Green + Yellow
MICRO - Red + Yellow

CONNECTOR
Universal castable bar for joining the OT BOX housings




ELASTIC RETENTIVE CAPS
Normal / Micro size


- Clear • Standard
- Pink • Soft
- Yellow • Extra Soft
- Green • Elastic
- Black • Processing

EXTRA-RESILIENT CAPS

- Gold • Slightly Elastic
- Silver • Elastic and Gummy

IMPRESSION COPING
Normal / Micro






OT Special BOX
+ CONNECTOR

SPECIAL BARS
NORMAL - Green
MICRO - Red

ANALOGS
Normal / Micro



CLINIC



Cast reinforcement wax-up on the master model without duplication.

LABORATORY



The OT Box Large casting compensates for the distance between the cap and the housing. It is manufactured to reposition the cap chairside into the frame.


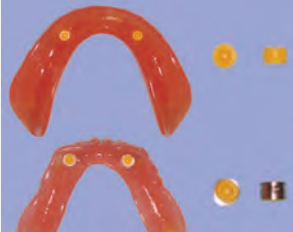

OVERSIZED CASTABLE HOUSING
for repositioning the caps directly in the patient's mouth



OT Large BOX
NORMAL + CONNECTOR



OT Large BOX
MICRO + CONNECTOR

A fracture is more likely to occur where the overdenture attachments are inserted in a prosthesis fabricated entirely of resin. With a cast superstructure reinforcement, the denture will be less likely to fracture. Fast and simple, the OT Box bar components are used to fabricate the superstructure directly on the master model, eliminating duplication and saving time. A non-precious or chrome cobalt alloy is recommended for best results.

It is recommended that all nylon caps are inserted into a stainless steel housing or cast reinforced frame. The stainless steel housing offers a considerable advantage when the cap has to be removed and replaced for routine maintenance or repositioned. Adjustments or repairs can be performed chairside quickly and easily.

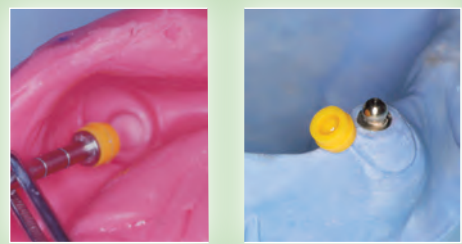
Option 1: OT CAP
OT Cap cured directly into the prosthesis.

Option 2: OT Cap + Stainless Steel Housing
OT Cap with housing cured directly into the prosthesis or bonded into frame.

Option 3: OT Cap + OT Box
OT Cap inserted into OT Box cast reinforced frame.

LABORATORY REQUIREMENTS FOR THE MASTER MODEL

When a new denture is being fabricated utilizing existing spheres, the dentist must provide the laboratory with an impression using the YELLOW CAP. The laboratory will place the analog into the cap and pour the stone model.



CAST REINFORCEMENT IN ACRYLIC DENTURES without duplication of the model

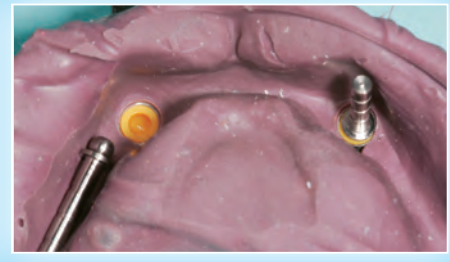
IMPRESSION WITH POSTS FIXED IN THE MOUTH



Titanium posts cemented into the root.



Before taking the imprint place the transfer over the spheres supported by the proper directional ring.



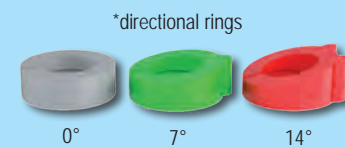
Insert analogs into the impression copings and pour the model.



Stone model with analogs in place.



Plaster model with metal-fused components.



*directional rings

0°

7°

14°



DIRECT WAX-UP ON THE MASTER MODEL



OT Box Classic. Glue the two OT Box bars together.



Separate the housing from the OT Box bar connector.



“ONE-PIECE” MONO BAR
BAR
OT BOX SPECIAL is a “one-piece” mono bar. Separate the bar and use only the section needed.



Apply a layer of wax on the ridge. Create three holes in contact with the stone model. Place the positioning rings over the spheres. Be sure to place the ring with the “flared” end towards the coping.



Position the OT Box Classic or Special housings over the rings. Complete the reinforcement using the connectors and join the pieces together with self-polymerising resin.



Finished wax-up with sprue; ready to be invested.



Finished casting with black retentive caps in housing.



Complete prosthesis with cast reinforcement.



For additional reinforcement...with the silicon mask in position, insert a wax pin to support each tooth before casting.

OT REVERSE 3



ROOT TITANIUM + TiN ATTACHMENT



STAINLESS STEEL AND TITANIUM HOUSINGS



MALE RETENTIVE \varnothing 1.8 mm



CONNECTION ROOT PIVOT TITANIUM + TiN



ABUTMENT TRANSFER COPING



CAPS EXTRACTOR WITH HOUSING FOR INSERTION TOOL



Male insertion tool OT REVERSE 3



MANUAL TOOL



ANALOG FOR ROOTS



PROTECTIVE DISK



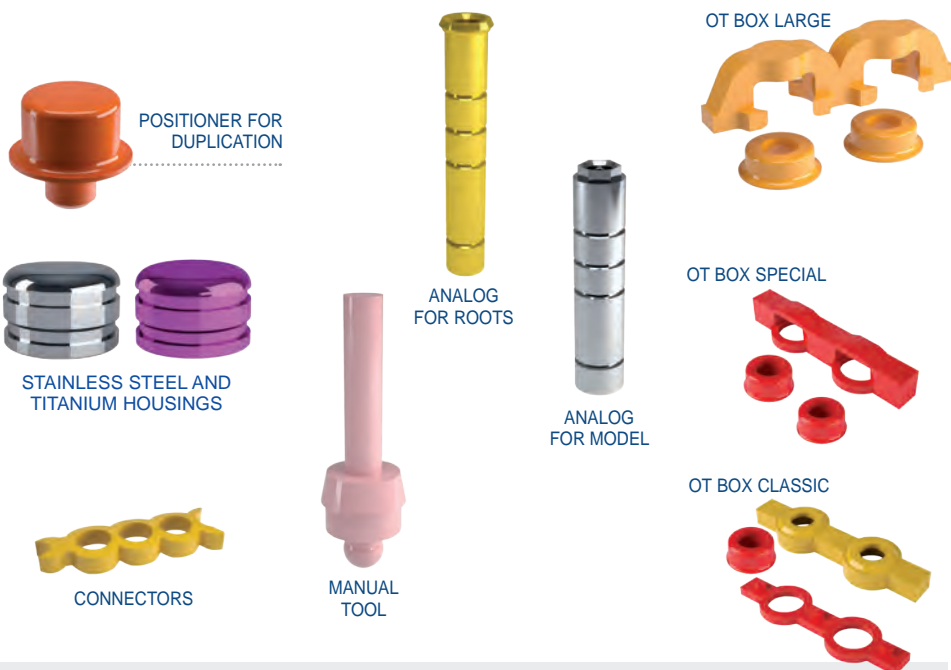
DIAMOND SIZING BUR For root preparation

CLINIC




Ref. 034 PRK - PACK:
 N. 2 Root Pivots in Titanium+TiN
 N. 2 Retentive Males in Titanium + NYLON
 N. 2 Plastic Hand Tools
 N. 2 Stainless Steel Container
 N. 2 Protective Disks

PROSTHESIS WITH REINFORCEMENT IN CAST METAL



OT REVERSE 3 is a root supported direct pivot attachment system which provides retention and stability for full dentures. The "split" male portion of the attachment is manufactured from titanium that is embedded into a soft nylon material. The female pivots have a unique shape that is designed to fit most remaining root structures. OT REVERSE 3 is successful even with minimal bone support of the remaining dentition. The system is cost effective with simple laboratory and chairside procedures.

LABORATORY

