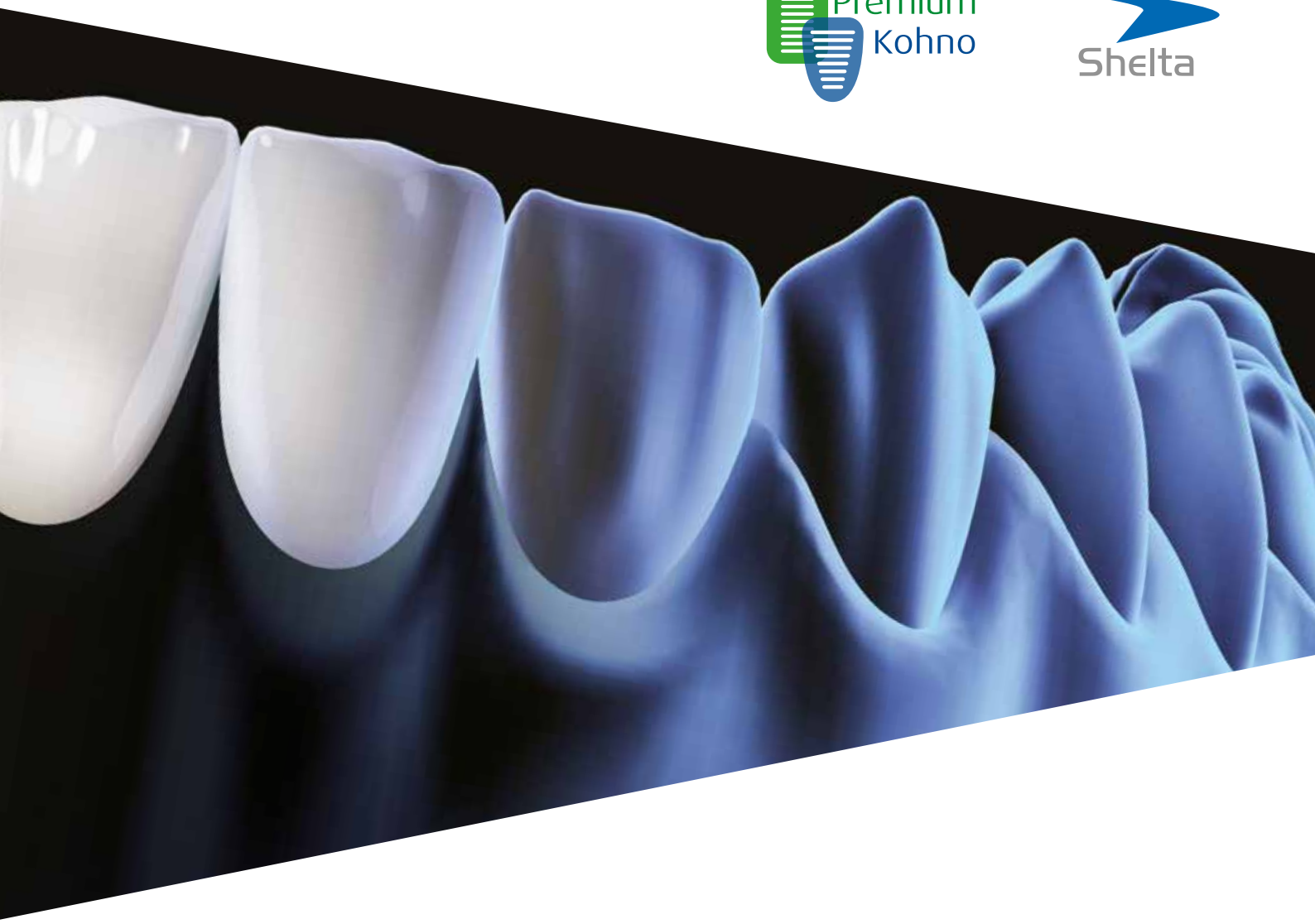
OVERDENTURE PROSTHETIC MANUAL

Premium Kohno

Shelta



sweden & martina
IMPLANTOLOGY

PROSTHETIC MANUAL TABLE OF CONTENTS

Sweden & Martina develops and manufactures implant systems that offer both excellent clinical functionality and perfect aesthetic results. The prosthetic components available reflect the company's updating and development capacity and cover all the requirements of prosthodontists and laboratories. The same quality obtained for the production of implants is also guaranteed for the prosthesis: from abutments to screws, every single part is milled with certified CNC machines and not moulded. Training courses, continuous refresher courses and extensive assistance distinguish the service and reliability that have made Sweden & Martina a leader in the Italian implant market.

sweden & martina
IMPLANTOLOGY

PREMIUM SWITCHING PLATFORM
The morphology is the result of clinical findings.

KOHNO SWITCHING PLATFORM
Characterised by accentuated tapering morphology and by the bevel for the Switching Platform.

Premium Kohno

PREMIUM Ø 3.30 MM
Dedicated to intraforaminal sectors and useful for thin crests, or to replace upper lateral incisors.

SHORTY IMPLANTS
Intended for bone crests with reduced vertical dimension, available with both Straight emergence and Switching Platform emergence.

KOHNO STRAIGHT
The same connection combined with a conical morphology extends the range of use of the family.

PREMIUM STRAIGHT
The implant with 17 years of clinical history.

Shelta

SHELTA SL
The wide thread studied to maximise primary stability.

SHELTA STANDARD
Three implant diameters, a single prosthetic connection.

Diameters, emergence profiles, implant connections

The measurements of the hexagons, the collars, the coupling diameter and the connecting screws are shown in the table below. The table also shows the diameters of the posts compatible with every single implant connection diameter and a schematic figure of the resulting coupling.

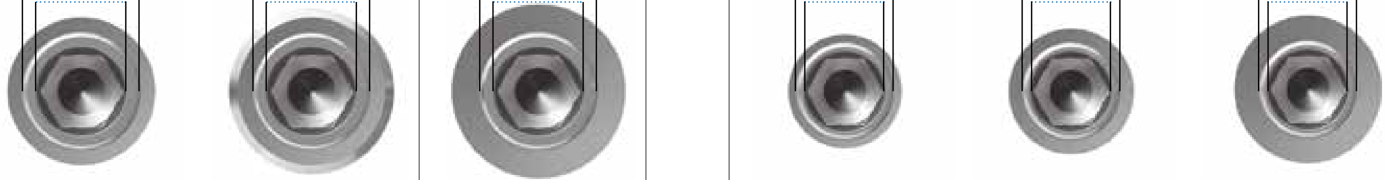
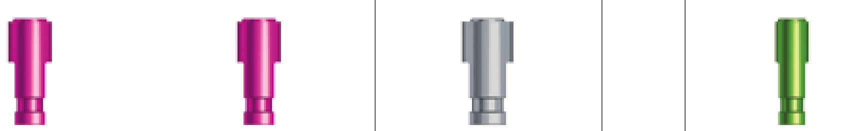
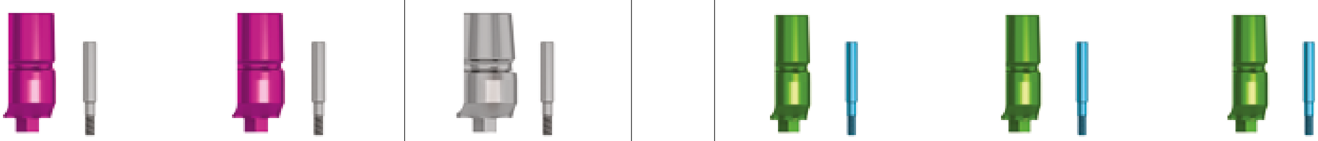
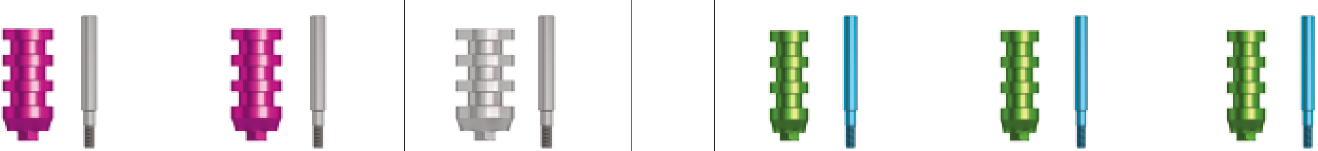
	Premium	Premium Kohno			
Ø implant	3.30 Straight	3.80 Straight	3.80 SP	4.25 Straight	4.25 SP
colour code (on the pack)					
maximum emergence Ø connection platform Ø main dimensions	Ø 3.30	Ø 3.80	Ø 4.45 Ø 3.80	Ø 4.25	Ø 4.85 Ø 4.25
collar external Ø collar internal Ø	Ø 3.30 Ø 2.70	Ø 3.20 Ø 2.70	Ø 3.20 Ø 2.70	Ø 3.60 Ø 3.00	Ø 3.60 Ø 3.00
hexagon key	2.30	2.30		2.50	
with post of smaller Ø prosthetic compatibility with post of smaller Ø	Ø 3.30 Ø 3.30	Ø 3.30 Ø 3.80 Ø 3.80 Ø 3.80	Ø 3.30 Ø 3.80SP Ø 3.80 Ø 3.80SP	Ø 4.25 Ø 4.25	Ø 4.25 Ø 4.25SP
COLOUR CODES implant analogs					
closed tray transfer for repositioning					
open tray transfer					
connecting screw (thread and colour)	M 1.8	M 1.8	M 1.8	M 2.0	M 2.0

All measurements are given in mm, unless indicated otherwise.

Premium Kohno

Shelta

and colour codes

	5.00 Straight	5.00 SP	6.00 Straight	3.80	4.25	5.00
			Kohno	Shelta		
	Ø 5.00	Ø 5.60 Ø 5.00	Ø 6.00	Ø 3.80	Ø 4.25	Ø 5.00
	Ø 3.90 Ø 3.00	Ø 3.90 Ø 3.00	Ø 3.90 Ø 3.00	Ø 3.20 Ø 2.70	Ø 3.20 Ø 2.70	Ø 3.20 Ø 2.70
	2.50		2.50		2.30	
	Ø 5.00 Ø 5.00	Ø 5.00 Ø 5.00SP	Ø 5.00 Ø 6.00 Ø 6.00 Ø 6.00	Ø 3.30 Ø 3.80 Ø 3.80 Ø 3.80	Ø 3.80 Ø 4.25	Ø 3.80 Ø 5.00
						
						
						
	M 2.0	M 2.0	M 2.0	M 1.8	M 1.8	M 1.8

Possible combinations of implant-prosthetic diameters

On these pages, as in the table on pages 6-7, the implants are shown together with pre-made standard posts to facilitate understanding of all the possible combinations between the fixture diameters and those of the prosthetic components. Pre-made posts are not considered in the protocols contained in this manual. However, the couplings that can be achieved with the prosthetic solutions illustrated in the following sections are the same.

Premium Straight and Kohno Straight: standard protocols (without Switching Platform technique)

Premium
Straight Ø 3.30 mm
post Ø 3.30 mm

Premium and Kohno
Straight Ø 3.80 mm
post Ø 3.80 mm

Premium and Kohno
Straight Ø 4.25 mm
post Ø 4.25 mm

Premium and Kohno
Straight Ø 5.00 mm
post Ø 5.00 mm

Kohno
Straight Ø 6.00 mm
post Ø 6.00 mm

Premium SP and Kohno SP: protocols with Switching Platform implant technique

Premium and Kohno
SP Ø 3.80 mm
post Ø 3.80 mm

Premium and Kohno
SP Ø 4.25 mm
post Ø 4.25 mm

Premium and Kohno
SP Ø 5.00 mm
post Ø 5.00 mm

Premium SP and Kohno SP: protocols with Switching Platform prosthetic technique

Premium and Kohno
SP Ø 3.80 mm
post Ø 3.30 mm

Premium and Kohno
Straight Ø 3.80 mm
post Ø 3.30 mm

Kohno
Straight Ø 6.00 mm
post Ø 5.00 mm

Shelta: standard protocols (without Switching Platform technique)

Shelta
Ø 3.80 mm
post Ø 3.80 mm

Shelta: protocols with Switching Platform prosthetic technique

Shelta
Ø 3.80 mm
post Ø 3.30 mm

Shelta
Ø 4.25 mm
post Ø 3.80 mm

Shelta
Ø 5.00 mm
post Ø 3.80 mm

IMPORTANT WARNING

Considering the reduced diameter of Ø 3.30 mm prosthetic components, it is recommended to use them exclusively for carrying out prosthetic Switching on implants with diameter 3.80 mm for single crowns in front sectors (excluding premolars), and as a support for multiple prostheses in distal sectors. Posts with diameter 3.30 mm must not be used with implants having a diameter of 4.25 and 5.00 mm. With implant diameters 4.25 and 5.00 mm it is mandatory to use a protocol with Switching Platform technique using posts with diameter 3.80 mm.

COLLEX connection

The COLLEX connection, documented by 16 years of clinical success, is characterised by a large internal hexagon and by a collar which guides the prosthetic manoeuvres, coupling to a corresponding slot at the base of the posts. This interlocking solution gives stability and solidity to the implant-prosthesis complex, while also aiding the correct distribution of masticatory loads. The limitation of micro-movements, obtained thanks to the presence of the collar, increases the duration of the prosthetic rehabilitations over time and protects the implant itself against potentially negative stress.

The COLLEX connection performs the same stabilising function regardless of the emergence of the implant, which may be straight, as in the case of Straight implants, or bevelled, as in the case of SP implants (Switching Platform).

The collar in the COLLEX connection also has the function of guiding and engaging the Easy Insert driver, the Sweden & Martina patented system for mountless insertion of Premium, Kohno and Shelta implants which preserves the precision of the internal hexagon in the connection during insertion of the implant, an element of extreme importance for the following phase of prosthetic rehabilitation.

COLLEX connection
Premium Straight implants
Ø 3.30 mm

COLLEX connection
Premium Kohno Straight implants
Ø 3.80, 4.25, 5.00 mm

COLLEX connection
Premium Kohno SP implants
Ø 3.80, 4.25, 5.00 mm

COLLEX connection
Shelta implants
Ø 3.80, 4.25, 5.00 mm

To document and assess the benefits of the COLLEX connection, a comparative FEM analysis was carried out between a Premium implant and a virtual model with the same internal hexagonal connection but without the prosthetic support collar. The resistance values of the implant-prosthetic complex with the COLLEX connection were 25% higher than those with the standard connection, without the collar.
(Covani U., Ricci M., Tonelli P., Barone A. - An evaluation of new designs in implant-abutment connections: a finite element method assessment - Implant Dentistry Volume 22, Number 3 2013).

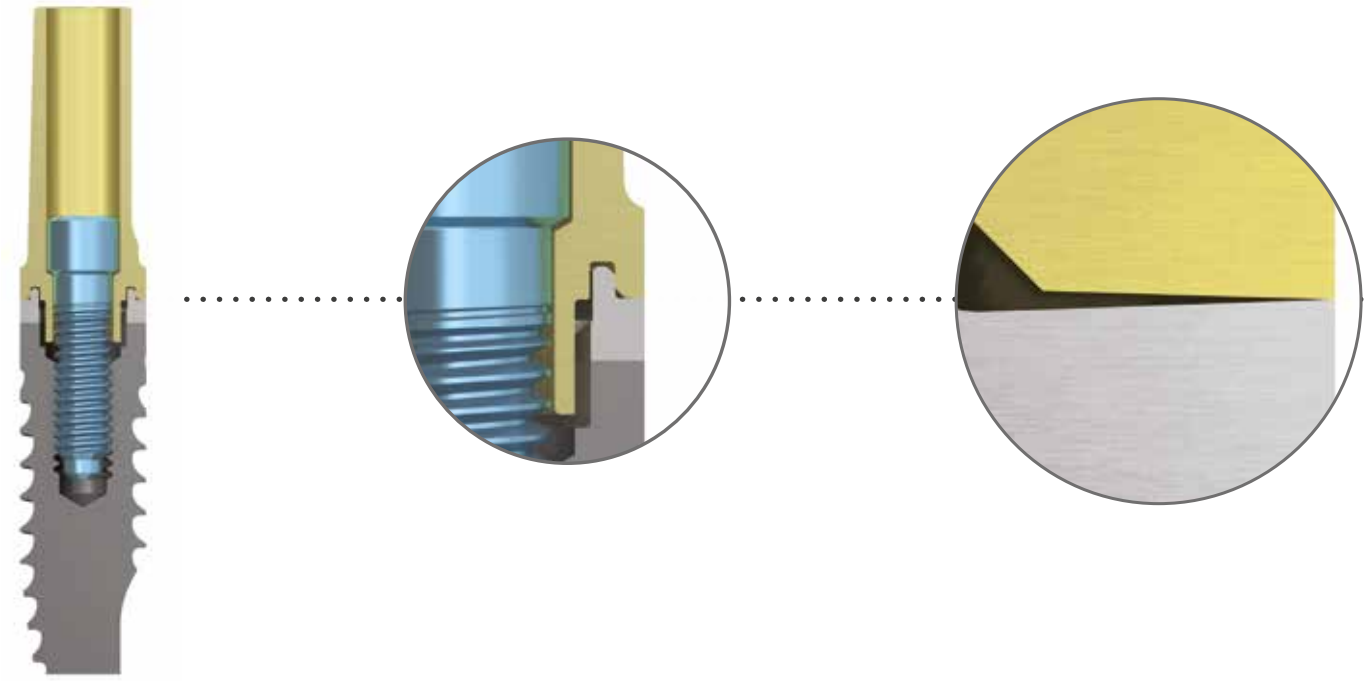
IMPORTANT WARNING

With the same implant diameter, the implants with Straight emergence and with Switching Platform emergence therefore use the same prosthetic components, for this reason no distinction will be made in this manual between the two different emergences.

CONTRACONE seal

One of the key factors in determining the success of an implant-prosthetic rehabilitation is the absence of infiltration of bacteria; to achieve this aim there must be no spaces between the platform of the implant and that of the abutment, where bacteria could penetrate which, migrating towards the well, give rise to anaerobic proliferations that are dangerous for the peri-implant tissues.

Sweden & Martina have patented a particular micromechanical processing which tapers both the surfaces that rest on each other: in this way a mechanical barrier is created which guarantees a peripheral seal that is able to limit the access of bacteria and to preserve the peri-implant tissues against possible inflammations.

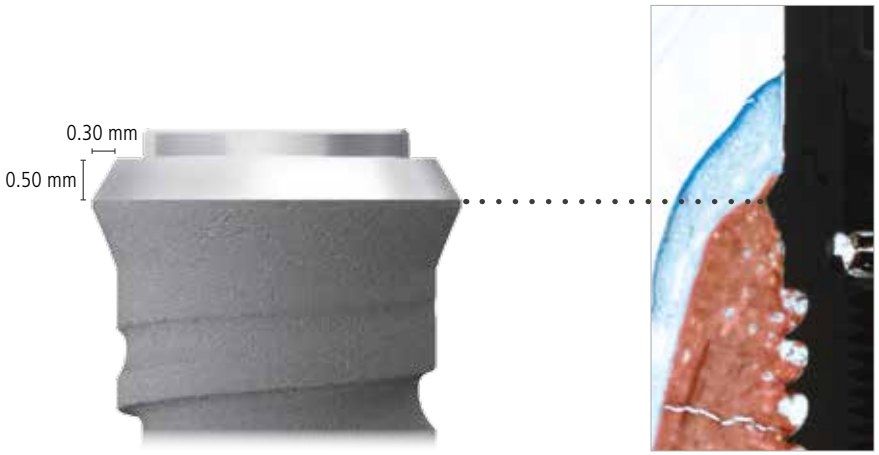


IMPORTANT WARNING

The precision of this coupling is made possible only thanks to a strict study of the working tolerances, so the benefits of the CONTRACONE seal are obtained only when using original Sweden & Martina prosthetic components. **The use of non original products not only invalidates the concept of the CONTRACONE, but risks creating large gaps at the connection level.**

Switching Platform

The Switching Platform protocol, a prosthetic technique widely supported by scientific literature, aims to distance the implant-post junction from the crestal bone. This result may be achieved either by designing ad-hoc an enlarged emergence at the level of the neck of the implant, or by using posts with a diameter smaller than the implant platform, when the geometer of the connection is the same for all the sizes in the range.
Premium Kohno SP implants are specifically designed for use in prosthetic rehabilitations according to the Switching Platform protocol: the bevel around the connecting platform distances the prosthetic junction both vertically and horizontally. The morphology of the neck of the implant is also very useful for obtaining an excellent primary stability. The Switching Platform technique used in these implants is incorporated in the fixture morphology.



Ground Section of Premium Switching Platform implant 4 months after insertion.
(Image by kind permission of Dr D. Botticelli)

Screw Kit

The Sweden & Martina Screw kit is a handy set containing the drivers necessary for the prosthetic phases of Premium, Kohno and Shelta implants, for the various prosthetic solutions: for standard posts, for abutments, for P.A.D. prostheses, for Locator abutments, for ball attachments and the respective retainer caps. As well as digital and right-angle drivers, the Screw Kit includes a carrier for offset P.A.D. abutments, thus also favouring rapid full-arch prosthetic rehabilitations.

The kit includes digital and right-angle drivers, as well as a dynamometric ratchet.
Small and easy to carry, the kit allows simple and immediate management of the prosthetic rehabilitation phase after surgery.

Please note: to guarantee maximum duration of the surgical and prosthetic instruments, it is advisable to follow the recommended cleansing and sterilisation procedures.

code	description
 ZSCREW*	Complete Screw Kit
 SCREW-TRAY*	Instrument tray for Screw Kit
 GROMMET-CA-1	Kit with 5 spare silicone supports for surgical trays, for drills or instruments with right angle shanks
 GROMMET-CA-2	Kit with 5 spare silicone supports for surgical trays, for instruments fitted with connection hexagon

** The words ZSCREW* and SCREW-TRAY* are followed by a letter and a number that indicate the revision of the kit. The contents of the Kit can be updated and varied according to the most effective and innovative surgical techniques.*

IMPORTANT WARNING

Some of the instruments necessary for performing the prosthetic protocols are also contained in surgical kits. Please refer to the respective catalogues to check the updated contents of these kits.

Drivers for connecting screws

They are all made of stainless steel for surgical use.
The design of the tip of all the drivers is the same, so the screwdrivers are all interchangeable. They are distinguished one from the other by their total length and by the fact that they are one-piece digital drivers, that is they are all in one with the hand knob which allows them to be gripped, or provided with a hexagonal connector compatible with the ratchet. At the tip, all the drivers have a tapered design that allows them to pick up and transport the connecting screws. **Check regularly to ensure that this function has not been lost due to wear.**

IMPORTANT WARNING

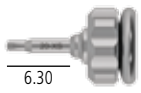
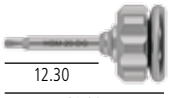
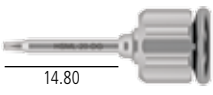
Excessive torques may strip the wells of the connecting screws and pare off the corners of the screwdrivers, causing even serious intraoperative or prosthetic complications. The recommended torques for tightening the various components are summed up in the following table:

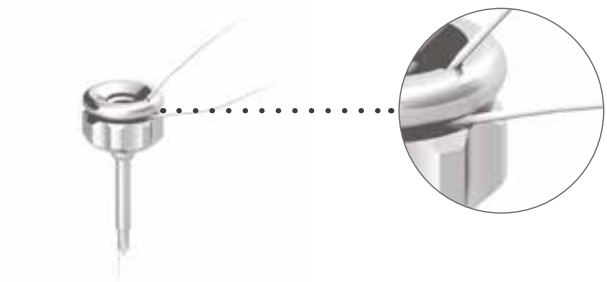
surgical cover screws, transgingival healing screws	(manually) 8-10 Ncm
all prosthetic screws	20-25 Ncm
all prosthetic components screwed directly onto the implant	25-30 Ncm
transfer tightening screws	(manually) 8-10 Ncm

Considering the importance of the tightening torques, it is recommended always to use the drivers with a hexagonal connector, keeping the torque exerted under control with the ratchet. To facilitate the engaging of the screws or of the threaded portions of prosthetic components, you can also start screwing with hand drivers.

Hand drivers

Their design makes them very practical in the surgical phases and for the uncovering and management of transgingival healing screws. They must not be used in the final prosthetic phases because they do not allow control of the tightening torque. Some of these drivers are also contained in the surgical kits for the Premium, Kohno and Shelta systems. Refer to the catalogues and the surgical manuals of the individual systems for details. The one-piece drivers are available in the Screw Kit in 3 different heights, as shown below.

code	description
 HSMXS-20-DG	Driver for tap screws and connecting screws, digital, extra-short
 HSM-20-DG	Driver for tap screws and connecting screws, digital, short
 HSML-20-DG	Driver for tap screws and connecting screws, digital, long

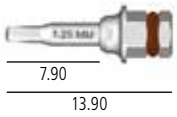
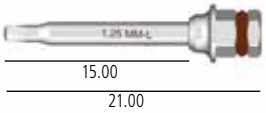
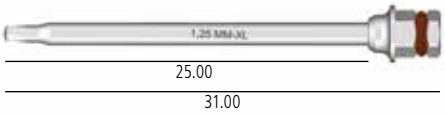


IMPORTANT WARNING

It is recommended to pass a thread through the hole on the top of the knob to prevent it from falling.

Drivers for use with the dynamometric ratchet

The drivers with a hexagonal connector at the top are designed for use with the dynamometric ratchet with the function of torque control. In the Screw Kit they are supplied in the short, long and extra-long versions, the latter is necessary when the length of the hole for the screw to pass inside the posts is greater than 13.00 mm. Some of these drivers are also contained in the surgical kits for the Premium, Kohno and Shelta systems.
Refer to the catalogues and the surgical manuals of the individual systems for details.

code	description
 HSM-20-EX	Driver for connecting screws, with hexagonal connector for dynamometric key or hand knob, short
 HSML-20-EX	Driver for connecting screws, with hexagonal connector for dynamometric key or hand knob, long
 HSMXL-20-EX	Driver for connecting screws, with hexagonal connector for dynamometric key or hand knob, extra long

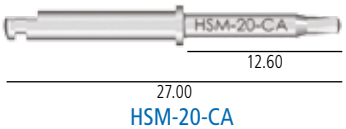
IMPORTANT WARNING

All the ratchet drivers have a red polymer O-ring in the connecting hexagon that guarantees friction between the instruments and therefore a correct grip of the components.
This O-ring must be checked periodically and replaced when worn or when no longer able to friction properly.

A kit of 5 spare O-rings is available which can be ordered with code **ORING180-088**.

Right angle driver

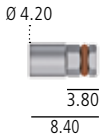
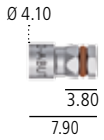
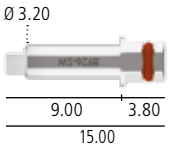
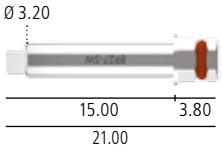
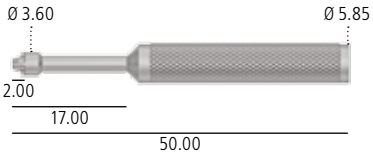
Both the Screw Kit and the surgical kits also contain a driver with right angle shank, very practical both in the surgical and prosthetic phase, if used with a micromotor with torque control. This driver can be used only for fastening posts in which the hole for the screw to pass is not longer than 11.00 mm.

code	description
 HSM-20-CA	Driver for connecting screws, with right angle shank

All measurements are given in mm, unless indicated otherwise.

Specific prosthetic drivers for Overdentures

Specific drivers are available for the various types of abutment necessary for anchoring mobile or removable prostheses on implants, depending on the technique chosen. These instruments are not part of the standard supply in surgical kits, but they can be purchased separately. Instead they are included in the Screw Kit, created specifically to satisfy all the needs of the prosthodontist.
For specific instructions on the use of each item see the pages explaining the prosthetic protocols, as shown in the table below.

code	description
 BASCC-EX	Driver for ball attachments, with hexagonal connector for dynamometric key
 AVV2-ABUT	Driver for standard abutments and for straight P.A.D. abutments, with hexagonal connector for dynamometric key
 8926-SW	Driver for screwing abutment locators, with hexagonal connector for dynamometric key, short
 8927-SW	Driver for screwing abutment locators, with hexagonal connector for dynamometric key, long
 AVV-CAP-TIT-1	Instrument for inserting, fitting and maintaining the titanium cap for CAP-TIT-1 ball attachments

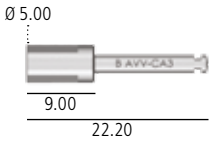
IMPORTANT WARNING

All the ratchet drivers have a red polymer O-ring in the connecting hexagon that guarantees friction between the instruments and therefore a correct grip of the components.
This O-ring must be checked periodically and replaced when worn or when no longer able to friction properly.

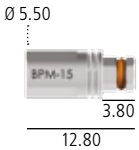
A kit of 5 spare O-rings is available which can be ordered with code **ORING180-088**.

Other instruments

The following instruments are included in the Screw Kit or can be ordered individually. The first two are included in various surgical kits for the Premium, Kohno and Shelta systems. Refer to the catalogues and the manuals of the individual systems for details.

code	description
 B-AVV-CA3	Adapter with right angle shank for instruments with hexagonal connector
 AVV3-MAN-DG	Hand knob for drivers and manual drivers
 PAD-CAR	Carrier for transferring angled abutments into the oral cavity, sterilisable and reusable. It must be secured to the abutments with the screw PAD-VTRAL-140

The extension BPM-15, which may be useful in some clinical situations, is not included In the Screw Kit, but it may be ordered separately and is included in the surgical kits for the Premium, Kohno and Shelta systems. Refer to the catalogues and the manuals of the individual systems for details.

code	description
 BPM-15	Extension for drivers and manual drivers, with hexagonal connector for dynamometric key

All measurements are given in mm, unless indicated otherwise.

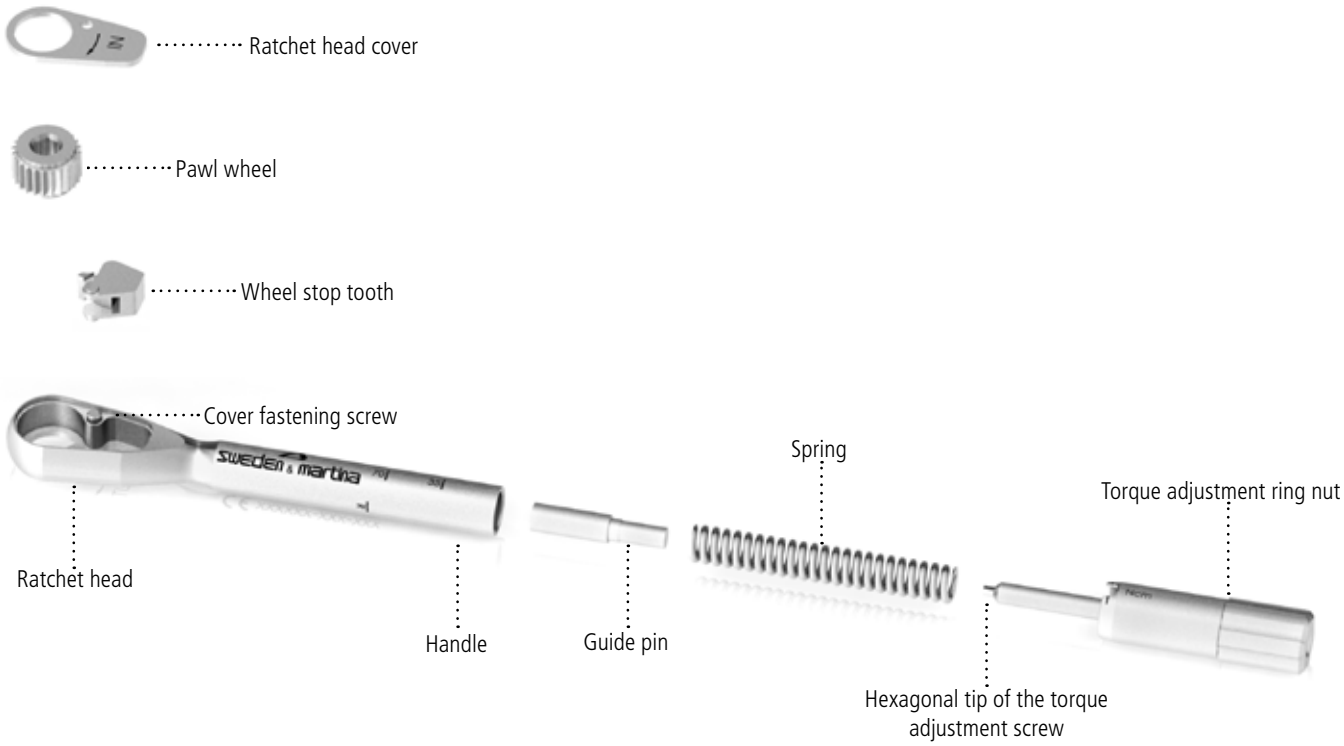
Dynamometric ratchet CRI5

A special ratchet (CRI5) is available, with its own adjustment key, for quickly screwing the torque adjustment ring nut, and with gel lubricant for maintenance. The ratchet may be used with torque adjustment from 10 to 70 Ncm or in a blocked position without torque control. When using as a prosthetic ratchet for fastening the screws, refer to the torque values given in the table on page 14. The ratchet key CR15 is a reusable instrument that can be disassembled, and is sold unsterile. It is contained in the Screw Kit and in all surgical kits for implant systems. It can also be supplied separately.

IMPORTANT WARNING

All components that are to be tightened at a torque of less than 10 Ncm must be tightened by hand.
For example: Transfer screws to be tightened at 8 Ncm.

Before each use, this instrument must be cleaned and sterilised according to the instructions on page 111. Adequate maintenance, performed following in detail all the step by step instructions for the disassembly and correct reassembly of the device during cleaning operations, is essential for the correct functioning of the device and for its durability. Personnel who use this tool must be suitably trained, and they must have read the instructions in this manual, or in the surgical manuals of the various implant systems, prior to handling the device. After sterilisation, the key is ready for use. A test to verify the correct assembly and functioning of the key is necessary before any surgical or prosthetic interventions.



After sterilisation, the key is ready for use. A test to verify the correct assembly and functioning of the key is necessary before any surgical or prosthetic interventions. The torque is adjusted by aligning the marking of the desired torque in the circular opening of the handle. The "IN" arrow legible on the top of the head indicates the screwing position of the key. The "OUT" arrow legible on the top of the head indicates the loosening or unscrewing position. An unlimited torque position is obtained by positioning the torque adjustment device up to the line marked "R" on the handle of the ratchet body.

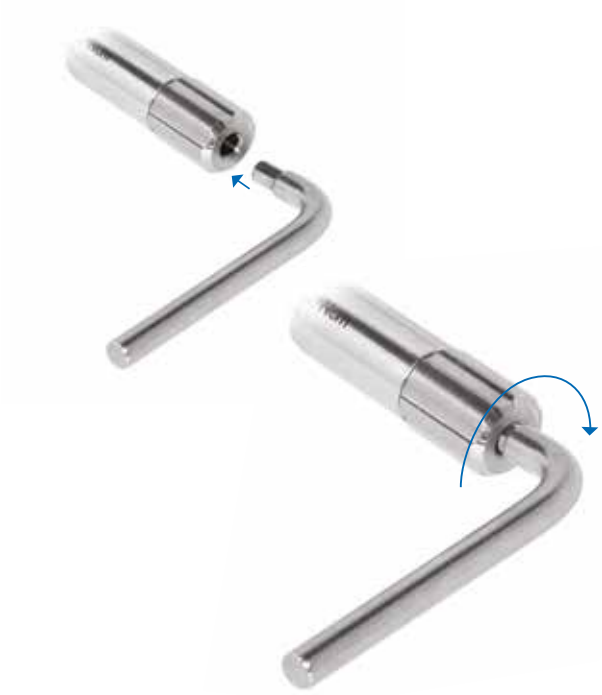
IMPORTANT WARNING

The torque is adjusted by screwing/unscrewing the ring nut located at the bottom of the instrument's handle. The torque must always be adjusted on the rise, starting screwing from a lower value until the desired torque is reached, or unscrewing the ring nut in a clockwise direction.
To do this, if it is necessary to set a torque lower than the last one used, you must unscrew the ring nut by two turns below the value of the desired new torque, and work up to that value by rescrewing the ring nut in a clockwise direction.

The ring nut may be screwed and unscrewed by hand, but to speed up these operations the kit also contains a driver that allows it to be turned quickly.

Any deterioration of the screwing, insertion and torque mechanisms must be checked by personnel responsible for the use and maintenance of this dental instrument. The pieces of this mechanism are not interchangeable; one piece from one key cannot be replaced by a piece from another key as each ratchet is calibrated INDIVIDUALLY. If a piece is lost, please return the instrument to Sweden & Martina for repair. No components for assembling the ratchet can be sold individually.

Failure to follow the instructions provided may cause problems of unscrewing and stability of the prosthesis.



Techniques for taking the impression

In implant-prosthetic procedures, the phase of taking the impression is fundamental for the success of any treatment plan, since the transmission to the laboratory of information as error-free as possible allows a reduction of work times and above all the creation of products free from stress which do not transmit undesired stress to the implants. The impression can be taken at different surgical moments, depending on the protocols and/or on customary practices.

On all Sweden & Martina implants it is possible to take the impression according to three different protocols:
- closed tray with Pull-up transfer;
- open tray with Pick-up transfer;
- closed tray with closed tray transfer.

Pull-up Transfer: the connection with tabs clicks into the implant connecting hexagon, without requiring a screw.

Pick-up Transfer: the design of the upper portion guarantees excellent retention and therefore an extremely stable fixing in the impression.

Closed tray transfer: a wide flat face allows rapid repositioning of the transfer in the impression.

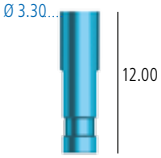
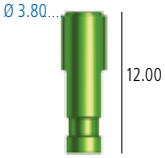
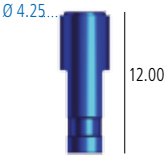
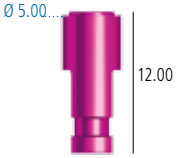
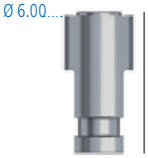
Besides these possibilities, some prosthetic protocols with special components also contemplate the possibility to transfer not the implant connection into the laboratory model, but the intermediate prosthetic platforms, as in the case of P.A.D. abutments, standard abutments, PLAIN abutments and ball attachments. See the various use protocols for the particular indications for the use of these components on pages 80-88.

IMPORTANT WARNING

In all cases it is recommended to use new transfers and analogs, so as to ensure maximum coupling precision at the connection level. Transfers and analogs that have been used several times reciprocally deform the walls of their respective hexagons, transferring an error to the impression which, especially in the case of multiple structures, may lead stress to the prosthesis which is transferred to the implants, undermining the good clinical result.

Analogs

The components for the impression and the creation of the model are produced with the same machines that make the implants; this ensures a real guarantee of precision from the point of view of tolerance and fidelity in the reproduction of the clinical situation. The posts are anodised according to the colour code to facilitate recognition of the implant diameter and laboratory phases.

connection	Ø 3.30 mm	Ø 3.80 mm	Ø 4.25 mm	Ø 5.00 mm	Ø 6.00 mm
Analogs					
	A-ANA-330	A-ANA-380	A-ANA-425	A-ANA-500	A-ANA-600

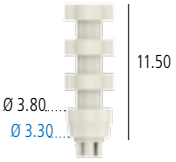
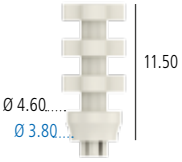
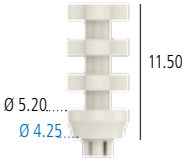
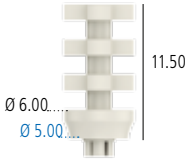
All measurements are given in mm, unless indicated otherwise.

Pull-up Impression

The Pull-up impression technique has been developed by Sweden & Martina to facilitate the operations of taking the impression especially in cases where the patient's limited oral opening makes it difficult to screw and unscrew the transfer screws.
Pull-up transfers are made entirely of radiopaque PEEK. Their connection is formed in such a way as to click into the connection hexagons without being secured by a screw, but exploiting the stabilising capacity of the COLLEX connection. They are extremely practical for taking a positioning impression, for example to make the model on which to develop the individual tray, because they are simple and fast to use. Since they are radiopaque, their correct insertion into the implant platform can be easily controlled. They remain in the impression in an extremely stable manner due to the good retention by the upper portion.

They can also be used together with Pick-up transfers, for example in situations where the mesial elements have sufficient manoeuvring space for screwing and unscrewing the transfer screw, while the distal elements present anatomical impediments.
They are the ideal solution for taking an impression rapidly between converging implants, also because they can be easily shortened using a disc, either eliminating one or more vertical modules or removing the portions of the horizontal retaining arms that might interfere.

Pull-up Transfer

Ø prosthetic component	Ø 3.30 mm	Ø 3.80 mm	Ø 4.25 mm	Ø 5.00 mm	Ø 6.00 mm
for implants:	Premium 3.30 - 3.80 Kohno 3.80 Shelta 3.80	Premium 3.80 Kohno 3.80 Shelta 3.80 - 4.25 - 5.00	Premium 4.25 Kohno 4.25	Premium 5.00 Kohno 5.00 - 6.00	Kohno 6.00
Pull-up Transfer in radiopaque PEEK Straight emergence	 A-TRAP-330	-	-	-	-
Pull-up Transfer in radiopaque PEEK Anatomical emergence	 A-TRARP-330	 A-TRARP-380	 A-TRARP-425	 A-TRARP-500	Use A-TRARP-500

IMPORTANT WARNING

- As the Pull-up transfers are made of polymer material, to guarantee precision it is recommended to use new transfers for taking each impression.

All measurements are given in mm, unless indicated otherwise.

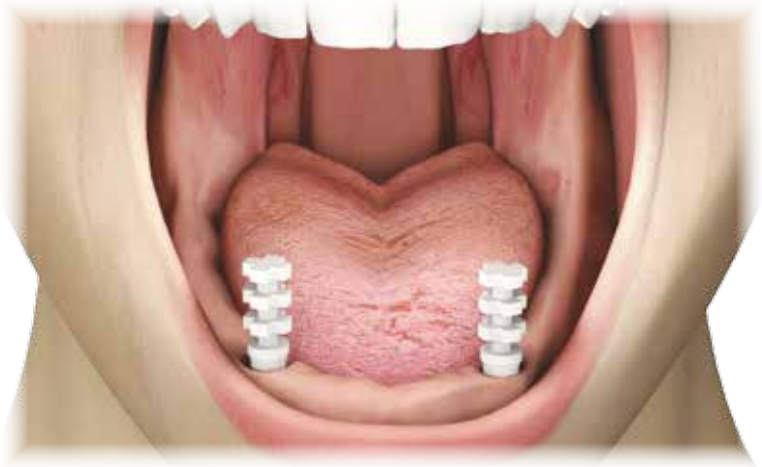
First impression for creating an individual tray

Expose the implant connections, if a double-phase surgical procedure has been adopted, or remove the transgingival healing screws.

Position the Pull-up transfers and fix them by simply pressing with hand, no instruments are needed.
The characteristic click of the transfer tabs indicates that it has been correctly inserted in the implant connection.

IMPORTANT WARNING

In the event of poor visibility or doubt as to the complete coupling between transfer and implant, check by radiography. The PEEK polymer material of which the transfers are made is radiopaque, so it will be perfectly visible in the X-rays.

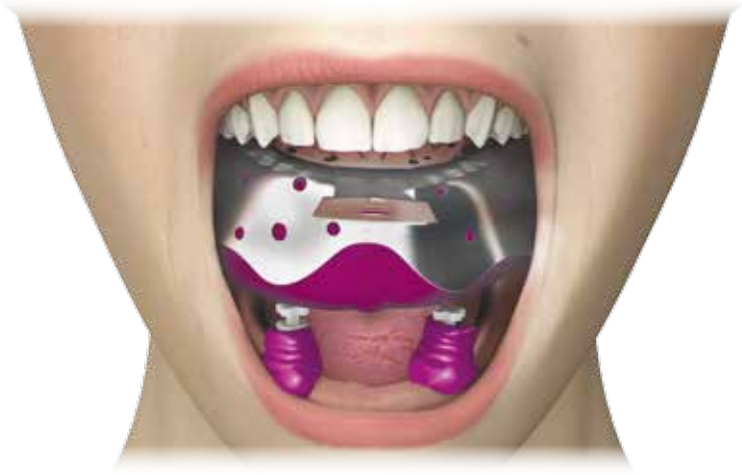


Position the tray and check that the whole height of the transfer is contained within the walls of the impression tray.

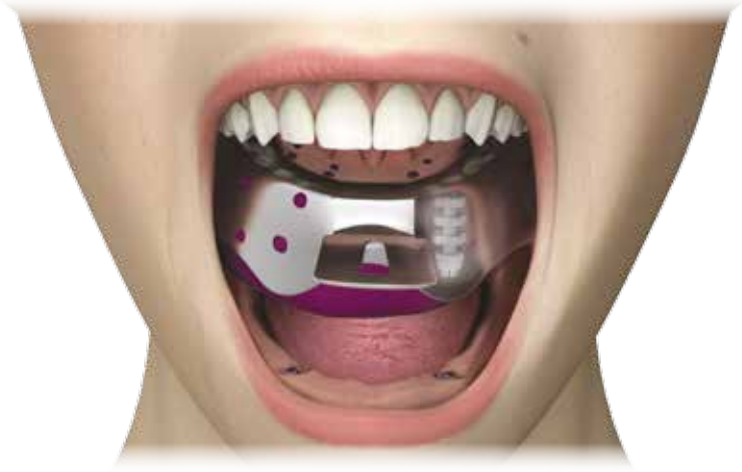
IMPORTANT WARNING

Should it be necessary, it is possible to reduce the height of the Pull-up transfers by cutting one or two modules with a disc: the retention of the portion of transfer remaining in the impression material is still sufficient to ensure a correct taking of the impression.

Inject a precision impression material (SKY IMPLANT LIGHT, code SKY14) only around the transfer and at the same time fill the impression tray with a more consistent material (SKY IMPLANT ONEMIX-ED, code SKY08) on the whole arch. Then put the tray in place and wait for the hardening times according to the instructions.



Lift the impression tray vertically: the Pull-up transfers will remain enclosed into the impression.

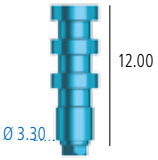
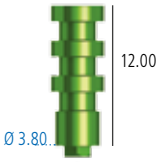
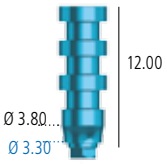
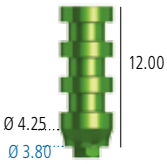
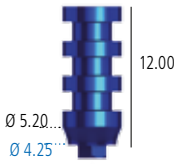
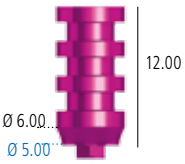
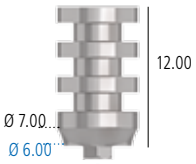
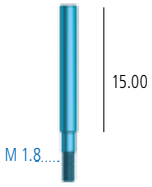
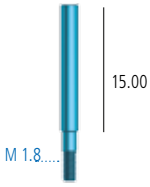


To each transfer fit a laboratory analog with a corresponding diameter. The characteristic click of the transfer tabs indicates that the analog has been inserted correctly.

Open tray impression

The open tray impression requires the use of a personalised impression tray, made in the laboratory on the preliminary model with access openings for the transfer screws corresponding to the implants. It is recommended to use the short driver with hexagonal connector for the ratchet HSM-20-EX or the extra-short hand driver HSMXS-20-DG, developed especially to reduce the vertical height and to facilitate the manoeuvres of screwing and unscrewing the transfer screws in the oral cavity.

Pick-up Transfers

Ø prosthetic component	Ø 3.30 mm	Ø 3.80 mm	Ø 4.25 mm	Ø 5.00 mm	Ø 6.00 mm
for implants:	Premium 3.30 - 3.80 Kohno 3.80 Shelta 3.80	Premium 3.80 Kohno 3.80 Shelta 3.80 - 4.25 - 5.00	Premium 4.25 Kohno 4.25	Premium 5.00 Kohno 5.00 - 6.00	Kohno 6.00
Pick-up Transfer Straight emergence Connecting screw included	 A-TRA-330	 A-TRA-380	-	-	-
Pick-up Transfer Anatomical emergence Connecting screw included	 A-TRAR-330	 A-TRAR-380	 A-TRAR-425	 A-TRAR-500	 A-TRAR-600
Connecting screw for Pick-up transfer Supplied with the transfers, it can also be ordered separately as a spare					
Single pack	VTRA2-180-15	VTRA2-180-15	VTRA2-200-15	VTRA2-200-15	VTRA2-200-15

Recommended torque for transfer screws: 8-10 Ncm by hand.

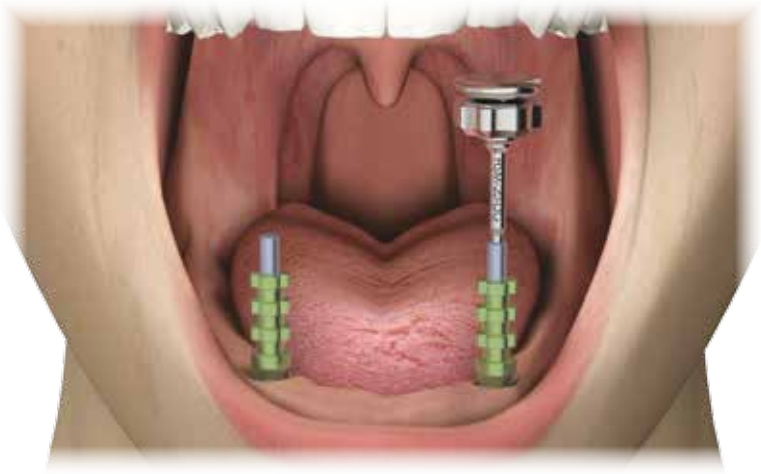
All measurements are given in mm, unless indicated otherwise.

Open tray impression using pick-up transfers

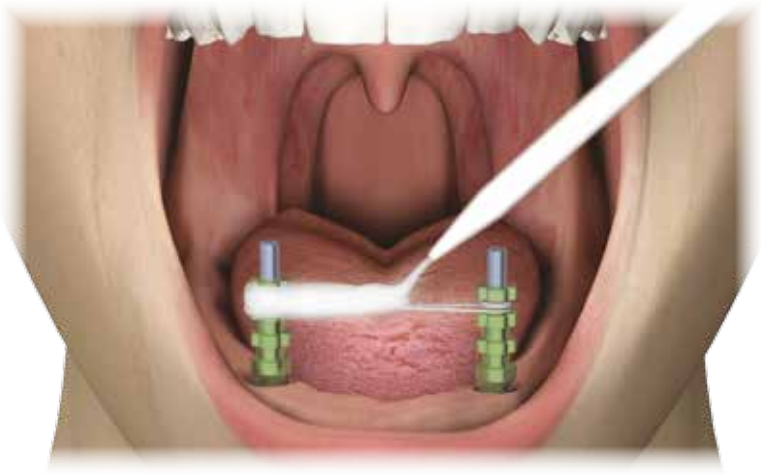
Expose the implant connections, if a double-phase surgical procedure has been adopted, or remove the transgingival healing screws.

Fix the Pick-up transfers with the screw provided and the most suitable driver without exceeding a torque of 8-10 Ncm.

Please note: the digital version of the driver for tap screws and connecting screws is available with different shank lengths according to clinical requirements. A version with hexagonal connection for dynamometric ratchet is also available, or with a right angle shank. See the table on page 14 for the technical details of the above-mentioned drivers.



If wished, fix the transfers together with thread and resin and wait for them to polymerise according to the manufacturer's indications (SUN resin, code SUN-A2 or SUN-A3).



Check that the personalised tray, positioned in the mouth, contains the whole height of the transfer within its walls, and that the top of the transfer screw protrudes by a sufficient length from the hole provided in the tray. Inject a precision impression material (SKY IMPLANT LIGHT, code SKY14) only around the transfer and the fixing area and at the same time fill the impression tray with a more consistent material (SKY IMPLANT ONEMIX-ED, code SKY08) on the whole arch. Then put the tray in place and wait for the hardening times according to the instructions.

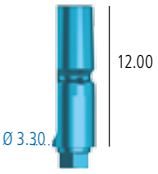
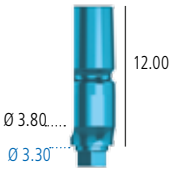
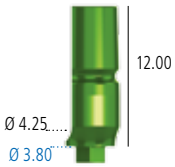
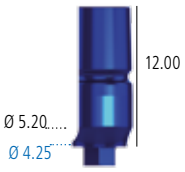
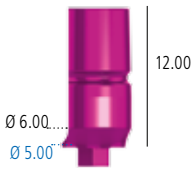
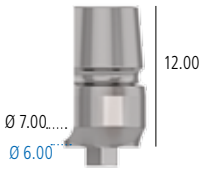
Unscrew the transfer screws and extract them for the impression to prevent them accidentally falling into the patient's mouth when removing the impression tray. Remove the tray: the Pick-up transfers will remain enclosed in the impression.

Screw the laboratory analogs (A-ANA-*) one by one onto the transfers with the transfer screws, replaced in the hole that it left in the impression material. The recommended torque is 8-10 Ncm.

Closed tray impression

The closed tray transfers are made Gr. 5 titanium, anodised according to the colour code of the corresponding connection platform.
The wide repositioning face ensures a precise impression. They have an anatomical emergence that exactly repeats that of the transgingival healing screws.
For diameter 3.30 a version with straight emergence is also available, very useful for single rehabilitations in the front sector, where it is usually more practically to use components with limited bulk.

Closed tray transfers

Ø prosthetic component	Ø 3.30 mm	Ø 3.80 mm	Ø 4.25 mm	Ø 5.00 mm	Ø 6.00 mm
for implants:	Premium 3.30 - 3.80 Kohno 3.80 Shelta 3.80	Premium 3.80 Kohno 3.80 Shelta 3.80 - 4.25 - 5.00	Premium 4.25 Kohno 4.25	Premium 5.00 Kohno 5.00 - 6.00	Kohno 6.00
Closed tray transfer Straight emergence Connecting screw included	 A-TRAS-330	-	-	-	-
Closed tray transfer Anatomical emergence Connecting screw included	 A-TRARS-330	 A-TRARS-380	 A-TRARS-425	 A-TRARS-500	 A-TRARS-600
Connecting screw for closed tray transfer Supplied with the transfers, it can also be ordered separately as a spare					
Single pack	VTRA2-180-10	VTRA2-180-10	VTRA2-200-10	VTRA2-200-10	VTRA2-200-10

Recommended torque for transfer screws: 8-10 Ncm by hand.

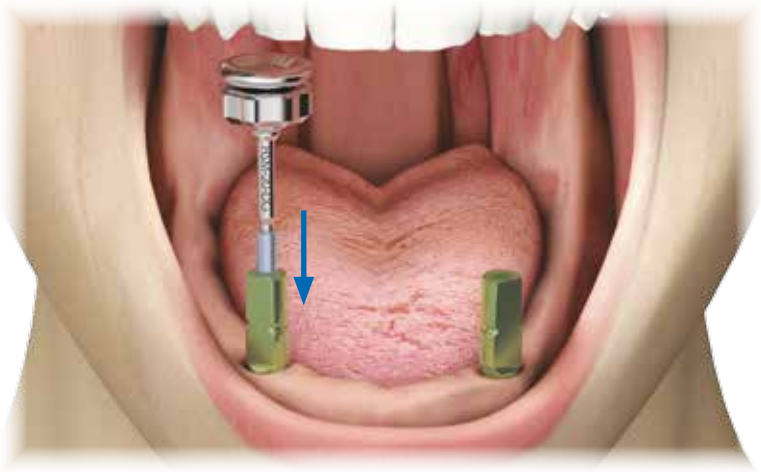
All measurements are given in mm, unless indicated otherwise.

Closed tray impression

Expose the implant connections, if a double-phase surgical procedure has been adopted, or remove the transgingival healing screws.

Fix the closed tray transfers with the screws provided and the most suitable driver without exceeding a torque of 8-10 Ncm. Close the screw holes with wax to prevent the entry of impression material, taking care to remove any excess so as not to undermine the precision of the impression.

Please note: the digital version of the driver for tap screws and connecting screws is available with different shank lengths according to clinical requirements. A version with hexagonal connection for dynamometric ratchet is also available, or with a right angle shank. See the table on page 14 for the technical details of the above-mentioned drivers.

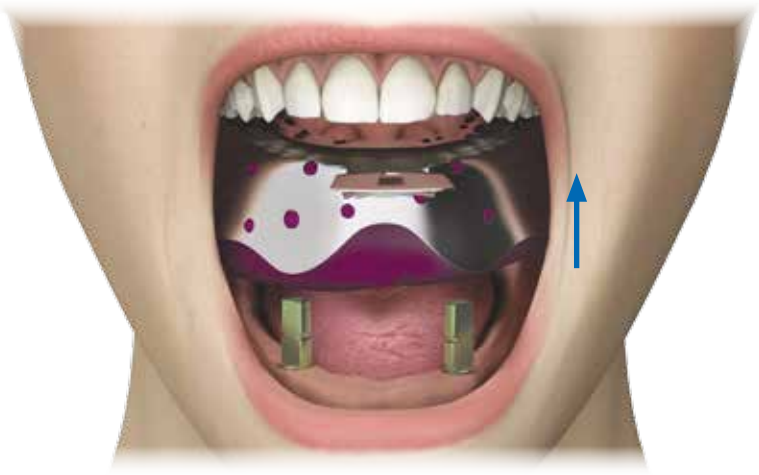


Choose a tray with suitable dimensions, so that the whole height of the transfer is contained within the walls of the impression tray.

Please note: the use of personalised trays allows greater precision of impression.

Inject a precision impression material (SKY IMPLANT LIGHT, code SKY14) around the transfers and at the same time fill the impression tray with a more consistent material (SKY IMPLANT ONEMIX-ED, code SKY08) on the whole arch. Then put the tray in place and wait for the polymerisation times according to the instructions.

Remove the tray: the closed tray transfers will remain screwed onto the implants. Remove the wax from the head of the screws and unscrew them.

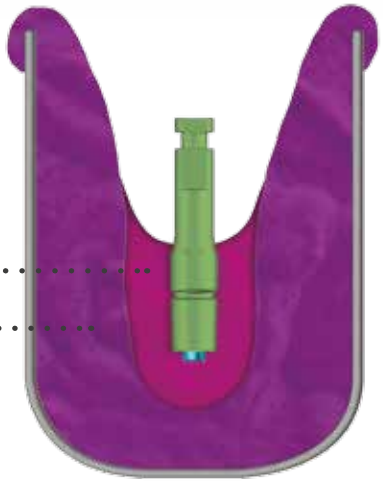


Screw the transfers one by one onto the laboratory analogs (A-ANA-*) and replace them in the respective seats created in the impression, taking care to correctly match the flat face which acts as a repositioning index. The recommended torque is 8-10 Ncm.

Section diagram of the impression tray with the different silicone masses around the transfer:

precision impression material SKY IMPLANT LIGHT

impression material for edentulism SKY IMPLANT ONEMIX- ED

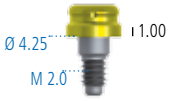
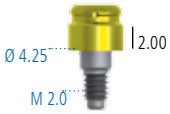
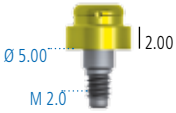
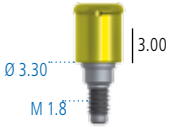
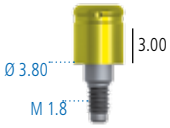
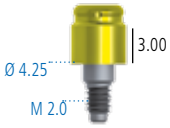
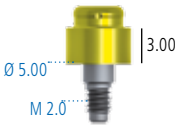
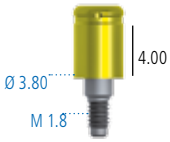
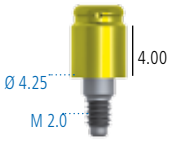
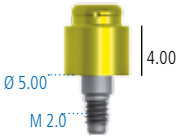


Locator abutments

Locator Abutments are a patented and versatile prosthetic solution for attaching overdentures to dental implants easily and safely. The Locator system allows easily correcting misalignment of divergent implants by up to 40° (20° for each implant) in limited occlusal spaces. Given the limited amount of space occupied, is perfect for all patients with a removable prosthesis.
The abutments are made Gr. 5 titanium and are available in different transgingival heights. The Locators must be tightened at 25-30 Ncm, using the special Driver provided in the Screw Kit and also available separately on request (code 8926-SW, short, and code 8927-SW, long).

The Locator system has a practical steel or titanium cap where the retainer lodges inside the prosthesis. When it loses retentiveness, it can be easily replaced because there is no need to extract it from the resin by removing material from the prosthesis, but it can be simply extracted from the metal cap, which remains attached to the prosthesis.

The self-guiding design of the head of the Locator Abutment allows easy insertion of the prosthesis. The self-alignment of the prosthesis reduces deterioration of the pieces and increases the life of the device.

Ø prosthetic component	Ø 3.30 mm	Ø 3.80 mm	Ø 4.25 mm	Ø 5.00 mm	Ø 6.00 mm
for implants:	Premium 3.30 - 3.80 Kohno 3.80 Shelta 3.80	Premium 3.80 Kohno 3.80 Shelta 3.80 - 4.25 - 5.00	Premium 4.25 Kohno 4.25	Premium 5.00 Kohno 5.00 - 6.00	Kohno 6.00
Locator Abutment Straight emergence Transgingival H. 1.00 mm	 1670	 1675	 1681	 2724	Use 2724
Locator Abutment Straight emergence Transgingival H. 2.00 mm	 1671	 1676	 1682	 2725	Use 2725
Locator Abutment Straight emergence Transgingival H. 3.00 mm	 1672	 1677	 1683	 2726	Use 2726
Locator Abutment Straight emergence Transgingival H. 4.00 mm	-	 1678	 1684	 2727	Use 2727

code	description
 8530	Pack of 4 aluminium analogs for Locator Abutments, one size for all platforms
 8505	Pack of 4 aluminium transfers for Locator Abutments, one size for all platforms. 4 black polyethylene (LDPE 993I) retainers with low retention included (code 8515), available also as a spare

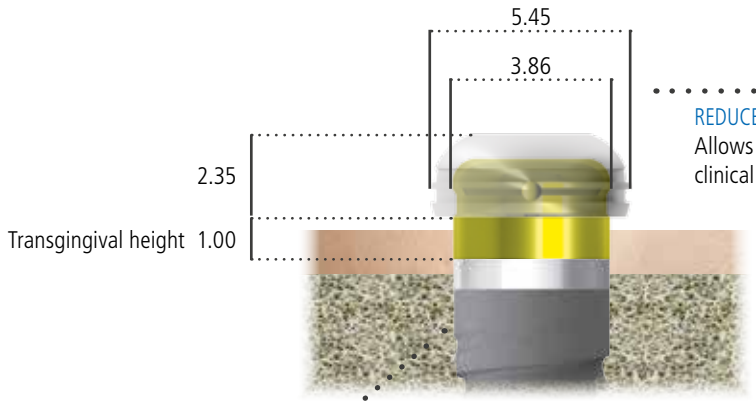
Locator products are medical devices manufactured and patented by Zest Anchors, Inc., 2061 Wineridge Place, Escondido, CA 92029, USA. Locator is a registered trademark of Zest Anchors, Inc. The European Agent for the purposes of MDD 93/42/EEC is Ventura Implant and Attachment Systems, 69 The Avenue, Ealing, London W13 8JR, England.

Recommended tightening torque: 25-30 Ncm.

All measurements are given in mm, unless indicated otherwise..

ANCHORING WITH LOCATOR ABUTMENTS

Main characteristics



REDUCED VERTICAL HEIGHT

Allows anchoring of the prosthesis even in clinical situations with a short vertical dimension.

SELF-GUIDING DESIGN

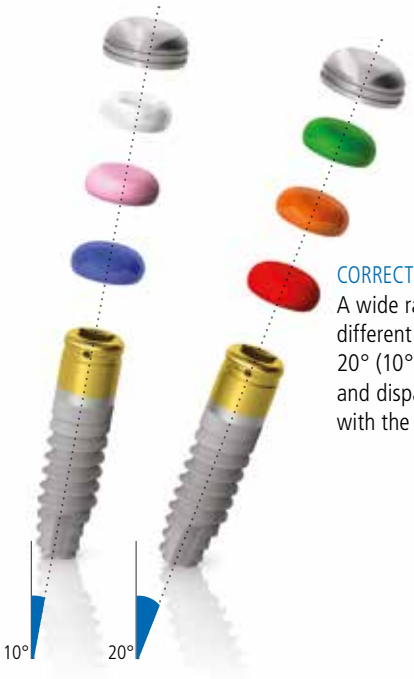
The design of the abutment head is naturally centred in the cap sunk into the resin, even before the complete coupling between the two elements. This characteristic makes the daily manoeuvres of inserting and removing the prosthesis very simple for the patient.

*

AVAILABILITY OF DIFFERENT TRANSGINGIVAL HEIGHTS

The possibility of choosing transgingival heights from 1.00 to 4.00 mm ensures the mucosal resting surface for the overdenture and therefore less stress on the implants.

** Image by kind permission of Zest Anchors, Inc., 2061 Wineridge Place, Escondido, CA 92029, USA.*



CORRECTION OF DISPARALLELISMS UP TO TOTAL 40°

A wide range of retainers with different retentive forces and two different designs allow the correction of disparallelisms from 0 to 20° (10° each side) with the series provided with a central stem, and disparallelisms from 20° to 40° (from 10° to 20° each side) with the series without a stem.

PIVOT TECHNOLOGY

The Locator abutment acts as a pivot inside the cap anchored to the resin, and provides a real resilient connection, in which the abutment acts as the male in a static connection with the female cavity, while the cap sunk in the resin has ample possibility for rotating movement on the male.

QUICK AND EASY CHAIR-SIDE MAINTENANCE

When the retention of the caps decreases it is not necessary to adjust the prosthesis, it is sufficient to replace the nylon retainers with a single tool. The self-alignment of the prosthesis and the double retention exerted by the nylon cap reduce deterioration of the parts and increase the life of the device.

Locator products are medical devices manufactured and patented by Zest Anchors, Inc., 2061 Wineridge Place, Escondido, CA 92029, USA. Locator is a registered trademark of Zest Anchors, Inc. The European Agent for the purposes of MDD 93/42/EEC is Ventura Implant and Attachment Systems, 69 The Avenue, Ealing, London W13 8JR, England.

ANCHORING WITH LOCATOR ABUTMENTS

Locator core tool 8393

The entire Locator prosthetic protocol contemplates the use of a single instrument, common to all implant lines, which performs 4 functions at the same time:

8397: REMOVAL

The male removal tip has a pointy end useful for gripping and removing the retainers of the metal caps incorporated in the overdenture.

INSERTION

The central part of the Locator core tool, once detached from the tip, has a cylindrical end specially designed for inserting the retainers in the metal caps.

8390: SCREWING

This end of the Locator core tool, with the special retention jacket, acts as a driver for carrying the locator abutment into the oral cavity and as a hand driver for fixing it to the implant.

8394: RETENTION

The retainer made of polymer material allow the abutments to be transported into the patient's mouth. Without these components the driver 8390 cannot be used as a carrier.

IMPORTANT WARNING

Code 8393 includes the entire steel Locator core tool composed of a tip (code 8397) for inserting the retainers in the caps, a handle, a hand driver (code 8390) for screwing the Locator abutments and a retention jacket (8394 pack of 4 pieces) for the driver. Only codes 8397, 8390 and 8394 can be reordered as spares, whereas if a new handle is required you must reorder the whole instrument.

This instrument has been designed so as to perform all the functions necessary both for carrying and inserting the abutments (gold colour portion, code 8390, with cap 8394: for use see pages 42 and following), and for replacing the different retainers available. In particular the tip (code 8397) alone or partly unscrewed from the central body of the Locator Core Tool attaches to the nylon retainers and allows them to be removed from the metal caps, while, when completing screwing, it extrudes a small cylindrical piston which releases the retainer from the tip profile.

Drivers for Locator abutments

After having put the Locators in place with the driver 8390, to complete screwing it to the recommended torque of 25-30 Ncm it is necessary to use the grade 5 titanium drivers with attachment compatible with the dynamometric ratchet CRI5 produced directly by Sweden & Martina for this purpose. The availability of a short version, as well as the long one, makes this operation easy even in distal sectors.

8926-SW

8927-SW

Taking impressions on the locator abutments

For the indirect technique transfers (code 8505) and analogs (code 8530) are available which can reproduce the exact position of the Locator abutments on the model. Since the head of the abutments is standard and always the same irrespective of the diameter of the implant connection, there is only one transfer and one analog. The transfers must always be used with the black nylon retainer, dedicated for taking impressions. Each transfer is supplied complete with a black retainer; if necessary, black retainers can also be ordered as spares (code 8515). For the use of the components see pages 44-45.

Measuring the parallelism of implant axes

Since correct retention of the overdenture on the Locator abutment depends on the use of the appropriate retainers, it is fundamental to define the implant axes correctly, which determine whether to choose retainers with or without a central pivot. For this purpose a steel plate is available (code 9530), to be used for measuring the angles of the black polyethylene parallelism pins (code 8517), which are meant to be inserted on the head of the Locator abutments. For the use of the components see pages 42-44.

ANCHORING WITH LOCATOR ABUTMENTS

Spacer ring

In the phases of taking the impression and relining the prosthesis, it is useful to use silicone rubber spacer rings (code 8514), which allow correct resilience of the prosthesis and help prevent running of the resin or silicone material. The ring must be positioned at the base of the groove which marks the head of the abutment, so as not to hinder fitting of the metal caps or of the transfers.

Nylon retainers

The nylon retainers for metal caps differ according to their capacity for correcting the axis of insertion of the implant and according to their retentive capacity. Those able to correct disparallelisms between 0° and 10° on each side (total 20°) have a central peduncle which engages the centre of the head of the Locator abutment, increasing its retentive capacity, while those for disparallelisms between 10° and 20° on each side (total 40°) do not have a peduncle to facilitate inserting the prosthesis. Sets 8519-2, 8540-2 and 8550-2 include two pieces of steel or titanium caps as well as two pieces of black, white, pink and blue retainers, or black, green, orange and red, depending on the degree of disparallelism of the implants. Each set allows the execution of a complete case on two implants: if the overdenture is anchored to 4 implants it is necessary to order two sets. As well as titanium caps there are also steel caps for casting-on, these are very useful if you have to anchor prostheses reinforced with a metal framework of stellite or other non-precious alloys. The titanium and steel caps are not available individually, but all retainers are available as spares in packs of 4 pieces.
For maintenance of Locator retainers it is therefore possible to order only the retainers necessary, according to retaining requirements.

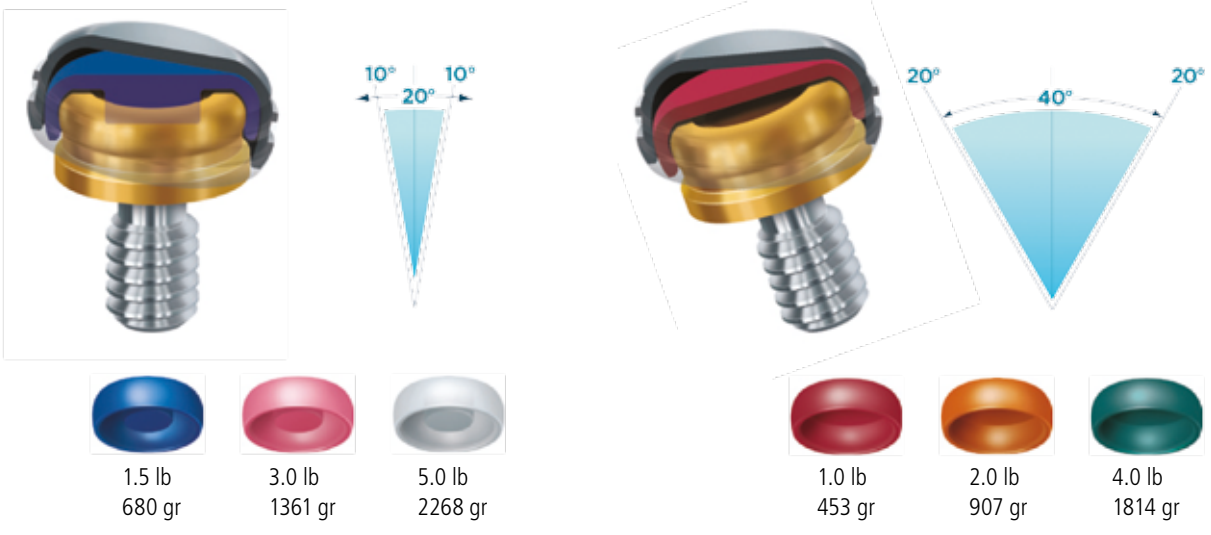
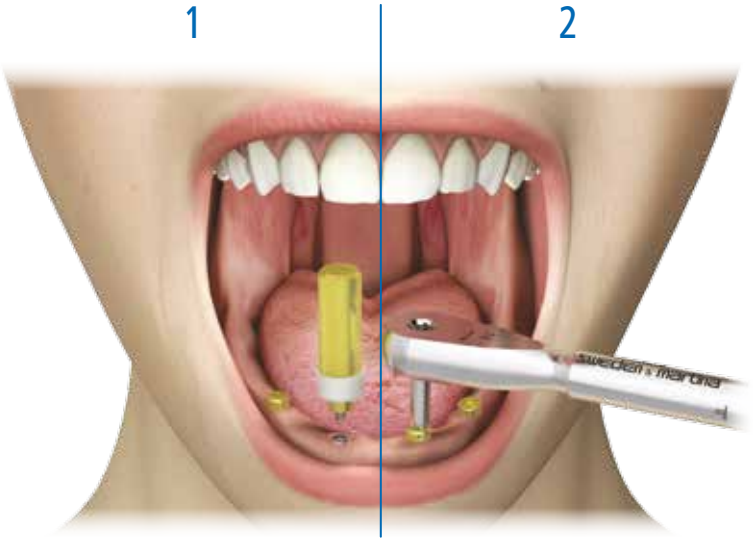


Image by kind permission of Zest Anchors, Inc., 2061 Wineridge Place, Escondido, CA 92029, USA.

code	description
 8519-2	Kit containing 2 **titanium** caps in grade 5, 2 spacer rings in silicone rubber, 2 black polyethylene retainers (LDPE 993I) with low retention capacity for impression taking and 2 nylon retainers for each of the 4 different retention capacities
 8540-2	Kit containing 2 **titanium** caps in grade 5, 2 spacer rings in silicone rubber, 2 black polyethylene retainers (LDPE 993I) with low retention capacity for impression taking and 2 nylon retainers for each of the 4 different retention capacities, designed for severe disparallelism.
 8550-2	Kit containing 2 **steel** caps, 2 spacer rings in silicone rubber, 2 black polyethylene retainers (LDPE 993I) with low retention capacity for impression taking and 2 nylon retainers for each of the 4 different retention capacities
8514	Pack of 20 spacer rings in silicone rubber, for the prosthesis relining phase
 8515	Pack of 4 black polyethylene retainers (LDPE 993I) with low retention capacity for impression taking
 8524	Pack of 4 transparent nylon retainers, retention 5 lb corresponding to 2268 g for disparallelisms up to 10° on each side, see page 40
 8527	Pack of 4 pink nylon retainers, retention 3 lb corresponding to 1.361 g for disparallelisms up to 10° on each side, see page 40
 8529	Pack of 4 blue nylon retainers, retention 1.5 lb corresponding to 680 g for disparallelisms up to 10° on each side, see page 40
 8547	Pack of 4 green nylon retainers, retention 4 lb corresponding to 1.814 g for disparallelisms up to 20° on each side, see page 40
 8548	Pack of 4 red nylon retainers, retention 1 lb corresponding to 450 g for disparallelisms up to 20° on each side, see page 40
 8915	Pack of 4 orange nylon retainers, retention 2 lb corresponding to 907 g for disparallelisms up to 20° on each side, see page 40

Direct method: chair-side phases

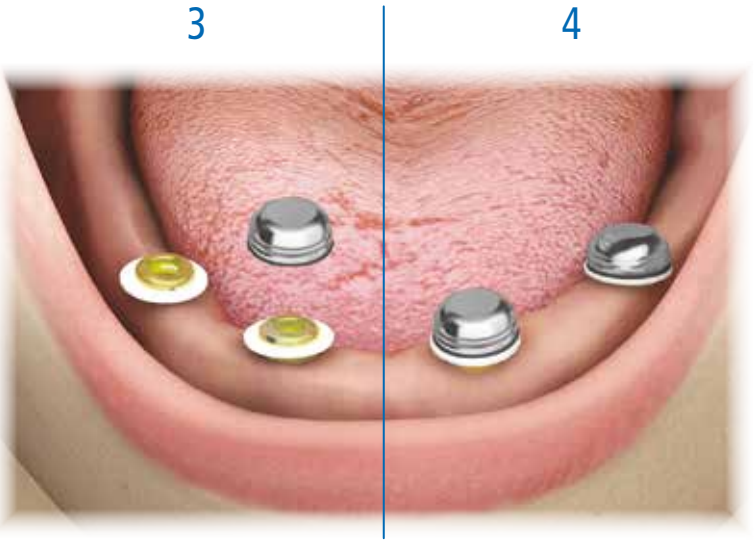
Expose the implants, or remove the transgingival healing screws, depending on whether a protocol with a double or single surgical phase was adopted. Depending on the thickness of the soft tissues, choose the Locator abutment with the most suitable transgingival height and insert the Locator abutments in the implant connection with the Locator driver (gold colour end portion of the instrument 8393, which can also be ordered separately with code 8390). The abutments can be engaged and carried safely into the oral cavity thanks to the retainer 8394, inserted on the end of the instrument 8390 **(1)**. Insert the abutment thread in the well of the implant and screw it in a preliminary manner for a few turns, then remove the instrument 8390 and complete screwing with the dynamometric ratchet CRI5 together with the driver 8926-SW or 8927-SW, depending on the space available **(2)**.
It is recommended to tighten the abutments at 25-30 Ncm.



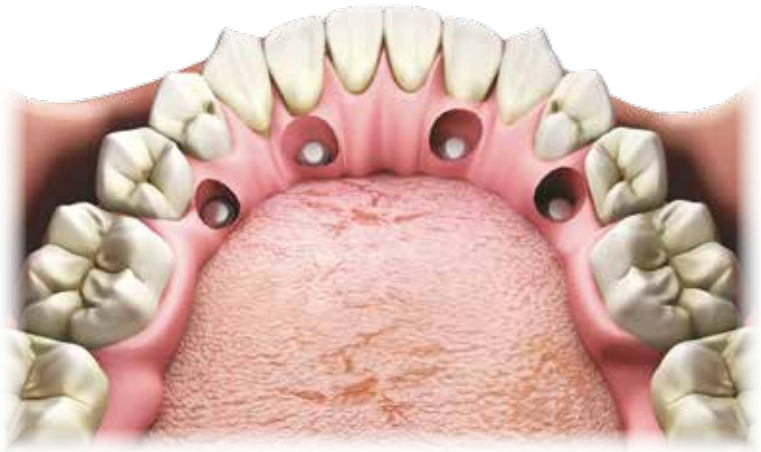
Fit the plastic pins (code 8517) onto the locator abutments and use the plate 9530 to check the degree of divergence between the axes of the implants. Different nylon retainers will be used depending on the disparallelism:

divergence <10° on each side	**divergence <20° on each side**
Blue retainer 1.5 lb (680 g)	Red retainer 1 lb (453 g)
Pink retainer 3 lb (1361 g)	Orange retainer 2 lb (907 g)
Transparent retainer 5 lb (2268 g)	Green retainer 4 lb (1814 g)

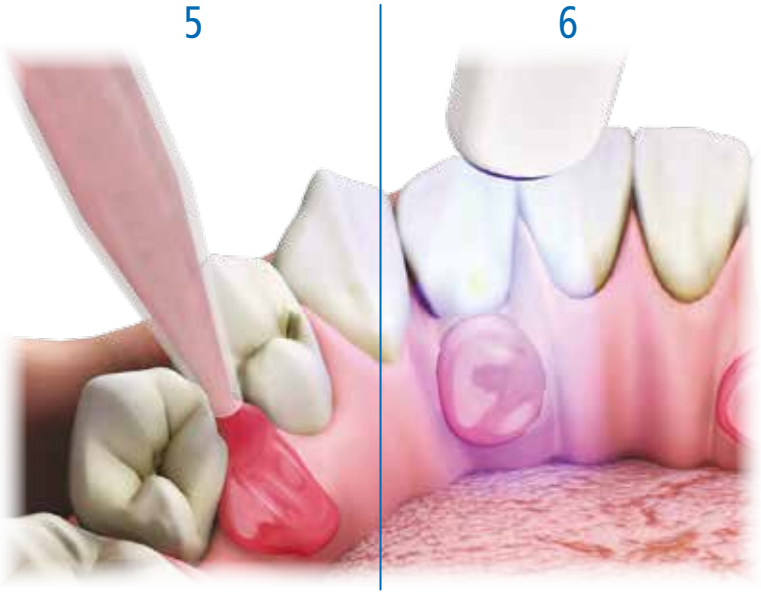
Remove the pins and position the white spacer ring around the head of each Locator abutment **(3)**.
Insert the black retainer in each metal cap, position the cap on the Locator abutment leaving the white spacer ring below it **(4)**. The spacer ring also performs the function of protecting the mucous in the peri-implant area, which in this way does not come in contact with the resin. The black retainer will keep the prosthesis within the upper limit of its vertical elasticity during the procedure.



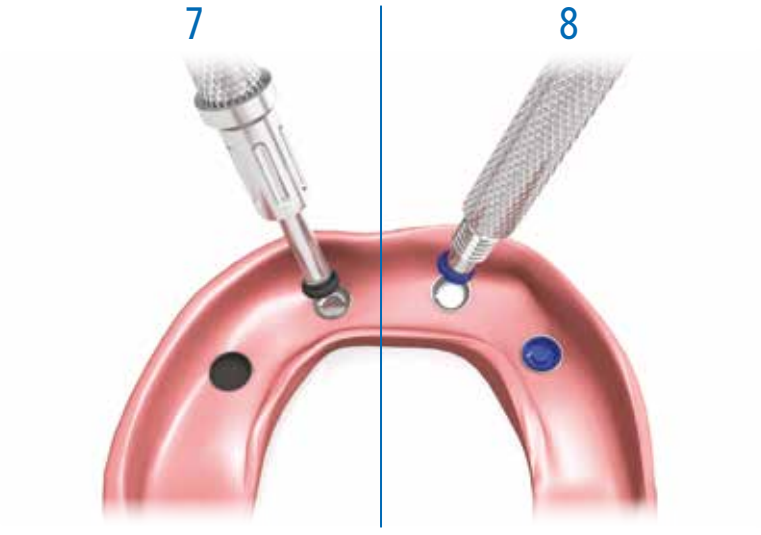
Pierce the prosthesis close to the attachments, create sufficiently large holes to allow the injection and exit of the acrylic resin. Position the overdenture on the metal caps.



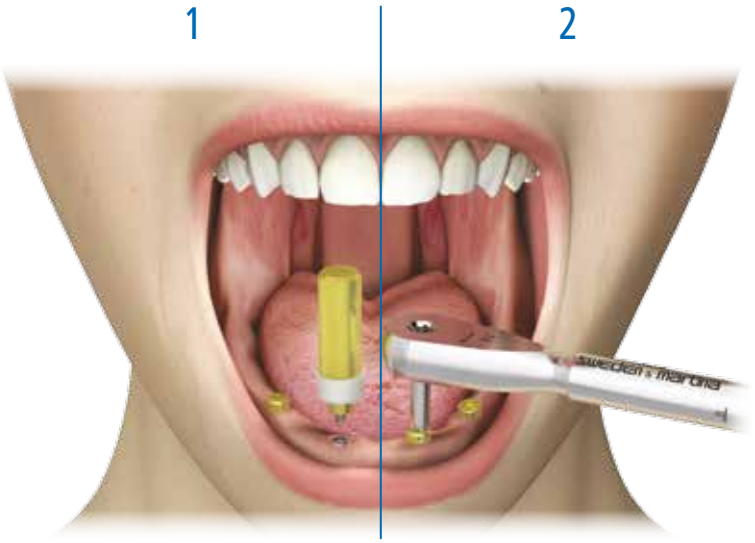
Inject the resin **(5)** and proceed to polymerise the material following the manufacturer's instructions **(6)**. Then lift the prosthesis: the black retainers will remain inside the metal caps. Polish the base of the overdenture.



Slacken the end of the instrument 8393, unscrewing the piece for two complete turns (counterclockwise): this will allow the small piston on the tip to retract completely **(7)** and the sharp edge of the tip to engage the edge of the black retainer to extract it from the metal cap. Screw the end of the Locator Core Tool back on, so that the piston comes out and ejects the black retainer. Use the tip of the intermediate portion of the Locator Core Tool to push into the cap the retainer suitable for the degree of disparallelism between the implants **(8)**. Check carefully that the retainer is completely housed in the metal cap and that its edge is at the same level as that of the cap.



Indirect method: chair-side phases



Expose the implants, or remove the transgingival healing screws, depending on whether a protocol with a double or single surgical phase was adopted. Depending on the thickness of the soft tissues, choose the Locator abutment with the most suitable transgingival height and insert the Locator abutments in the implant connection with the Locator driver (gold colour end portion of the instrument 8393, which can also be ordered separately with code 8390). The abutments can be engaged and carried safely into the oral cavity thanks to the retainer 8394, inserted on the end of the instrument 8390 **(1)**. Insert the abutment thread in the well of the implant and screw it in a preliminary manner for a few turns, then remove the instrument 8390 and complete screwing with the dynamometric ratchet CRI5 together with the driver 8926-SW or 8927-SW, depending on the space available **(2)**.
It is recommended to tighten the abutments at 25-30 Ncm.

Fit the plastic pins (code 8517) onto the locator abutments and use the plate 9530 to check the degree of divergence between the axes of the implants. Different nylon retainers will be used depending on the disparallelism:

divergence <10° on each side	**divergence <20° on each side**
Blue retainer 1.5 lb (680 g)	Red retainer 1 lb (453 g)
Pink retainer 3 lb (1361 g)	Orange retainer 2 lb (907 g)
Transparent retainer 5 lb (2268 g)	Green retainer 4 lb (1814 g)

Please note: in the indirect method this phase can also be performed on the model in the laboratory.

Remove the pins and fit the white spacer rings on the Locator abutments, to prevent undesired running of implant material. With a simple finger pressure, insert the Locator 8505 transfers, in which the black plastic retainer for taking the impression (8585) have already been inserted.

Inject a precision impression material (SKY IMPLANT LIGHT, code SKY14) only around the transfers and at the same time fill the impression tray with a more consistent material (SKY IMPLANT HEAVYMIX, code SKY04) on the whole arch.
Put the closed tray in place and wait for the hardening times according to the instructions. The particular conformation of the Locator transfers allows the maximum of retentiveness to be obtained in the minimum vertical space.

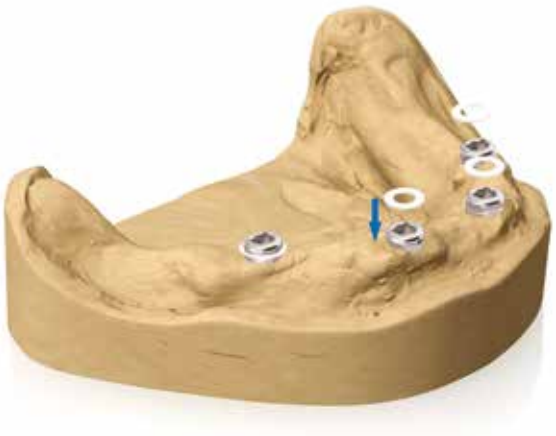
Lift the impression tray vertically: the Locator transfers will remain enclosed into the impression.

Insert a Locator analog 8530 in each Locator transfer and send the impression to the laboratory. Since the head of the Locator abutments which interfaces with the retainers is always the same for all implant platforms, there is only one transfer and only one analog.

Locator products are medical devices manufactured and patented by Zest Anchors, Inc., 2061 Wineridge Place, Escondido, CA 92029, USA. Locator is a registered trademark of Zest Anchors, Inc. The European Agent for the purposes of MDD 93/42/EEC is Ventura Implant and Attachment Systems, 69 The Avenue, Ealing, London W13 8JR, England.

Indirect method: laboratory phases

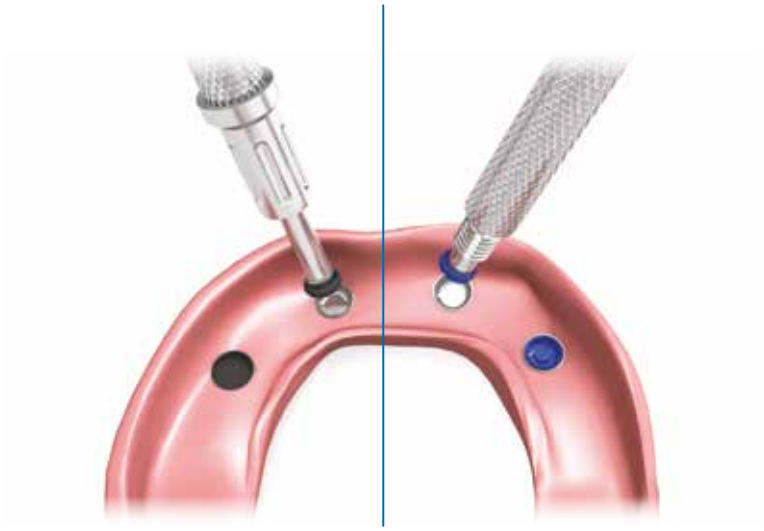
Box the impression with wax or resin and cast the model: the Locator analog will exactly reproduce the position of the head of the Locator abutment. In the model, insert in each analog a spacer ring 8514, 0.50 mm thick, which will create the space necessary to obtain full resilience of the metal cap enclosed in the prosthesis which rotates on the head of the Locator abutment.



Position the metal caps with the preassembled black retainers on the head of the Locator analog. The black retainer will keep the overdenture within the upper limit of its vertical resilience capacity during the work phases, so it is necessary to check that it is completely inserted inside the metal cap.

Make the overdenture with the customary protocols, checking that the overall dimensions of the abutment and the metal cap are completely included in the prosthesis. To enclose the metal caps correctly into the structure, possibly pierce the structure at the level of the Locator abutments and position it on the model.

Slacken the end of the instrument 8393, unscrewing the piece for two complete turns (counterclockwise): this will allow the small piston on the tip to retract completely **(1)** and the sharp edge of the tip to engage the edge of the black retainer to extract it from the metal cap.
Screw the end of the Locator Core Tool back on, so that the piston comes out and ejects the black retainer.
Use the tip of the intermediate portion of the Locator Core Tool to push into the cap the retainer suitable for the degree of disparallelism between the implants **(2)**. Check carefully that the retainer is completely housed in the metal cap and that its edge is at the same level as that of the cap.



IMPORTANT WARNING

It is advisable to instruct patients adequately on the correct procedures for inserting and removing the prostheses, inviting them to practise these simple manoeuvres, even though the self-centring design of the Locator abutments has been conceived especially to facilitate these operations.
Patients must also be urged to report any discomfort of the prosthesis, including the loss of retention of the attachments, so as to allow the operator to perform prompt maintenance or replace any retainers that may be badly inserted or worn.

Maintenance and relining

Maintenance

Good oral hygiene is essential both for the duration of the components of the Locator anchoring system and for the long-term success of implant therapy.

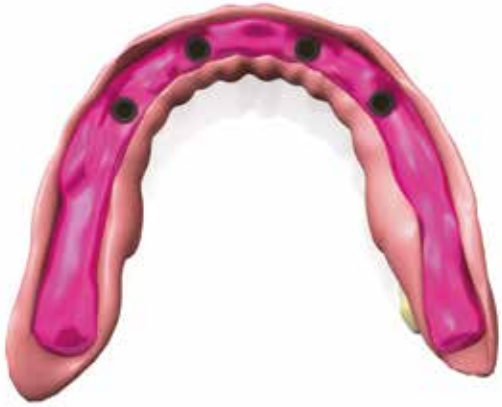
The Locator metal component is made Gr. 5 titanium, so it does not require any particular precautions for cleaning or maintenance. However, to avoid the formation of plaque and the stagnation of abrasive residue in the abutment well, which could spoil the two interfaces in contact, it is recommended to brush the removable prosthesis, the abutments and the nylon retainers daily with a soft brush under running water, so that aggressive cleaning substances cannot limit the duration of these components, though they are replaceable. Also the use of ultrafloss around the abutments can help to keep the peri-implant area in good condition, and consequently the attachments too.

Patient follow-up at least every six months is recommended, at the same time checking the retentiveness and if necessary replacing any spoiled nylon retainers, or upgrading them if the patient needs a higher level of retention. During follow-up it is also recommended to check that the abutments are correctly fixed on the implants, tightening them if necessary with a torque of 25-30 Ncm.

During hygiene sessions it is recommended to use only plastic instruments for scaling operations on the abutments. It is preferable to avoid using metal instruments which could scratch the surface of the abutments.

Periodic relining of the overdenture

Remove the retainers from the metal caps following the indications on page 43 and temporarily replace them with black retainers, so as to maintain a correct vertical ratio during relining. Drill any areas of compression. Apply the relining material on the inside of the prosthesis, whether it is resin or silicone, taking care to avoid the retainers.



Take a relining impression using the existing prosthesis as the impression tray. It is recommended to protect the Locators with the special silicone rubber spacer rings.

The retainer will engage the head of the Locator abutment and keep the prosthesis in position during taking of the impression and hardening of the material. When the impression is removed, the retainers will remain inside the metal caps.

Insert a Locator analog (code 8530) in each metal cap coupled with the retainer and make the model with the customary procedure.

IMPORTANT WARNING

Direct relining in the patient's mouth could cause problems linked to the stoichiometric difference between the structural resin of the overdenture, hot-cured under pressure, and the relining resin, cold-cured without pressure. Moreover the difficulty of controlling the material, which could get stuck under the attachments, the difference in colour, the shorter duration of the relining and the discomfort linked to the presence of resin in the patient's mouth, all mean that this option is not advisable.

Carry out the final relining of the prosthesis in the laboratory and perform tests accurately with the patient to choose a suitable new retainer.

IMPORTANT WARNING

Should the patient present substantial modifications of his or her oral anatomy (for example after losing a lot of weight), it is necessary to perform not a simple relining but a new repositioning of the metal caps inside the overdenture. To do this the caps must be removed from the resin structure with a small burr and repositioned as described on page 42 and following.

Ball attachments

The anchoring system with ball attachment consists of a post Gr. 5 titanium having a round end with diameter 2.20 mm and a choice of different anchoring systems incorporated in the removable prosthesis.
The ball abutments have a small hexagon at the base of the ball for attaching the driver, compatible with the system's dynamometric ratchet.

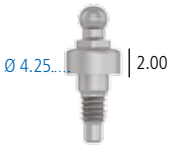
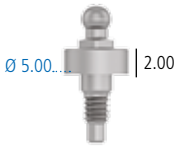
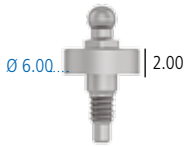
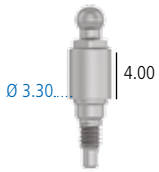
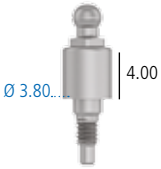
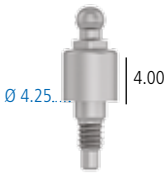
Conditions and indications for anchoring with ball attachments

The standard prosthetic protocol with ball attachments contemplates the support of two implants, positioned preferably 22.00 mm from each other, so that the axis of rotation between the two posts allows the overdenture a certain degree of vertical movement. Absolute parallelism between the two implants is not an indispensable condition for the success of the rehabilitation, as the spherical head intrinsically allows a certain degree of correction. However, the presence of any disparallelisms may present risks of fracture, particularly for the ball attachments, in heavy load conditions, so the rehabilitation with ball attachments is preferable exclusively between parallel implants.

The long-term stability and duration of the ball attachment/cap complex is determined by various factors, including the following:

- Three-dimensional alignment of the occlusal surfaces of implants and prosthesis;
- Adequate positioning of the prosthetic interface (cap or ring, matrix) so that the ball does not touch the prosthesis in its most occlusal part;
- Vertical dimension of the prosthesis such as to ensure that the cap is surrounded on all sides by an adequate layer of resin.

Since the ball must work free from restraints to guarantee the correct mucosal resting surface for the overdenture, abutments with ball attachment are available in different transgingival heights.

Ø prosthetic component	Ø 3.30 mm	Ø 3.80 mm	Ø 4.25 mm	Ø 5.00 mm	Ø 6.00 mm
for implants:	Premium 3.30 - 3.80 Kohno 3.80 Shelta 3.80	Premium 3.80 Kohno 3.80 Shelta 3.80 - 4.25 - 500	Premium 4.25 Kohno 4.25	Premium 5.00 Kohno 5.00 - 6.00	Kohno 6.00
Straight emergence Transgingival H. 1.00 mm	 A-AS-330-1	 A-AS-380-1	 A-AS-425-1	-	-
Straight emergence Transgingival H. 2.00 mm	 A-AS-330-2	 A-AS-380-2	 A-AS-425-2	 A-AS-500-2	 A-AS-600-2
Straight emergence Transgingival H. 4.00 mm	 A-AS-330-4	 A-AS-380-4	 A-AS-425-4	-	-
Analog of the ball attachment	 ANAS	Utilizzare ANAS	Utilizzare ANAS	Utilizzare ANAS	Utilizzare ANAS

code	description
 BASCC-EX	Steel driver for ball attachments, with connector for dynamometric ratchet or digital connector*

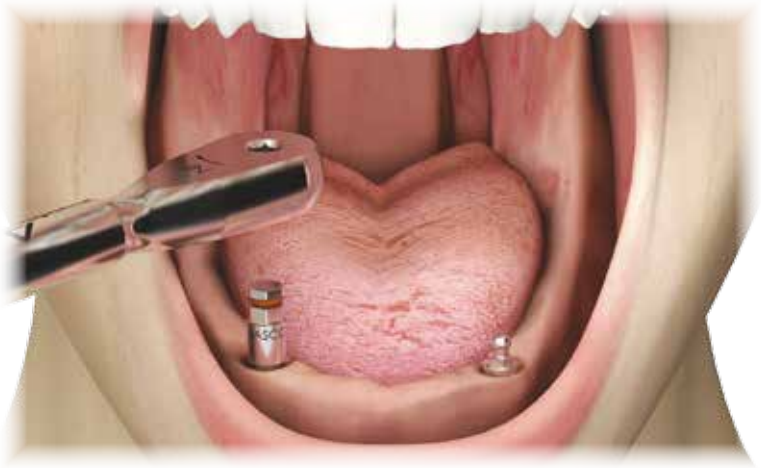
** The BASCC-EX driver is not included in the surgical kits for implant systems, but it is contained in the Screw kit, see page 12, or can be ordered separately.*

Recommended tightening torque for ball attachments: 25-30 Ncm.

All measurements are given in mm, unless indicated otherwise..

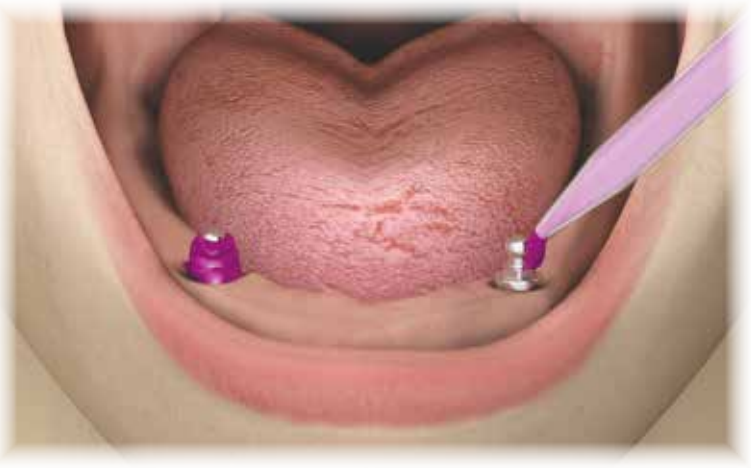
Impression and model

Expose the implants, or remove the transgingival healing screws, depending on whether a protocol with a double or single surgical phase was adopted. Depending on the thickness of the soft tissues, choose the ball attachment with the most suitable transgingival height. For the heights available see the table on page 51.



Engage the small hexagon at the base of the ball with the driver BASCC-EX and connect the other end to the dynamometric ratchet CRI5. Screw the posts into the connection of the implants with a torque of 25-30 Ncm.

Please note: the driver is not contained in the surgical kits and must be requested separately, with code BASCC-EX. Instead it is included in the Screw Kit. This driver is compatible with the system's dynamometric ratchet.



Position the closed tray and check that the whole height of the ball attachment is contained within the walls of the impression tray. Inject a precision impression material (SKY IMPLANT LIGHT, code SKY14) only around the spherical heads of the posts and at the same time fill the impression tray with a more consistent material (SKY IMPLANT HEAVYMIX, code SKY04) on the whole arch.

IMPORTANT WARNING

As you are accustomed, it is advisable to insert a suitably perforated piece of latex or dam to prevent silicone infiltrating the peri-implant sulcus.

Then put the tray in place and wait for the hardening times according to the manufacturer's instructions. Lift the impression tray vertically.

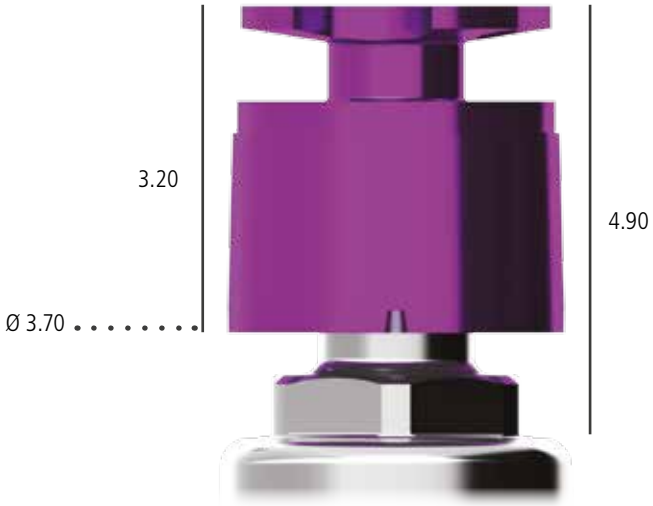
Insert the analogs of the ball attachments (code ANAS) in the empty spaces left by the retaining balls of the attachments. Since the spherical head is always the same for all implant platforms, there is only one analog.

Develop the model according to usual techniques, incorporating the analogs of the ball attachments (code ANAS) in the chosen material.

Matrices for ball attachments

Titanium Cap CAP-TIT-1

The matrix consists of a grade 5 titanium cap, in two parts complete with, titanium retention spring and plastic mounting ring.
Each pack contains the medium version of the retention spring (MOL1-CAP-TIT-1), but a softer spring is also available for progressive adaptation, which can be ordered separately with the code MOL2-CAP-TIT-1. Both the springs and the plastic mounting ring are also available as spares, with the codes shown in the table at the side. A special driver is available for removing and reassembling the titanium cap; it allows rapid replacement of the retention spring and simplifies the use of the plastic relining ring, as explained in the work steps.



code	description
 CAP-TIT-1	Grade 5 titanium cap in two parts complete with titanium retention spring, and plastic mounting ring for ball attachments Ø 2.20 mm. The total height is 3.20 mm
 AN-CAP-TIT-1	Spare plastic ring for titanium cap H 2.20 mm
 MOL1-CAP-TIT-1	Spare retention spring for titanium caps, average hardness, steel, Ø 3.20 mm
 MOL2-CAP-TIT-1	Spare retention spring for titanium cap, soft, for progressive adaptation of the prosthesis, steel, Ø 3.20 mm
 AVV-CAP-TIT-1	Driver for mounting and maintenance of the titanium cap CAP-TIT-1

See grade 5 titanium technical characteristics on page 104.

Assembly of the titanium cap for work phases:

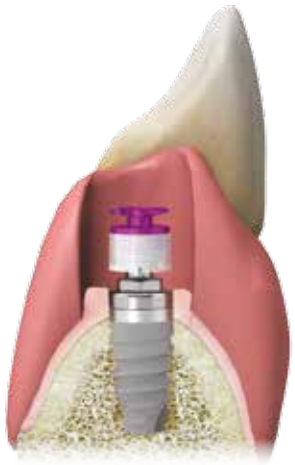
The titanium cap is supplied assembled on the spring with the final titanium ring. Before starting the direct protocol of anchoring the overdenture it is necessary to unscrew the preassembled titanium ring with the aid of the driver AVV-CAP-TIT-1 and set it aside with the spring.

With the same driver screw the elastomeric plastic mounting ring onto the top of the titanium spring, without inserting a spring. The retention exerted by the plastic ring is minimum, but sufficient for the assembly phases.

Titanium Cap CAP-TIT-1: direct method

Position the caps assembled on the elastomeric plastic ring on the spherical head of the abutments. Totally pierce the prosthesis for a radius of about 5.50 mm and put it in place to check the dimensions. The retention of the elastomeric ring is minimum, but sufficient for the work phases.

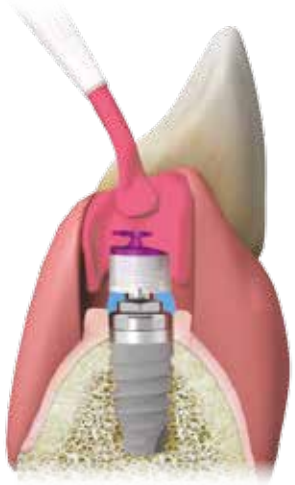
Please note: depending on the type of resin it may be useful to apply a light layer of Vaseline or wax around the transparent plastic ring to make its removal easier after its inclusion into the resin.



Fill the cavities with resin in such a way as to enclose the caps entirely and polymerise according to the manufacturer's instructions.

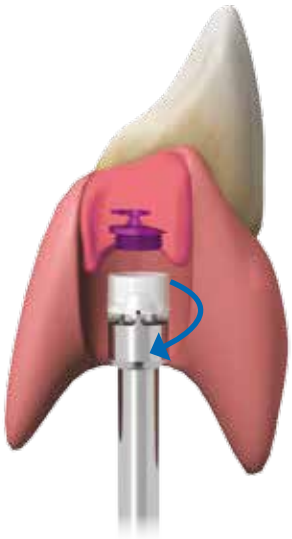
IMPORTANT WARNING

Should it be necessary, protect any undercuts (highlighted in blue in the image) with impression plaster, wax, dam or other materials habitually used for this purpose.

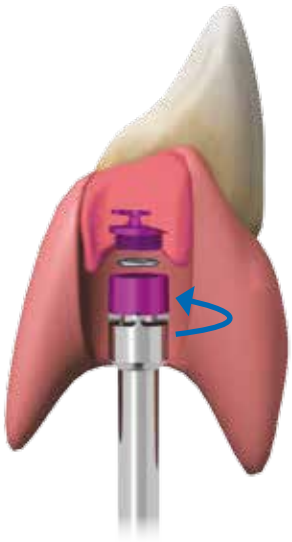


Intraoral view.

Unscrew the plastic ring with the driver AVV-CAP-TIT-1. The space left by the plastic ring is calculated so as to allow easy insertion of the titanium ring.



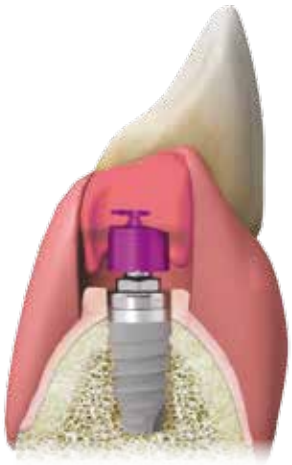
Screw the titanium ring onto the top of the cap, in which you have first inserted the retention spring. Always insert the spring at the threaded end.



IMPORTANT WARNING

Should the initial retention be excessive for the patient, replace the spring provided with the gold coloured one which can be bought separately with code MOL2-CAP-TIT-1.

Polish the base of the overdenture and put the prosthesis in place, exerting vertical pressure until you hear the characteristic click which indicates the correct engagement of the head of the ball attachment on the retention spring.



IMPORTANT WARNING

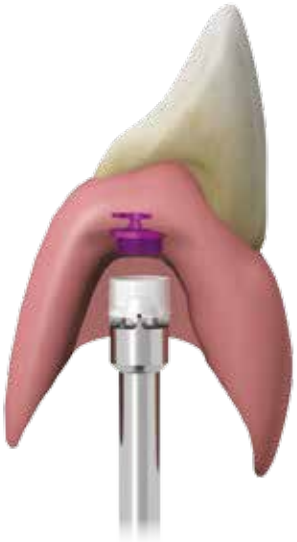
It is advisable to instruct patients adequately on the correct procedures for inserting and removing the prostheses, inviting them to practise these simple manoeuvres, even though the ball attachments make these operations simple and fast. Patients must also be urged to report any discomfort of the prosthesis, including the loss of retention of the attachments, so as to allow the operator to perform prompt maintenance or replace the spring or the ball attachments that may be badly inserted or worn.

Titanium Cap CAP-TIT-1: indirect method

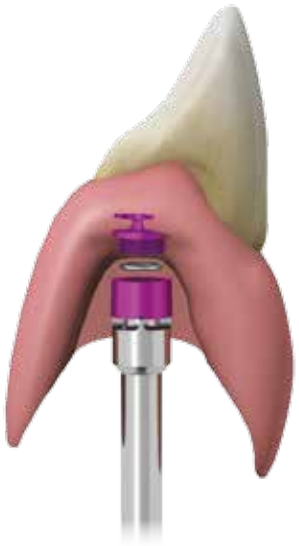
Position the caps assembled on the elastomeric plastic ring on the spherical head of the analogs, taking care to keep the insertion axis at a right angle to that of the analogs. Should it be necessary, relieve any undercuts with impression plaster, wax, dam or other materials habitually used for this purpose.

Make the overdenture with the customary protocols, checking that the overall dimensions of the ball attachment and the metal cap are completely included in the prosthesis.

Unscrew the plastic ring with the driver AVV-CAP-TIT-1. The space left by the plastic ring is calculated so as to allow easy insertion of the titanium ring.



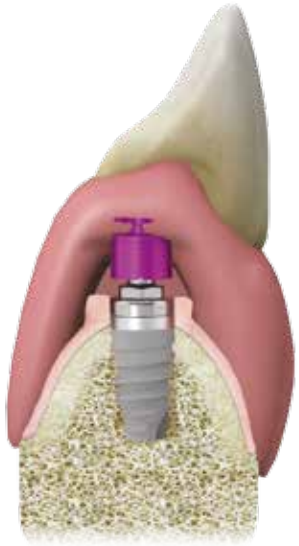
Screw the titanium ring onto the top of the cap, in which you have first inserted the retention spring. Always insert the spring at the threaded end.



IMPORTANT WARNING

Should the initial retention be excessive for the patient, replace the spring provided with the gold coloured one which can be bought separately with code MOL2-CAP-TIT-1.

Polish the base of the overdenture and put the prosthesis in place, exerting vertical pressure until you hear the characteristic click which indicates the correct engagement of the head of the ball attachment on the retention spring.



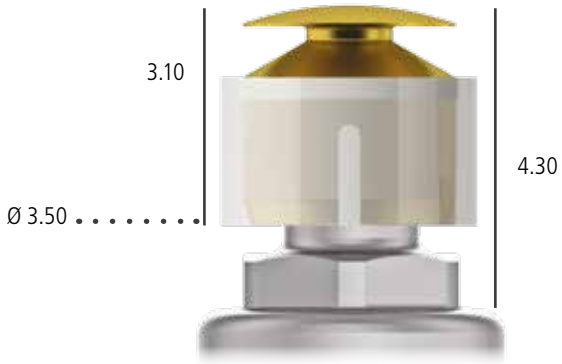
IMPORTANT WARNING

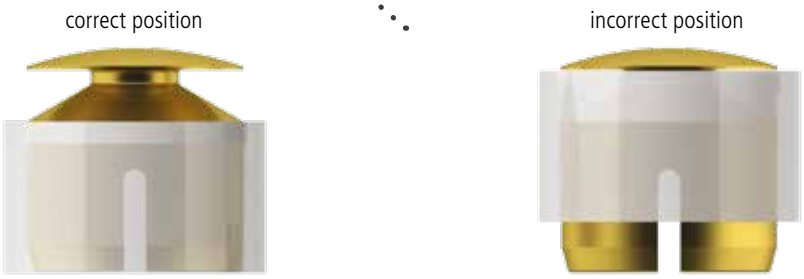
It is advisable to instruct patients adequately on the correct procedures for inserting and removing the prostheses, inviting them to practise these simple manoeuvres, even though the ball attachments make these operations simple and fast. Patients must also be urged to report any discomfort of the prosthesis, including the loss of retention of the attachments, so as to allow the operator to perform prompt maintenance or replace the spring or the ball attachments that may be badly inserted or worn.

Matrices for ball attachments

Cap in gold alloy CAP-1

The matrix consist of a gold alloy cap characterised by 4 tabs with a particular retentive design which is supplied along with three transparent elastomeric rings and a laboratory tin spacer. The rings help maintain the elasticity of the gold alloy tabs, which otherwise would lose their retentive capacity after a brief use. For this reason it is important for the two components to be correctly positioned one on top of the other, as shown in the image at the foot of the page.





The plastic ring must be inserted on the cap so that it completely covers the retentive tabs but not the most coronal portion, which must be enclosed in the resin.

code	description
 CAP-1	Cap in "gold alloy 2" for ball attachments Ø 2.20 mm, complete with 3 plastic rings for positioning it and a laboratory tin spacer. The total height is 3.10 mm, and the outside diameter is 3.50 mm

See the technical characteristics of Gold alloy 2 on page 106.

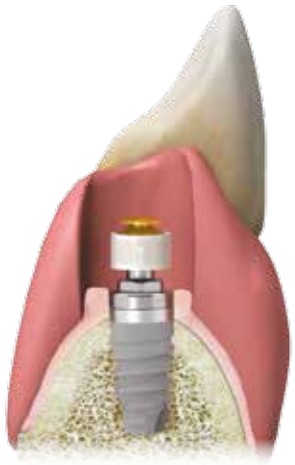
Adjusting retention

Should the alloy matrix be too difficult for the patient to remove, it is possible to slacken the retentive force of the tabs by inserting in the cap a tapered point with a growing diameter which will gradually spread the tabs. On the other hand, should the matrix lose its retentiveness it is possible to reactivate the tabs by simply inserting in the cap a point with a diameter smaller than 2.20 mm which will cause the four retentive walls to converge towards the centre. These operations must be performed gently, taking care not to detach the female from the resin.

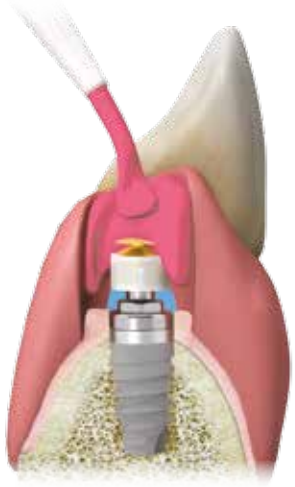
The standard retention of the gold alloy cap is about 200 g, which is also the minimum value that can be obtained. The maximum value is about 1200 g.
In the event of lack of retention despite activation, check that the female part is properly positioned; repolymerise if necessary.
During any operations of modifying and relining the prosthesis it is preferable to remove the original female.

Cap in gold alloy CAP-1: direct method

Position the caps assembled on the plastic ring on the spherical head of the abutments. Pierce the prosthesis for a radius of about 5.50 mm and put it in place to check the dimensions.



Insert a mass of resin in the hole so that it encloses the top of the cap, provided with a special peduncle that facilitates retention in the material, once it has been polymerised.

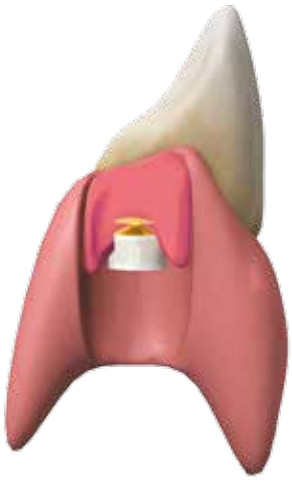


IMPORTANT WARNING

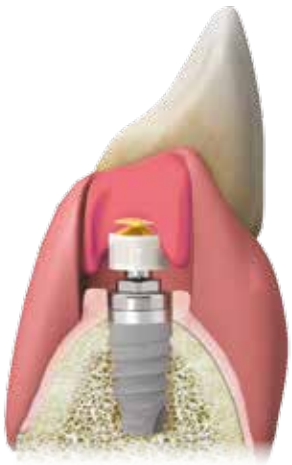
Should it be necessary, protect any undercuts (highlighted in blue in the image) with impression plaster, wax, dam or other materials habitually used for this purpose.

Intraoral view.

Once polymerisation is ended, lift the prosthesis and polish the base of the overdenture.



Test the retentive capacity of the gold alloy caps and put the overdenture into place. If necessary, adjust retentiveness with the operations described on page 61.

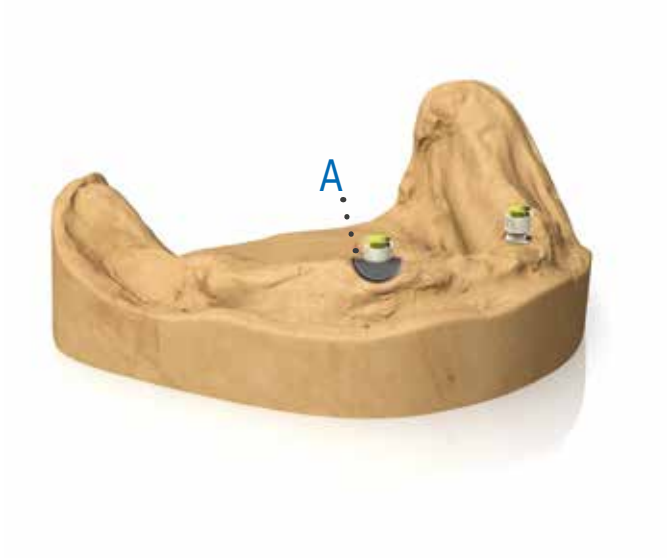


IMPORTANT WARNING

It is advisable to instruct patients adequately on the correct procedures for inserting and removing the prostheses, inviting them to practise these simple manoeuvres, even though the ball attachments make these operations simple and fast. Patients must also be urged to report any discomfort of the prosthesis, including the loss of retention of the attachments, so as to allow the operator to perform prompt maintenance or replace any ball attachments that may be badly inserted or worn.

Cap in gold alloy CAP-1: indirect method

Position the caps assembled on the plastic ring on the spherical head of the analogs, taking care to keep the insertion axis at a right angle to that of the analogs. Should it be necessary, relieve any undercuts with impression plaster, wax, dam or other materials habitually used for this purpose.



IMPORTANT WARNING

A tin spacer disc **(A)** is provided which allows optimum vertical resilience to be obtained. It can be positioned only on the model before insertion of the resin and adapted on the entire peri-implant surface, to be eliminated only after having completed the resin product. It must not be placed in the mouth. As an alternative a piece of dam can be used.

Make the overdenture with the customary protocols, checking that the overall dimensions of the ball attachment and the alloy cap are completely included in the prosthesis.

Once polymerisation is ended, lift the prosthesis and polish the base of the overdenture.

Test the retentive capacity of the gold alloy caps and put the overdenture into place. If necessary, adjust retentiveness with the operations described on page 61.

IMPORTANT WARNING

It is advisable to instruct patients adequately on the correct procedures for inserting and removing the prostheses, inviting them to practise these simple manoeuvres, even though the ball attachments make these operations simple and fast. Patients must also be urged to report any discomfort of the prosthesis, including the loss of retention of the attachments, so as to allow the operator to perform prompt maintenance or replace any ball attachments that may be badly inserted or worn.

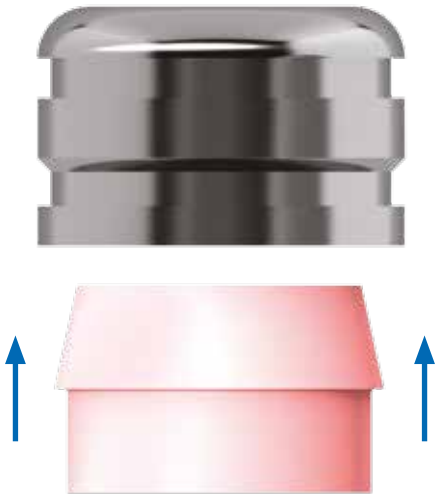
Matrices for ball attachments

Polyamide cap CAP-TFL-1

The anchoring system with polyamide cap consists of a steel container with grooves for optimal anchoring in the resin, and a polyamide retainer which can be replaced chair-side without having to adjust the structure of the overdenture.
If there is not enough space, the polyamide retainer can also be used without the metal container, however in this case it must also be considered that the cap undergoes greater wear in a shorter time, and the replacement becomes more invasive with respect to the prosthesis.

code	description
 CAP-TFL-1	Polyamide cap for ball attachments Ø 2.20 mm
 CONT-CAP-TFL-1	Steel container for polyamide cap with outer Ø 4.80 mm. The total height is 3.20 mm

No particular instruments are required to insert the polyamide retainer in the steel cap, which can be done by hand.



Polyamide cap CAP-TFL-1: direct method

Manually insert the polyamide cap in the steel container exerting simple pressure. Position the assembled caps on the spherical head of the abutments.

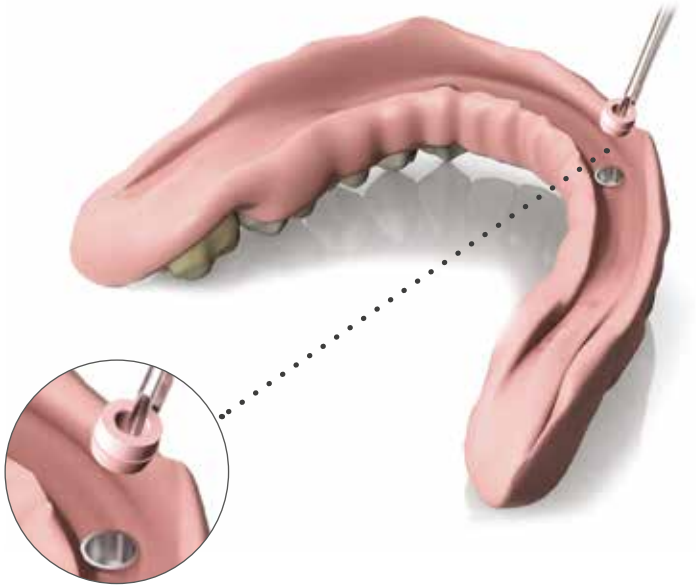
IMPORTANT WARNING

Should it be necessary, protect any undercuts with impression plaster, wax, dam or other materials habitually used for this purpose.

Pierce the prosthesis, existing or new, for about 5.50 mm in the area of the ball attachment, to create the seat for the matrix. Try the overdenture on the edentulous crest to check the vertical dimension of the matrices in the spaces specially created.
Fill the cavities with resin so as to enclose the matrices completely, which should remain at the same level as the resin. Polymerise according to the manufacturer's instructions. Polish the base of the overdenture.

IMPORTANT WARNING

It is advisable to instruct patients adequately on the correct procedures for inserting and removing the prostheses, inviting them to practise these simple manoeuvres, even though the ball attachments make these operations simple and fast. Patients must also be urged to report any discomfort of the prosthesis, including the loss of retention of the attachments, so as to allow the operator to perform prompt maintenance or replace the caps or the ball attachments that may be badly inserted or worn. The polyamide caps can be replaced manually chair-side, using only forceps.



Polyamide cap CAP-TFL-1: indirect method

Manually insert the polyamide cap in the steel container exerting simple pressure. Position the assembled caps on the spherical head of the analogs. Should it be necessary, relieve any undercuts with impression plaster, wax, dam or other materials habitually used for this purpose.

Make the overdenture with the customary protocols, checking that the overall dimensions of the ball attachment and the metal cap are completely included in the prosthesis.

Once polymerisation is ended, lift the prosthesis and polish the base of the overdenture.

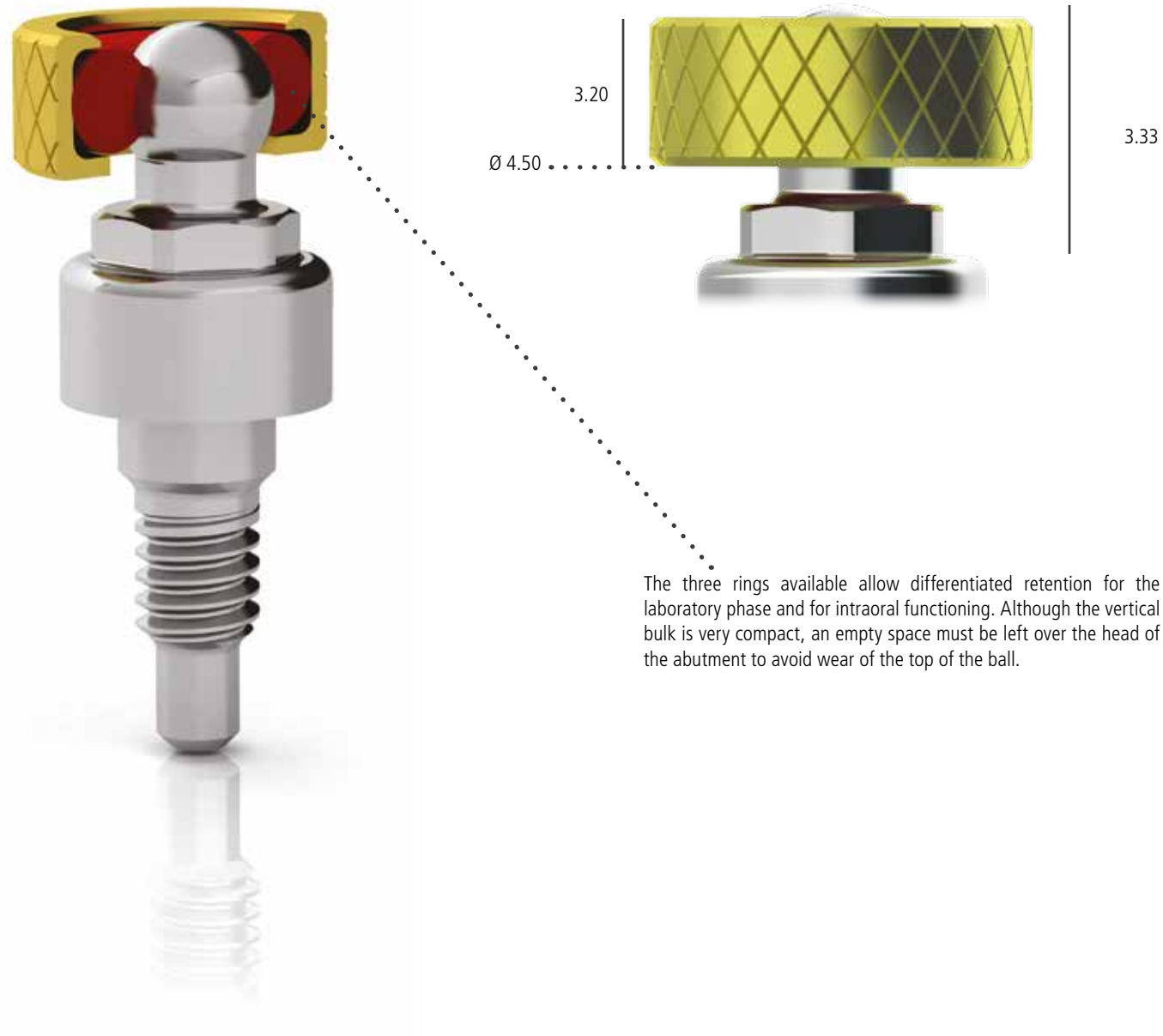
IMPORTANT WARNING

It is advisable to instruct patients adequately on the correct procedures for inserting and removing the prostheses, inviting them to practise these simple manoeuvres, even though the ball attachments make these operations simple and fast. Patients must also be urged to report any discomfort of the prosthesis, including the loss of retention of the attachments, so as to allow the operator to perform prompt maintenance or replace the retainers or the ball attachments that may be badly inserted or worn. The polyamide caps can be replaced manually chair-side, using only forceps.

Matrices for ball attachments

O-ring retention system

The matrix consists of a metal container in the shape of a ring, with an embossed pattern on the outside which facilitates its retention in the resin, inside which is fitted an O-ring of natural rubber. Three different O-rings are available with progressive hardness, to allow progressive adaptation of the prosthesis. The three O-rings are also available as spares, with the codes shown in the table on page 71.



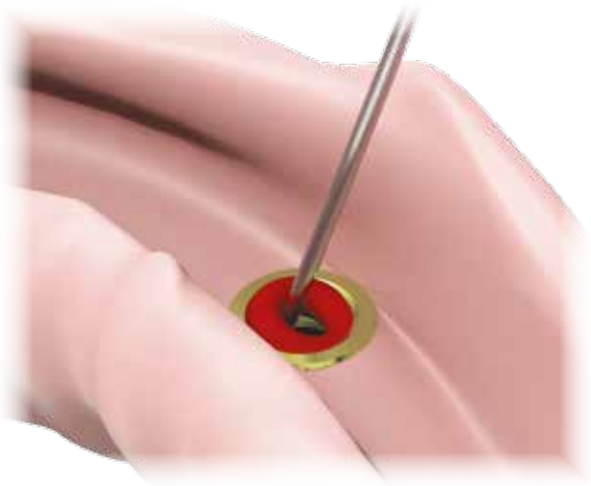
The three rings available allow differentiated retention for the laboratory phase and for intraoral functioning. Although the vertical bulk is very compact, an empty space must be left over the head of the abutment to avoid wear of the top of the ball.

code	description
 99-440044*	Metal container in the shape of a ring for rubber O-rings. For ball attachments Ø 2.20 mm. The total height is 1.50 mm, and the outside diameter is 4.50 mm. Pack of 6 pieces
 99-443034*	Red ring in silicone for laboratory use, outside Ø 4.50 mm, H 1.50 mm. Pack of 12 pieces
 99-443035*	White ring in natural rubber, soft, outside Ø 4.50 mm, H 1.50 mm. Pack of 12 pieces
 99-443036*	Black ring in natural rubber, hard, outside Ø 4.50 mm, H 1.50 mm. Pack of 12 pieces

** The products of the O-ring retention system for ball attachments are manufactured by Attachments International Implant Direct Sybron Manufacturing, 27030 Malibù Hills Road, Calabasas Hills, 91301 U.S.A. The European Agent for the purposes of MDD 93/42/EEC is Emergo Europe, Molenstraat 15 2513 BH, The Hague The Netherlands.*

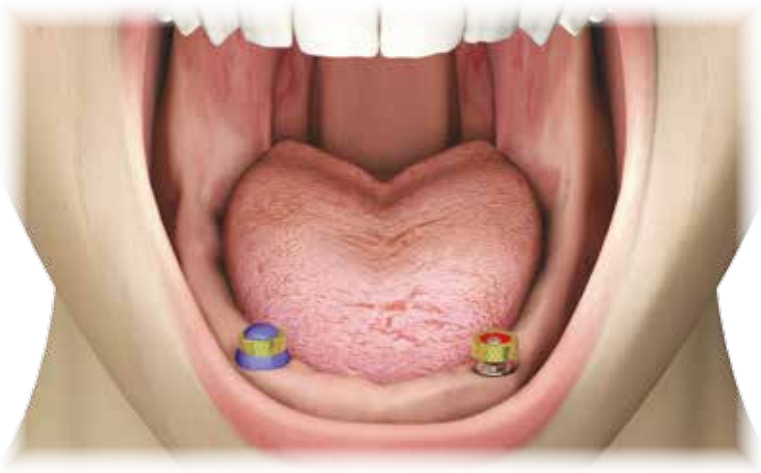
IMPORTANT WARNING

It is advisable to instruct patients adequately on the correct procedures for inserting and removing the prostheses, inviting them to practise these simple manoeuvres, even though the ball attachments make these operations simple and fast. Patients must also be urged to report any discomfort of the prosthesis, including the loss of retention of the attachments, so as to allow the operator to perform prompt maintenance or replace the retention rings or the ball attachments that may be badly inserted or worn. The O-rings, whether of silicone or natural rubber, can lose their retentive capacity over time, requiring replacement. To remove an O-ring and replace it with a harder one it is sufficient to lever with a probe. The new O-ring can be inserted manually or with the aid of surgical forceps.

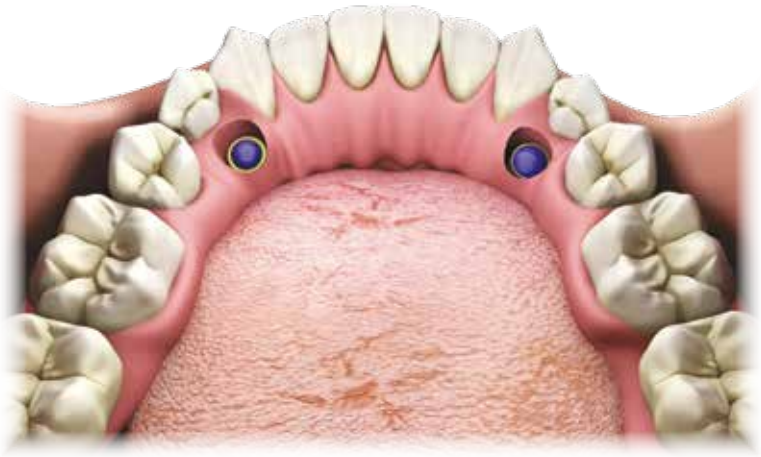


O-ring retention system: direct method

Insert the red silicone O-ring with low retention in the metal ring with the aid of a probe and fit the assembly on the spherical head of the abutment, filling any undercuts with a layer of wax. This precaution will avoid undesired movements of the O-ring matrix at the moment of fixing it in the prosthesis. Moreover the wax will create a small vacuum at the top of the ball, so that it does not come in contact with the resin of the prosthesis, which could be fractured during stress due to masticatory forces.



Pierce the prosthesis, existing or new, for about 5.50 mm in the area of the ball attachment, to create the seat for the O-ring matrix. Put the overdenture in place.



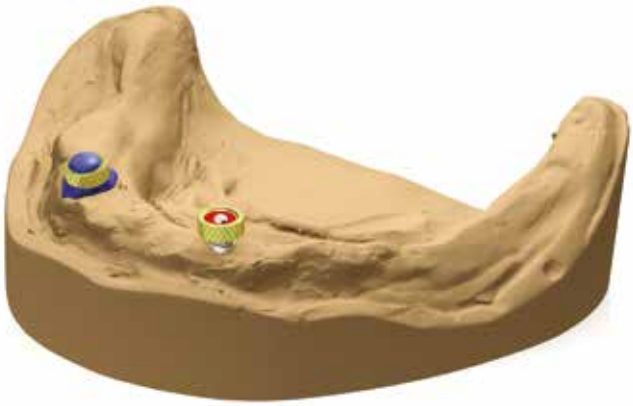
Fill the cavities with resin so as to enclose the matrices completely, which should remain at the same level as the equator of the attachment. Polymerise according to the manufacturer's instructions and finish off.

IMPORTANT WARNING

It is advisable to instruct patients adequately on the correct procedures for inserting and removing the prostheses, inviting them to practise these simple manoeuvres, even though the ball attachments make these operations simple and fast. Patients must also be urged to report any discomfort of the prosthesis, including the loss of retention of the attachments, so as to allow the operator to perform prompt maintenance or replace the retention rings or the ball attachments that may be badly inserted or worn.

O-ring retention system: indirect method

Insert the red laboratory silicone O-ring in the metal ring with the aid of a probe and fit the assembly on the spherical head of the analog, relieving any undercuts with a layer of wax. This precaution will avoid undesired movements of the O-ring matrix at the moment of fixing it in the prosthesis. Moreover the wax will create a small vacuum at the apex of the ball, so that it does not come in contact with the resin of the prosthesis, which could be fractured during stress due to masticatory forces.

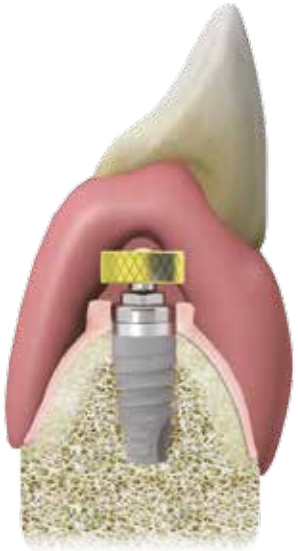


Make the overdenture with the customary protocols, checking that the overall dimensions of the ball attachment and the O-ring are completely included in the prosthesis.

Once polymerisation is ended, lift the prosthesis and polish the base of the overdenture.

IMPORTANT WARNING

It is advisable to instruct patients adequately on the correct procedures for inserting and removing the prostheses, inviting them to practise these simple manoeuvres, even though the ball attachments make these operations simple and fast. Patients must also be urged to report any discomfort of the prosthesis, including the loss of retention of the attachments, so as to allow the operator to perform prompt maintenance or replace the retention rings or the ball attachments that may be badly inserted or worn.

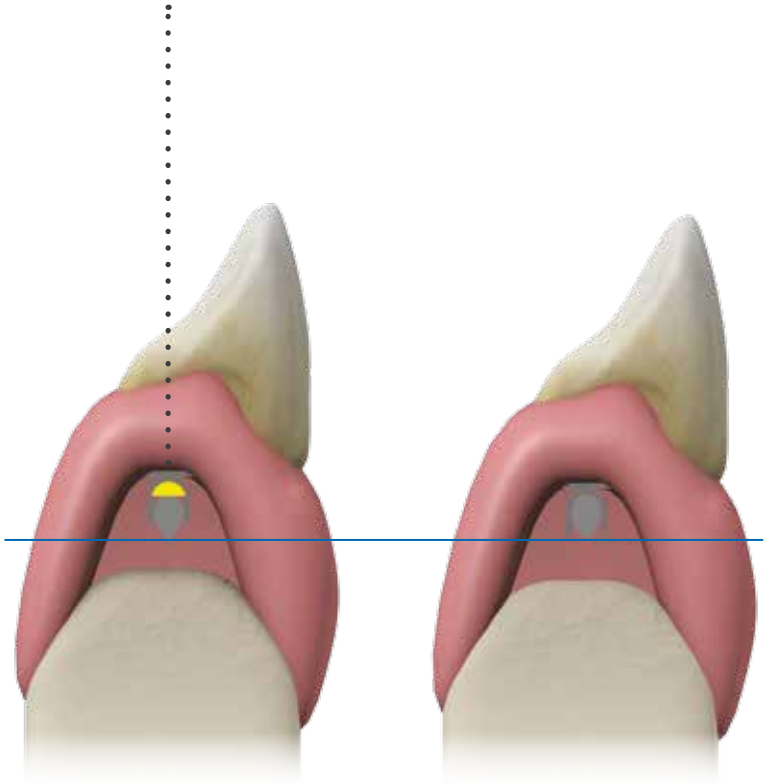


Cast or welded bars*

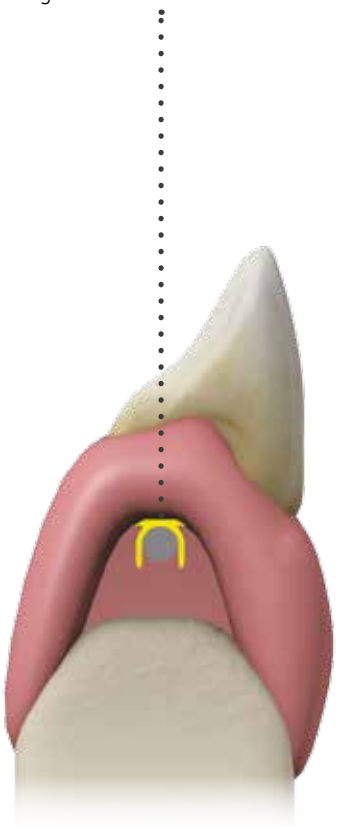
Rehabilitation on bars is an overdenture anchoring method that has the advantage of fixing the implants together. However, if the structure is not made in a precise manner there is the risk that the stresses that it generates may cause reabsorption and compromise the long-term duration of the implant prosthetic rehabilitation, so it is advisable to take the greatest care in checking that the fit between the bar and the implant platforms is adequate.

Two different bars are available, one with a round and the other with an ovoid section, which must be used with their respective bar attachments:

Dolder bar: bar with an asymmetrical ovoid section. Limits antero-posterior tilting movements. To allow correct resilience, it is supplied complete with a spacer to be used when fixing the bar attachments in the overdenture, to ensure a correct mucosal resting surface.

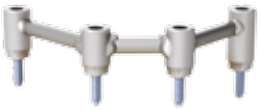


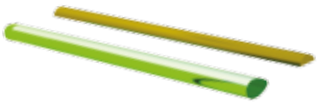
Ackermann bar: bar with a round section allowing antero-posterior tilting.



If you want to use bars with different sections from those present in the Sweden & Martina program, for example a rigid Dolder bar, these can be found on the market and used according to the manufacturer's instructions; the use of the posts to which they are joined is unvaried with respect to the one illustrated in this protocol.

*** Please note:** all the posts presented in the following pages can be modelled, customised and cast separately, then joined to the bar by welding. For the technical procedures, refer to the indications supplied by the manufacturers of the alloys used.



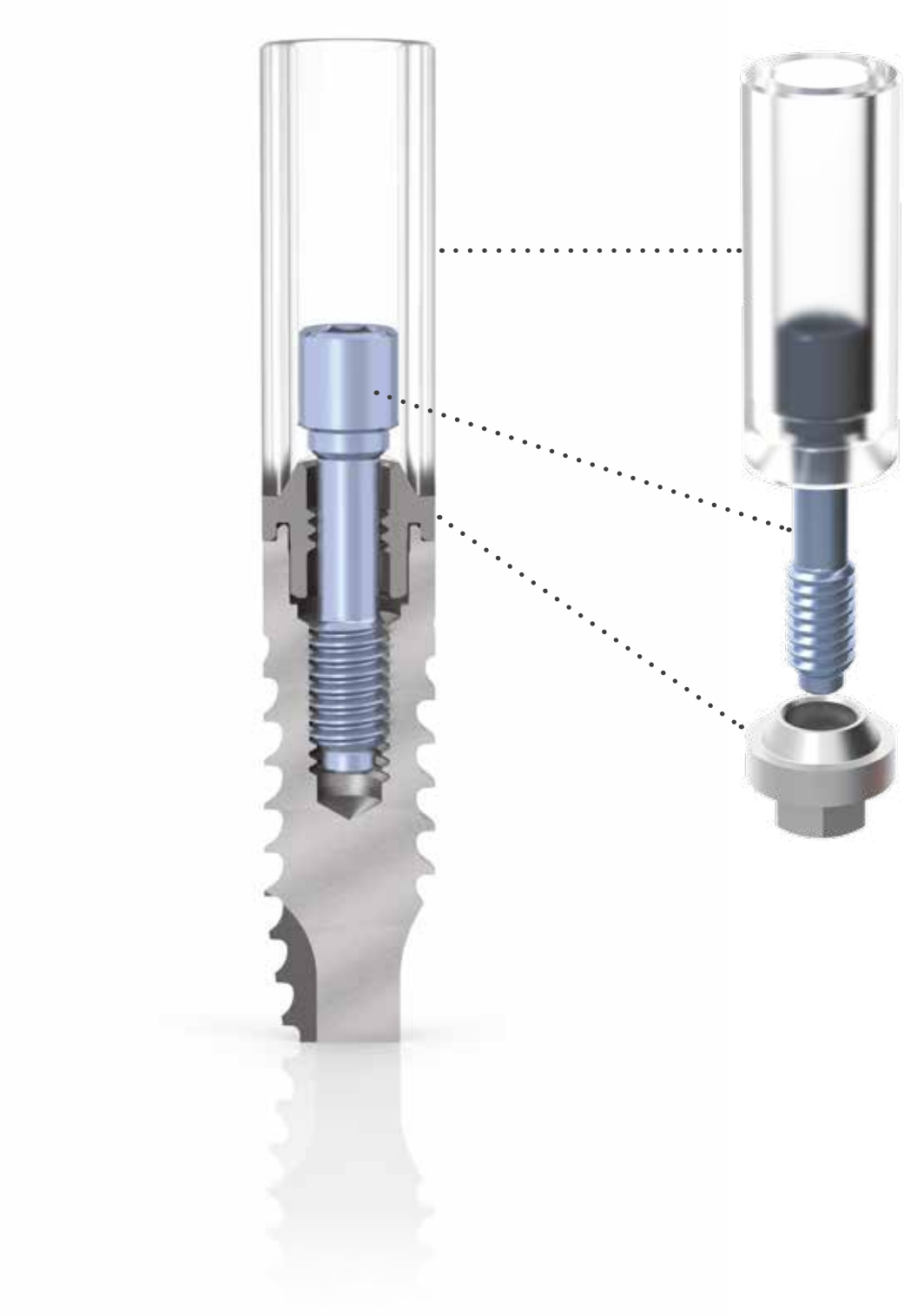
code	description
 BARC-CAV-TIT	Castable bar, L. 5.00 cm, H 3.00 mm, thickness 2.20 mm. Ovoid-shaped profile with spacer
 CAV-TIT	Divisible bar attachment in titanium for oval bars H 3.00 mm x thickness 2.20 mm
BARC	Castable bar, L. 5.00 cm, Ø 2.20 mm
 CAV-375	Bar attachment in gold alloy 3, for round bars with Ø 2.20 mm

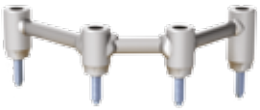
IMPORTANT WARNING

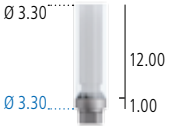
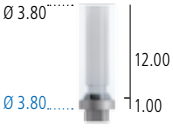
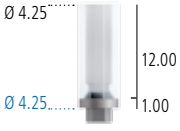
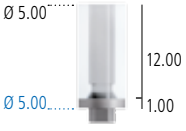
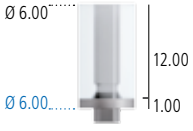
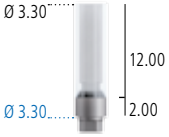
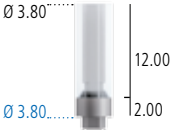
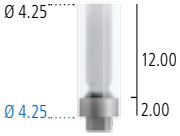
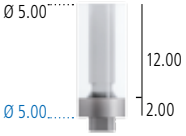
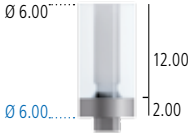
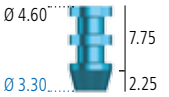
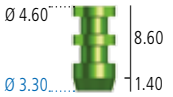
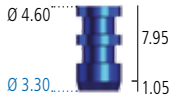
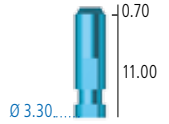
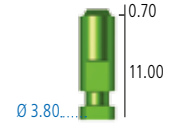
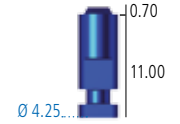
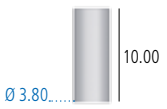
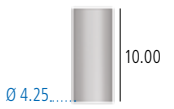
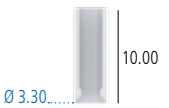
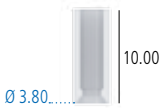
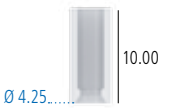
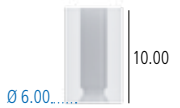
For a correct design of the bar it is preferable to follow an indirect protocol since the laboratory model allows a precise measurement of the orthogonality of the structure. For the impression taking protocols see pages 20 and following. Remember that for bars where the implants are angled it is always advisable to take a closed tray impression, as the undercuts could prevent the removal of the Pick-up transfers, resulting in an imprecise impression. Depending on the degree of the angle, to avoid excessive deformations of the material during removal it is best to use Pull-up transfers.

Bar on an intermediate abutment

These abutments have a straight emergence profile and are made up of a repositionable titanium base, characterised by a small upper cone with a height of 0.70 mm, the same for all the connection diameters, which allows easy insertion and removal of the over-structures, even in case of slight disparallelism. The abutment is supplied with the castable sleeves for modelling and casting the over-structure and with the passing screw for the fastening of the over-structure and abutments to the implants.





Ø prosthetic component	Ø 3.30 mm	Ø 3.80 mm	Ø 4.25 mm	Ø 5.00 mm	Ø 6.00 mm
for implants:	Premium 3.30 - 3.80 Kohno 3.80 Shelta 3.80	Premium 3.80 Kohno 3.80 Shelta 3.80 - 4.25 - 5.00	Premium 4.25 Kohno 4.25	Premium 5.00 Kohno 5.00 - 6.00	Kohno 6.00
Straight abutments with passing screw Repositionable Transgingival H. 1.00 mm Connecting screw included	 A-ABU-330-1	 A-ABU-380-1	 A-ABU-425-1	 A-ABU-500-1	 A-ABU-600-1
Straight abutments with passing screw Repositionable Transgingival H. 2.00 mm Connecting screw included	 A-ABU-330-2	 A-ABU-380-2	 A-ABU-425-2	 A-ABU-500-2	 A-ABU-600-1
Connecting screw for abutments Supplied with the abutments, it can also be ordered separately as a spare	 A-VABU-180	 A-VABU-180	 A-VABU-200	 A-VABU-200	 A-VABU-200
Open tray transfer for standard abutments Non-repositionable Connecting screw included	 A-TRABU-330	 A-TRABU-180-10	 A-TRABU-425	-	-
Spare screw for abutment transfers Supplied with the transfers, it can also be ordered separately as a spare					
Single pack	A-VTRABU-380	A-VTRABU-380	A-VTRABU-425	A-VTRABU-425	A-VTRABU-425
Analogs for standard abutments Non-repositionable Connecting screw included	 A-ANABU-330	 A-ANABU-380	 A-ANABU-425	-	-
Sleeves in titanium for abutments Connecting screw included	-			-	-
Single pack		A-CTABU-380-ROT	A-CTABU-425-ROT		
Spare castable sleeves for abutments Connecting screw not included					
Single pack	A-CCABU-330-ROT	A-CCABU-380-ROT	A-CCABU-425-ROT	A-CCABU-500-ROT	A-CCABU-600-ROT

WARNING: it is recommended always to use test screws for the laboratory phases and to keep the new screw supplied for the final fastening in the mouth.

See PMMA technical characteristics on page 105.

Recommended torque for connecting screws and for transfer screws: 20-25 Ncm.

All measurements are given in mm, unless indicated otherwise.

Bar on an intermediate abutment: indirect method

Once the model has been made according to the standard procedures, screw the abutments onto the analogs using the driver of the HSM series (see table on page 14). The prosthetic screw will make a fastening of the sleeve and the abutment to the implant.

IMPORTANT WARNING

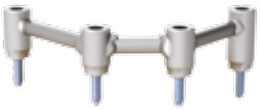
Always use spare screws for work in the laboratory, these are available in a single pack with codes A-VABU-180 for abutments with connection 3.30 and 3.80 mm, and A-VABU-200 for connections 4.25, 5.00 and 6.00 mm. Use the final screws only for the final fastening in the patient's mouth.

Reduce the castable sleeves to a dimension suited to the patient's vertical dimension, using the silicone mask obtained from preassembly or putting the structure in an articulator with relation to the space left by the opposing arch.

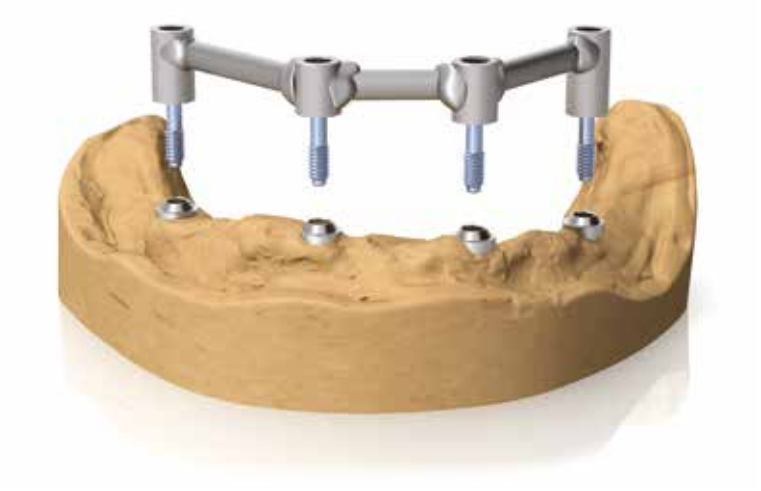
Fix a Dolder castable bar with ovoid profile (code BARC-CAV-TIT) or a Hackermann castable bar with a round profile (code BARC) to the castable sleeves with resin.

IMPORTANT WARNING

When the structure is unscrewed to go to casting, the lenticular abutments must remain on the model and the connecting screws can be put away. It is recommended to send only castable parts for casting.



Cast the structure according to the usual laboratory procedures. Try out the bar first on the model and then in the patient's mouth to check its complete passivity. If necessary correct any stress by cutting the bar close to the sleeve and welding it again in the correct position.



On top of the segments of the bar place as many pieces of brass spacer, so as to guarantee adequate resilience (skip this step if using Hackermann bars with a round profile, see page 74). Then insert a piece of bar attachment for each segment of the bar. The bar attachments are sold in sticks of 5 elements, which must be separated and, if necessary, reduced to the desired length. The bar attachment must always be at least 1.00 mm shorter on either side with respect to the length of the bar segment.

Make the structure in wax and then transform it in resin, incorporating the top of the bar attachments, or reposition the prefabricated teeth in the silicone mask.

IMPORTANT WARNING

Attention must be paid to ensure that the resin does not completely cover the side walls of the bar attachments, hampering their horizontal movement which allows the anchoring and release of the bar.
Each bar requires the use of a specific attachment, since the sections of the bars are different and are not compatible.

IMPORTANT WARNING

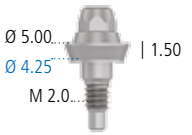
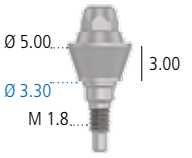
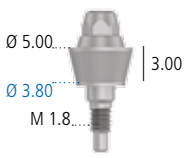
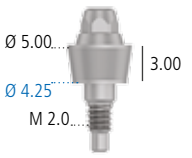
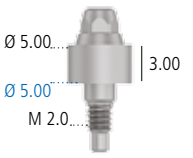
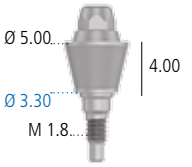
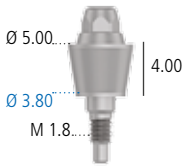
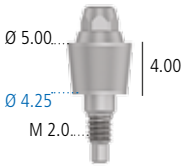
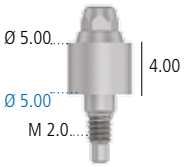
It is advisable to instruct patients adequately on the correct procedures for inserting and removing the prostheses, inviting them to practise these simple manoeuvres. Patients must also be urged to report any discomfort of the prosthesis, including the loss of retention of the bar attachments, so as to allow the operator to perform prompt maintenance or replace the retainers or the bar attachments.

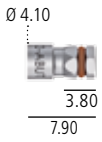
Bar on P.A.D.

The P.A.D. system (Disparallel Screwed Prosthesis), was designed to facilitate the production of multiple screwed prostheses, even in the presence of very divergent implants and disparallel prosthetic emergences. It is also an excellent support for making overdenture anchoring bars.
The different versions available, with angles of 17° and 30°, allow prosthetically favourable repositioning of the connections even if the implants are particularly disparallel. This characteristic is enhanced by an additional 15° cone positioned over the P.A.D. platform, which further facilitates the insertion of multiple structures.

The upper cone allows further repositioning of the prosthetic structure by 15° on each side, which in the case of angled P.A.D. abutments are added to the angle of 17° or 30°. This characteristic allows easy management of disparallelism of up to 45° on each side.

Straight P.A.D. abutments

Ø prosthetic component	Ø 3.30 mm	Ø 3.80 mm	Ø 4.25 mm	Ø 5.00 mm	Ø 6.00 mm
for implants:	Premium 3.30 - 3.80 Kohno 3.80 Shelta 3.80	Premium 3.80 Kohno 3.80 Shelta 3.80 - 4.25 - 5.00	Premium 4.25 Kohno 4.25	Premium 5.00 Kohno 5.00 - 6.00	Kohno 6.00
Straight P.A.D. abutments Direct screw-retained Transgingival H. 1.50 mm	 A-PAD-AD330-15	 A-PAD-AD380-15	 A-PAD-AD425-15	 A-PAD-AD500-15	Use A-PAD-AD500-15
Straight P.A.D. abutments Direct screw-retained Transgingival H. 3.00 mm	 A-PAD-AD330-30	 A-PAD-AD380-30	 A-PAD-AD425-30	 A-PAD-AD500-30	Use A-PAD-AD500-30
Straight P.A.D. abutments Direct screw-retained Transgingival H. 4.00 mm	 A-PAD-AD330-40	 A-PAD-AD380-40	 A-PAD-AD425-40	 A-PAD-AD500-40	Use A-PAD-AD500-40

code	description
 AVV2-ABUT	Driver for standard abutments and for straight P.A.D. abutments, with hexagonal connector for dynamometric key

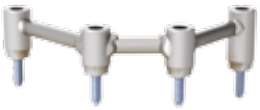
IMPORTANT WARNING

All the ratchet drivers have a red polymer O-ring in the connecting hexagon that guarantees friction between the instruments and therefore a correct grip of the components.
This O-ring must be checked periodically and replaced when worn or when no longer able to properly friction.

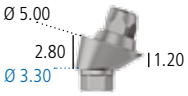
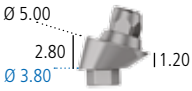
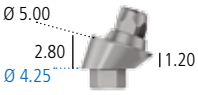
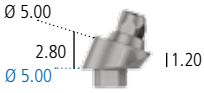
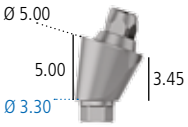
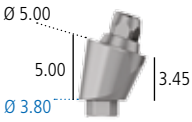
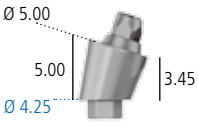
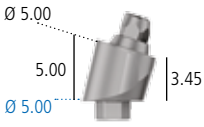
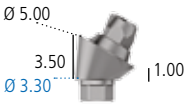
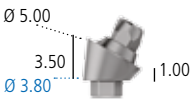
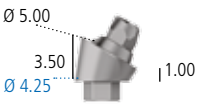
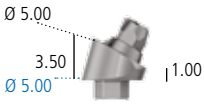
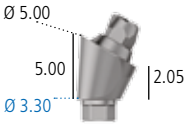
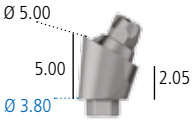
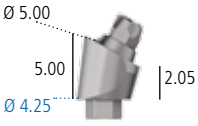
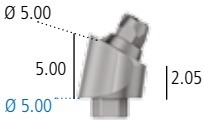
A kit of 5 spare O-rings is available which can be ordered with code **ORING180-088**.

Please note: to transfer the abutments into the oral cavity each package contains a practical plastic carrier (code AVV-ABUT-DG, not available separately).

All measurements are given in mm, unless indicated otherwise.



Angled P.A.D. abutments

Ø prosthetic component	Ø 3.30 mm	Ø 3.80 mm	Ø 4.25 mm	Ø 5.00 mm	Ø 6.00 mm
for implants:	Premium 3.30 - 3.80 Kohno 3.80 Shelta 3.80	Premium 3.80 Kohno 3.80 Shelta 3.80 - 4.25 - 5.00	Premium 4.25 Kohno 4.25	Premium 5.00 Kohno 5.00 - 6.00	Kohno 6.00
P.A.D. abutment angled at 17° Transgingival H. 3.00 mm Connecting screw included					Use A-PAD-AA500-173
	A-PAD-AA330-173	A-PAD-AA380-173	A-PAD-AA425-173	A-PAD-AA500-173	
P.A.D. abutment angled at 17° Transgingival H. 5.00 mm Connecting screw included					Use A-PAD-AA500-175
	A-PAD-AA330-175	A-PAD-AA380-175	A-PAD-AA425-175	A-PAD-AA500-175	
P.A.D. abutment angled at 30° Transgingival H. 3.00 mm Connecting screw included					Use A-PAD-AA500-303
	A-PAD-AA330-303	A-PAD-AA380-303	A-PAD-AA425-303	A-PAD-AA500-303	
P.A.D. abutment angled at 30° Transgingival H. 5.00 mm Connecting screw included					Use A-PAD-AA500-305
	A-PAD-AA330-305	A-PAD-AA380-305	A-PAD-AA425-305	A-PAD-AA500-305	
Connecting screw for posts Supplied with the temporary posts, it can also be ordered separately as a spare					Use PAD-VM-200
Single pack Pack of 10 pieces	PAD-VM-180 PAD-VM-180-10	PAD-VM-180 PAD-VM-180-10	PAD-VM-200 PAD-VM-200-10	PAD-VM-200 PAD-VM-200-10	

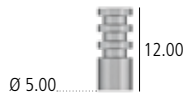
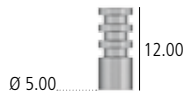
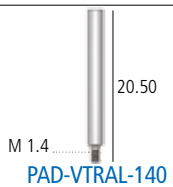
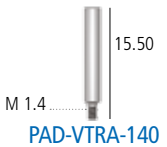
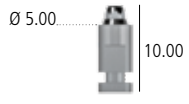
code	description
 PAD-CAR	Carrier for transferring angled abutments into the oral cavity, sterilisable and reusable. (Not included in the surgical kit, included in the Screw Kit and can also be ordered separately)

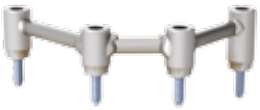
WARNING: it is recommended always to use test screws for the laboratory phases and to keep the new screw supplied for the final fastening in the mouth.

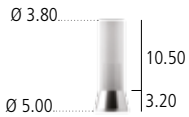
Recommended torque for connecting screws: 20-25 Ncm.

All measurements are given in mm, unless indicated otherwise.

P.A.D. components for over-structures

code	description
 PAD-CG	Protection cap for P.A.D. abutments in grade 5 titanium, to be used if the abutments are not used for immediate provisional restoration. Connecting screw included (code PAD-VP-140), available also as a spare, to be tightened at 8-10 Ncm
 PAD-CGP	Protection cap for P.A.D. abutments in PEEK, to be used if the abutments are not used for immediate provisional restoration. Connecting screw included (code PAD-VP-140), available also as a spare, to be tightened at 8-10 Ncm
 PAD-CAP	Rotating caps in POM for direct impression taking on P.A.D. abutments
 PAD-CAP-EX	Non-rotating caps in POM for direct impression taking on P.A.D. abutments, with hexagon
 PAD-TRA	Open tray transfer in grade 5 titanium for P.A.D. abutments, rotating. Long transfer screw included (code PAD-VTRAL-140), suitable for open impression tray and available also as a spare
 PAD-TRA-EX	Open tray transfer in grade 5 titanium for P.A.D. abutments, with hexagon, non-rotating. Long transfer screw included (code PAD-VTRAL-140), suitable for open impression tray and available also as a spare
 PAD-VTRAL-140	Spare screw for P.A.D. abutment transfer. Supplied with the transfers, it can be ordered separately as a spare
 PAD-VTRA-140	Transfer screw for P.A.D. abutment. Can be ordered separately as a spare
 PAD-ANA	Analog for P.A.D. abutment in grade 5 titanium



code	description
 PAD-CC	Castable sleeves in PMMA for P.A.D. abutments, rotating. Connecting screw included. Attention: The recommended tightening torque for all the over-structures obtained by casting to the abutments is 20-25 Ncm. However, before casting, care must be taken in the laboratory to ensure that the castable sleeves are not fastened to the models with a torque exceeding 8-10 Ncm, because polymers are not as resistant as metal
 PAD-CC-EX	Castable sleeves in PMMA for P.A.D. abutments, with hexagon, non-rotating. Connecting screw included. Attention: The recommended tightening torque for all the over-structures obtained by casting to the abutments is 20-25 Ncm. However, before casting, care must be taken in the laboratory to ensure that the castable sleeves are not fastened to the models with a torque exceeding 8-10 Ncm, because polymers are not as resistant as metal
 PAD-CP	PEEK sleeves for P.A.D. abutments, rotating. They are specifically for creating a temporary prosthesis or in cases when it is necessary to reline an old prosthesis for using as a temporary one. Connecting screw included, to be tightened at 20-25 Ncm
 PAD-CP-EX	PEEK sleeves for P.A.D. abutments, with hexagon, non-rotating. They are specifically for creating a temporary prosthesis or in cases when it is necessary to reline an old prosthesis for using as a temporary one. Connecting screw included, available also as a spare, to be tightened at 20-25 Ncm
 PAD-UC	Castable posts in PMMA with a pre-made base in "gold alloy 1", rotating, not repositionable, for overcasting on P.A.D. abutments. Connecting screw included, to be tightened at 20-25 Ncm. The head of the screw never rests on the PMMA, but always on the alloy base. The castable sleeve is also available as a spare (code A-CCUCR-330)
 PAD-VP-140	Spare screw for P.A.D. abutment prosthetic components. Supplied with all the components for making the over-structure and also available as a spare. May also be bought in packs of 10 pieces (code PAD-VP-140-10)

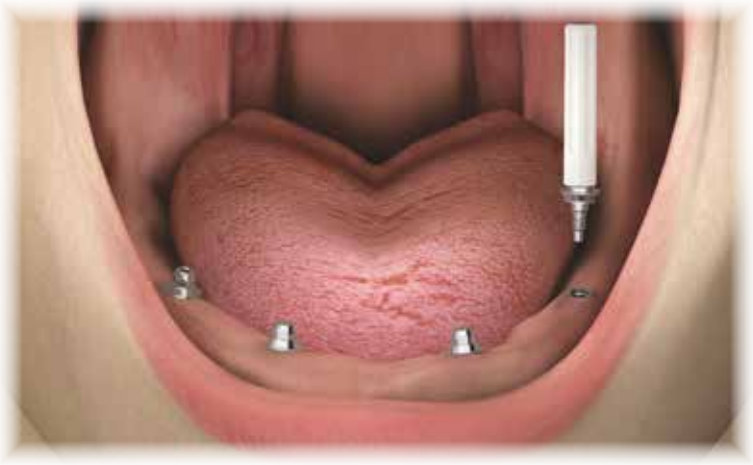
For the technical specifications of PMMA and "gold alloy 1", refer to pages 105 and 106 respectively.

Recommended tightening torque for securing the prosthetic screws: 20-25 Ncm.

All measurements are given in mm, unless indicated otherwise.

Bar on P.A.D.: fixing straight P.A.D. abutments on implants

Use the abutment carrier AVV-ABUT-DG to transfer the P.A.D. abutment right into the patient's mouth.
The carrier creates friction on the upper hexagon of the P.A.D. abutment, so it is not necessary to screw it completely to obtain correct retention.



IMPORTANT WARNING

Straight P.A.D. abutments are sold in a non sterile pack. Before clinical use only the titanium abutment must undergo a sterilisation cycle in the autoclave. The carrier AVV-ABUT-DG is made of POM, so it cannot be sterilised in the autoclave. The carrier should be cold-sterilised before using it to transfer the abutment into the mouth.

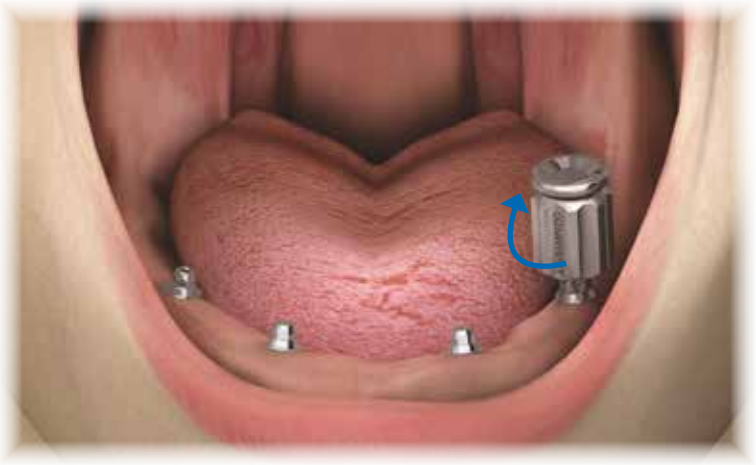
Insert the P.A.D. abutment in the inplant connection and screw it by hand until you find the correct engagement between the thread of the abutment and that of the well. Remove the carrier from the P.A.D. abutment with a slight levering movement.

The abutment must be screwed using the appropriate driver which must be bought separately, with code AVV2-ABUT. This driver can be connected to a hand knob (AVV3-MAN-DG), or directly to the dynamometric ratchet (CRI5). If necessary, an extension (BPM-15) can be used.

IMPORTANT WARNING

To ensure correct operation of the instruments it is necessary to check periodically that the retention of the rubber O-rings is sufficient and to replace any that are worn.

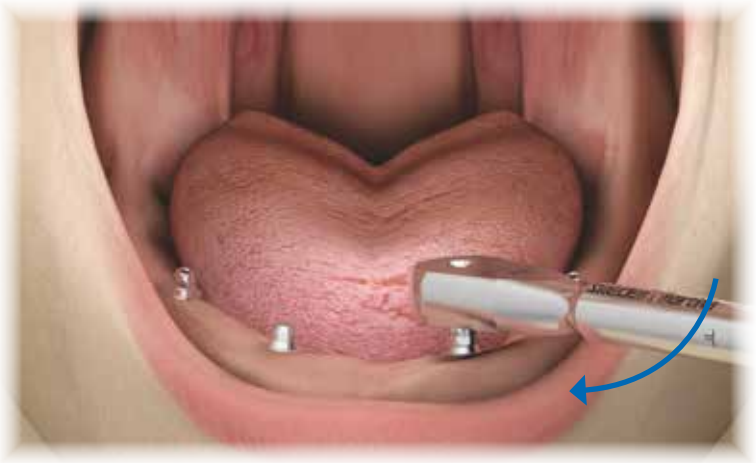
As an alternative, insert the driver AVV2-ABUT in the hand knob AVV-3MAN-DG or, if you prefer, first insert the driver AVV2-ABUT in the driver extension BPM-15 and then insert it, assembled in this way, in the hand knob.



IMPORTANT WARNING

The maximum tightening torque for P.A.D. abutments is 25 Ncm. Since by hand it is difficult to control precisely the torque of insertion of prosthetic components, it is advisable always to finish the procedure with the dynamometric ratchet.

Insert the driver AVV2-ABUT in the ratchet CRI5 or, if you prefer, first insert the driver AVV2-ABUT in the driver extension BPM-15 and then insert it, assembled in this way, in the ratchet CRI5.



IMPORTANT WARNING

The maximum tightening torque for P.A.D. abutments is 25 Ncm. It is recommended to keep the ratchet in a perpendicular position while screwing, keeping the index finger of your free hand on the pawl so as to avoid tilting movements which can spoil the instruments and affect the correct positioning of the abutments.

Once the P.A.D. abutments have been screwed on you will note that their conformation allows them to compensate slight disparallelisms. However, in overdentures anchored on bars it is recommended to have implants parallel to each other as much as possible, since optimal unloading of forces is obtained in conditions where the components are at right angles.

Bar on P.A.D.: impression with P.A.D. Pick-up transfers

Insert the P.A.D. abutments in the implant connections and screw the rotating PAD-TRA Pick-up transfers. The transfers are sold complete with the respective long transfer screw PAD-VTRAL-140, suitable for open impression tray. The screw can also be purchased separately as a spare part.

If wished, fix the transfers together with wire and resin and wait for them to polymerise according to the manufacturer's indications. The morphology of the connection of the rotating components for the prosthesis on P.A.D. by nature facilitates the insertion of the structure in the case of disparallelisms.

Position the open impression tray on the transfers. The screw will come out of the holes created for the purpose in the tray. When the impression material has finished hardening, unscrew the transfer screws and remove the impression tray.

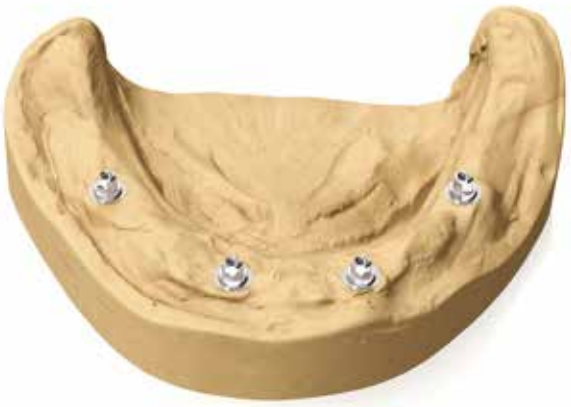
If the abutments are not used for immediate provisional restoration and need to be protected while in the oral cavity, they can be covered with a special protection cap in titanium PAD-CG (**image A**) or with the caps PAD-CGP in PEEK (**image B**), with more compact dimensions and therefore suited to be hidden by a temporary overdenture.
These caps are attached to the abutments using the screws supplied, which can also be purchased as spare parts. The screw for fastening the cap of the abutments PAD-VP-140 is the same for all the platforms. The recommended tightening torque for the screws of the protection cap is 8-10 Ncm.

A

B

Position the analogs PAD-ANA in the impression tray, engaging them in the transfers and screw the screw, putting it back into the hole that it left in the impression material.

Develop the model as usual.

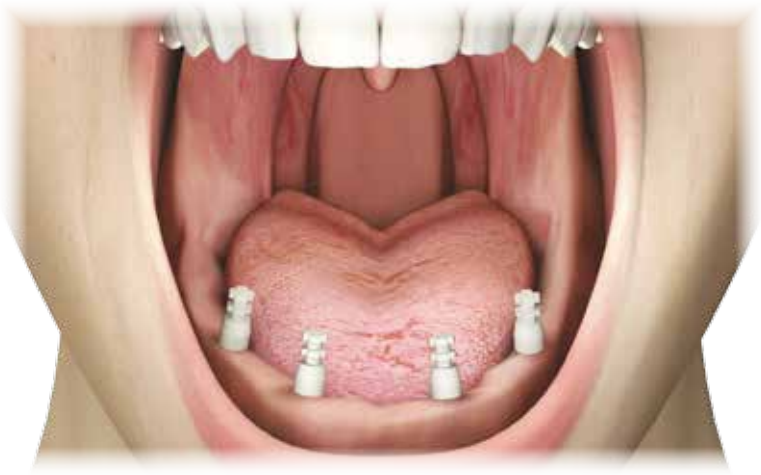


IMPORTANT WARNING

Always use spare screws for work in the laboratory, these are available in a single pack with codes PAD-VM-180 for abutments with connection 3.30 and 3.80 mm, and PAD-VM-200 for connections 4.25, 5.00 and 6.00 mm. Use the final screws only for the final fastening in the patient's mouth.

Bar on P.A.D.: impression with rotating caps

As an alternative the rotating caps PAD-CAP can be used for the closed tray technique. In this case screws are not used because these caps work by friction on the cone of the abutment itself. They are particularly indicated for situations of slight disparallelism of the emerging platforms. For the technical specifications of POM, refer to page 105.



Position the closed impression tray on the caps, trying to avoid lateral movements which could accidentally shift them. Let the impression material harden according to the instructions.

If the abutments are not used for immediate provisional restoration and need to be protected while in the oral cavity, they can be covered with a special protection cap in titanium PAD-CG (**image A**) or with the caps PAD-CGP in PEEK (**image B**), with more compact dimensions and therefore suited to be hidden by a temporary overdenture.
These caps are attached to the abutments using the screws supplied, which can also be purchased as spare parts. The screw for fastening the cap of the abutments PAD-VP-140 is the same for all the platforms. The recommended tightening torque for the screws of the protection cap is 8-10 Ncm.

A

B

Position the PAD-ANA analogs in the impression tray, engaging them in the rotating caps.

Develop the model as usual.

IMPORTANT WARNING

Always use spare screws for work in the laboratory, these are available in a single pack with codes PAD-VM-180 for abutments with connection 3.30 and 3.80 mm, and PAD-VM-200 for connections 4.25, 5.00 and 6.00 mm. Use the final screws only for the final fastening in the patient's mouth.

Bar on P.A.D. with castable sleeves: indirect method

Please note: the same procedure illustrated with entirely castable sleeves can also be used with castable posts in PMMA with a pre-made base in "gold alloy 1", rotating, not repositionable (code PAD-UC) for overcasting on P.A.D. abutments, see page 85.

Screw the castable posts PAD-CC onto the abutments. Before casting, care must be taken in the laboratory to ensure that the castable sleeves are not fastened to the models with a torque exceeding 8-10 Ncm, because polymers are not as resistant as metal. For the technical specifications of PMMA, refer to page 105.

IMPORTANT WARNING

Always use spare screws for work in the laboratory, these are available in a single pack with codes PAD-VM-180 for abutments with connection 3.30 and 3.80 mm, and PAD-VM-200 for connections 4.25, 5.00 and 6.00 mm. Use the final screws only for the final fastening in the patient's mouth.

Reduce the castable sleeves to a dimension suited to the patient's vertical dimension, using the silicone mask obtained from preassembly or putting the structure in an articulator with relation to the space left by the opposing arch.

Fix a Dolder castable bar with ovoid profile (code BARC-CAV-TIT) or a Hackermann castable bar with a round profile (code BARC) to the castable sleeves with resin.

Cast the structure according to the standard protocol. Try out the structure first on the model and then in the patient's mouth to check its complete passivity. The recommended tightening torque for all the over-structures obtained by casting to the abutments is 20-25 Ncm.

IMPORTANT WARNING

If the structure is not completely passive even after having followed the normal checking protocol before casting, it may be possible to correct the stress by cutting the bar close to the sleeve and welding it again in the correct position.

In the case of the bar with an ovoid profile, insert a segment of the spacer bar (included in the pack) between the bar attachment and the cast bar before including the attachments at the base of the overdenture: this step will ensure correct resilience of the prosthetic rehabilitation.

Make the structure in wax and then transform it in resin, incorporating the top of the bar attachments, or reposition the prefabricated teeth in the mask.

IMPORTANT WARNING

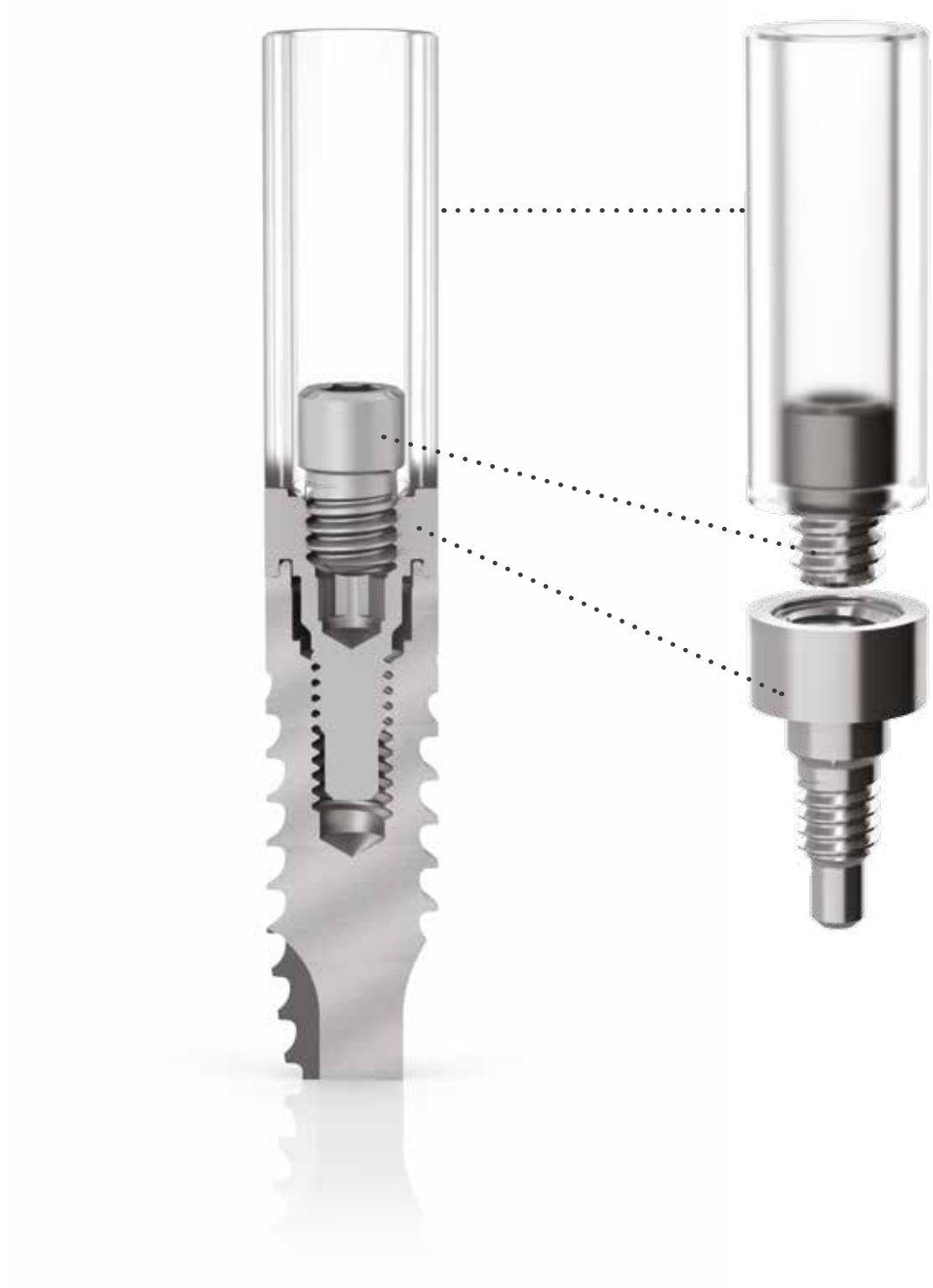
Attention must be paid to ensure that the resin does not completely cover the side walls of the bar attachments, hampering their horizontal movement which allows the anchoring and release of the bar.
Each bar requires the use of a specific bar attachment, since the sections of the bars are different and are not compatible.

IMPORTANT WARNING

It is advisable to instruct patients adequately on the correct procedures for inserting and removing the prostheses, inviting them to practise these simple manoeuvres. Patients must also be urged to report any discomfort of the prosthesis, including the loss of retention of the bar attachments, so as to allow the operator to perform prompt maintenance or replace the retainers or the bar attachments.

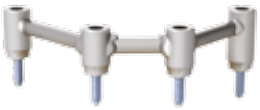
Bar on PLAIN abutments

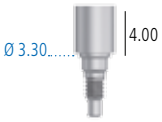
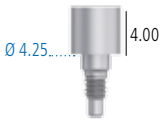
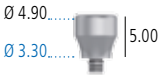
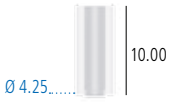
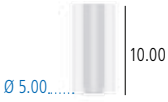
The particular feature of these direct screw-retained abutments is that they exploit the completely flat geometry of the upper part, which couples to the special castable sleeves by means of a small guide.
The usefulness of these abutments is therefore that they maximise centring and repositioning operations of structures screwed onto several implants.
These abutments must be screwed on with ordinary HSM-*** (see page 14). The required insertion torque is 25-30 Ncm for screwing the abutment onto the implant and 20-25 Ncm for tightening the prosthetic screw.



IMPORTANT WARNING

PLAIN abutments are sold in a single pack without castable sleeve and the respective connecting screw, which must therefore be ordered separately.



Ø prosthetic component	Ø 3.30 mm	Ø 3.80 mm	Ø 4.25 mm	Ø 5.00 mm	Ø 6.00 mm
for implants:	Premium 3.30 - 3.80 Kohno 3.80 Shelta 3.80	Premium 3.80 Kohno 3.80 Shelta 3.80 - 4.25 - 5.00	Premium 4.25 Kohno 4.25	Premium 5.00 Kohno 5.00 - 6.00	Kohno 6.00
Direct screw-retained PLAIN abutment Transgingival H. 2.00 mm					Use A-PLAIN-ABU500-2
	A-PLAIN-ABU330-2	A-PLAIN-ABU380-2	A-PLAIN-ABU425-2	A-PLAIN-ABU500-2	
Direct screw-retained PLAIN abutment Transgingival H. 3.00 mm					Use A-PLAIN-ABU500-3
	A-PLAIN-ABU330-3	A-PLAIN-ABU380-3	A-PLAIN-ABU425-3	A-PLAIN-ABU500-3	
Direct screw-retained PLAIN abutment Transgingival H. 4.00 mm					Use A-PLAIN-ABU500-4
	A-PLAIN-ABU330-4	A-PLAIN-ABU380-4	A-PLAIN-ABU425-4	A-PLAIN-ABU500-4	
Healing cap for PLAIN abutment					-
	A-PLAIN-CG330	A-PLAIN-CG380	A-PLAIN-CG425	A-PLAIN-CG500	
Castable sleeve for PLAIN abutments Connecting screw included					-
	A-PLAIN-CC330	A-PLAIN-CC380	A-PLAIN-CC425	A-PLAIN-CC500	
Connecting screw for castable sleeve for PLAIN abutments. Supplied with the sleeves, it can also be ordered separately as a spare					-
Single pack Pack of 10 pieces	A-PLAIN-VP200 A-PLAIN-VP200-10	A-PLAIN-VP200 A-PLAIN-VP200-10	A-PLAIN-VP200 A-PLAIN-VP200-10	A-PLAIN-VP200 A-PLAIN-VP200-10	

See PMMA technical characteristics on page 105.

Please note: for transferring PLAIN abutments into the oral cavity, screwing and tightening them, use the standard screwdrivers (code HSM-20-EX and HSML-20-EX for use with the dynamometric key) contained in the Premium, Kohno, Premium Kohno and Shelta surgical kits.

WARNING: it is recommended always to use test screws for the laboratory phases and to keep the new screw supplied for the final fastening in the mouth.

Recommended torque for connecting screws: 20-25 Ncm.
Recommended torque for abutments: 25-30 Ncm.

Bar on PLAIN abutments: indirect method

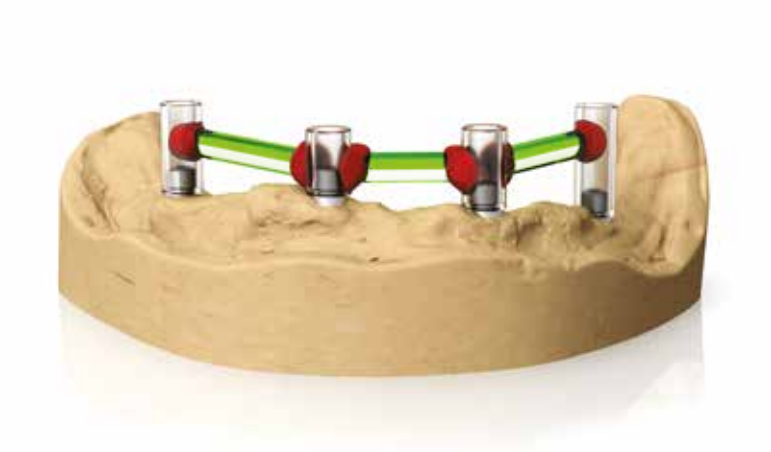
Once the model has been made according to the standard procedures, screw the abutments onto the analogs using the driver HSM-20-*** (see page 14). The final tightening torque of PLAIN abutments is 20-25 Ncm. Then fix all the castable sleeves A-PLAIN-CC* onto the PLAIN abutments by means of the connecting screws A-PLAINVP200 included in the pack for each sleeve. For the technical specifications of PMMA, refer to page 105.

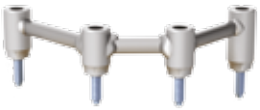
IMPORTANT WARNING

Always use spare screws for work in the laboratory, these are available in a single pack with code A-PLAINVP200 or in a pack of 10 pieces with code A-PLAINVP200-10. Use the final screws only for the final fastening in the patient's mouth.

Reduce the castable sleeves to a dimension suited to the patient's vertical dimension, using the silicone mask obtained from preassembly or putting the structure in an articulator with relation to the space left by the opposing arch.

Fix a Dolder castable bar with ovoid profile (code BARC-CAV-TIT) or a Hackermann castable bar with a round profile (code BARC) to the castable sleeves with resin.





Cast the structure according to the standard protocol. Try out the structure first on the model and then in the patient's mouth to check its complete passivity. The recommended tightening torque for all the over-structures obtained by casting to the abutments is 20-25 Ncm.

IMPORTANT WARNING

If the structure is not completely passive even after having followed the normal checking protocol before casting, it may be possible to correct the stress by cutting the bar close to the sleeve and welding it again in the correct position.

In the case of the bar with an ovoid profile, insert a segment of the spacer bar (included in the pack) between the bar attachment and the cast bar before including the attachments at the base of the overdenture: this step will ensure correct resilience of the prosthetic rehabilitation.

Make the structure in wax and then transform it in resin, incorporating the top of the bar attachments, or reposition the prefabricated teeth in the mask.

IMPORTANT WARNING

Attention must be paid to ensure that the resin does not completely cover the side walls of the bar attachments, hampering their horizontal movement which allows the anchoring and release of the bar.
Each bar requires the use of a specific bar attachment, since the sections of the bars are different and are not compatible.

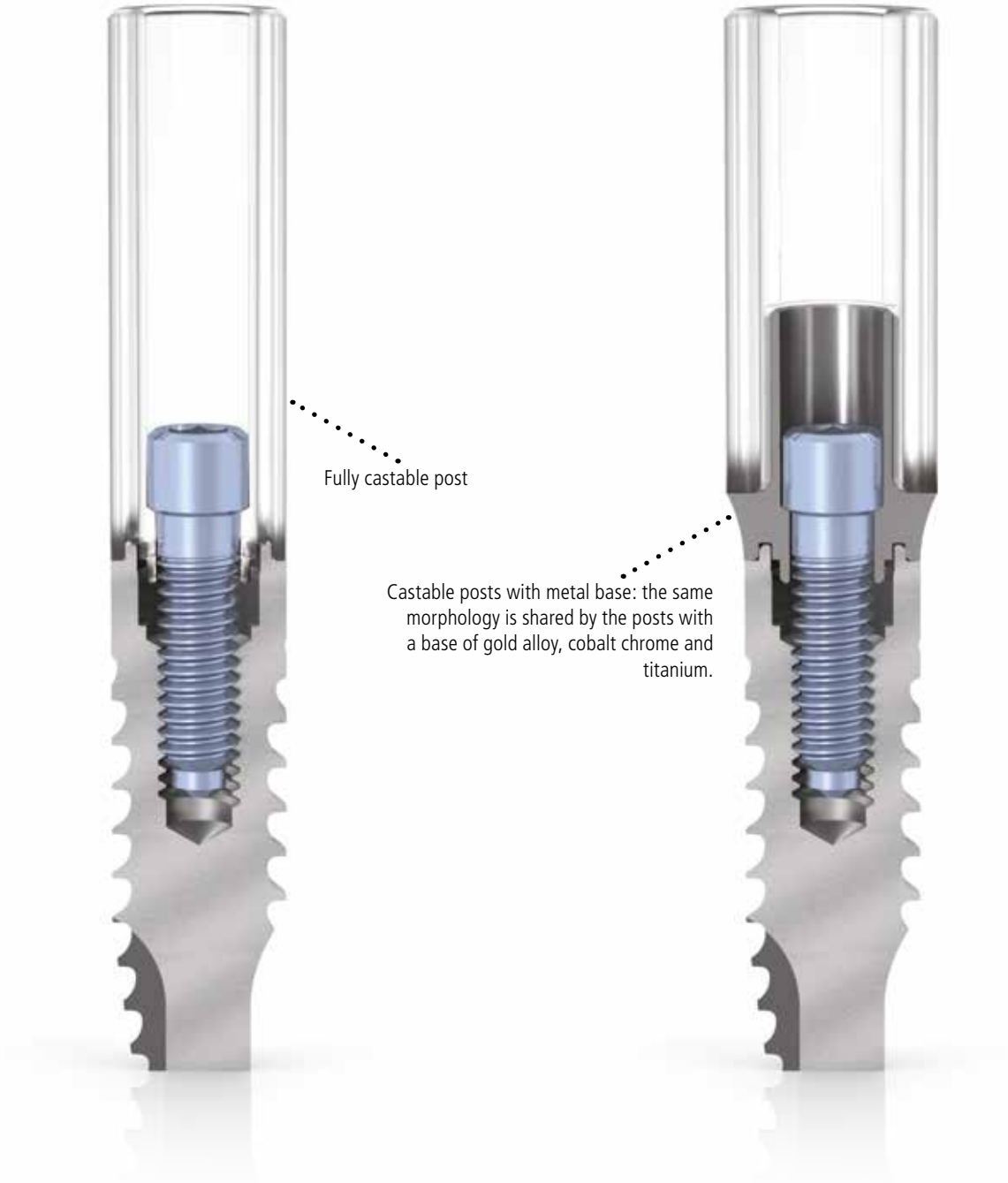
IMPORTANT WARNING

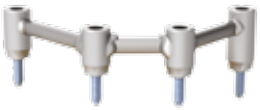
It is advisable to instruct patients adequately on the correct procedures for inserting and removing the prostheses, inviting them to practise these simple manoeuvres. Patients must also be urged to report any discomfort of the prosthesis, including the loss of retention of the bar attachments, so as to allow the operator to perform prompt maintenance or replace the retainers or the bar attachments.

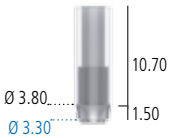
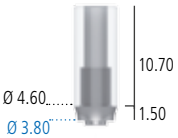
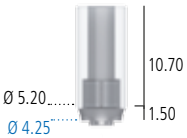
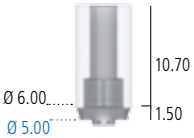
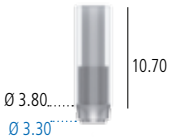
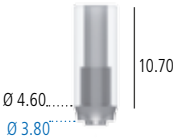
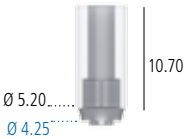
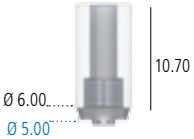
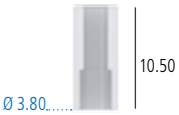
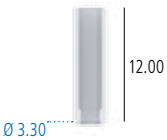
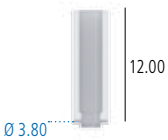
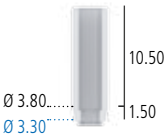
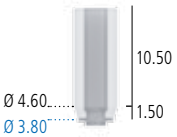
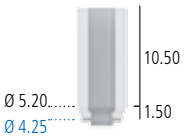
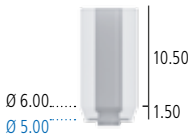
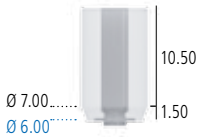
Bar obtained with castable posts

Sweden & Martina produces various types of posts with a castable portion, useful for making bars:
- castable posts in PMMA with premade alloy base (overcasting);
- castable posts in PMMA with titanium base;
- castable posts in PMMA with cobalt chrome (overcasting with cobalt chrome, stellite alloy, non-precious alloys: for advice on the casting of non-precious alloys see page 107);
- entirely castable posts in PMMA.

Castable posts in PMMA with a metal base allow the creation of bars for overcasting, maintaining the precision of the connections, obtained with the same turning process as the other prosthetic components. The recommended tightening torque for the posts obtained after casting or overcasting is 20-25 Ncm. They are sold complete with the relative connecting screws, which can also be ordered separately as spare parts. For the technical features of the various alloys and of PMMA, refer to page 105. Entirely castable posts are also available (code A-CC-** e A-CCR-**), also obtained by turning and not by moulding. However, remember that casting could cause deformations that might compromise the precision of coupling between the implant interface and that of the prosthesis at the level of the connection platform.





Ø prosthetic component	Ø 3.30 mm	Ø 3.80 mm	Ø 4.25 mm	Ø 5.00 mm	Ø 6.00 mm
for implants:	Premium 3.30 - 3.80 Kohno 3.80 Shelta 3.80	Premium 3.80 Kohno 3.80 Shelta 3.80 - 4.25 - 5.00	Premium 4.25 Kohno 4.25	Premium 5.00 Kohno 5.00 - 6.00	Kohno 6.00
Castable posts with a pre-made base in **"gold alloy 1"** Non-repositionable Anatomical emergence Connecting screw included	 A-UCR-330	 A-UCR-380	 A-UCR-425	 A-UCR-500	Use A-UCR-500
Castable posts with pre-made base in **cobalt chrome** Non-repositionable Anatomical emergence Connecting screw included	 A-UCRCO-330	 A-UCRCO-380	 A-UCRCO-425	 A-UCRCO-500	Use A-UCRCO-500
Spare castable sleeves for castable posts with alloy base Without connecting screw	 A-CCUCR-330	 A-CCUCR-380	 A-CCUCR-425	 A-CCUCR-500	Use A-CCUCR-500
Fully castable posts Non-repositionable Straight emergence Connecting screw included	 A-CC-330	 A-CC-380	-	-	-
Fully castable posts Non-repositionable Anatomical emergence Connecting screw included	 A-CCR-330	 A-CCR-380	 A-CCR-425	 A-CCR-500	 A-CCR-600
Connecting screw for the posts supplied with them and which can also be ordered separately as spares					Use VM2-200
Single pack Pack of 10 pieces	VM2-180 VM2-180-10	VM2-180 VM2-180-10	VM2-200 VM2-200-10	VM2-200 VM2-200-10	

See the technical specifications of PMMA, titanium, gold alloy and cobalt chrome on page 104 and following.

WARNING: it is recommended always to use test screws for the laboratory phases and to keep the new screw supplied for the final fastening in the mouth.

Recommended torque for connecting screws: 20-25 Ncm.

All measurements are given in mm, unless indicated otherwise.

Bar obtained with castable posts with premade metal base: indirect method

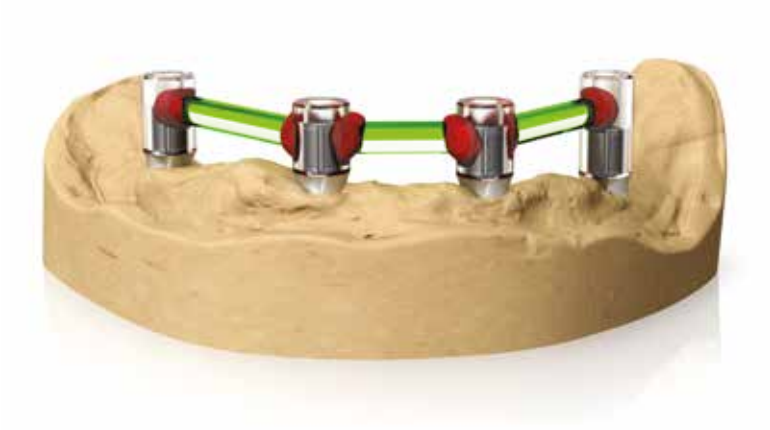
Once the model has been made according to the standard procedures, screw the castable posts with premade metal base (code A-UCR-***) onto the analogs using the driver HSM-20-*** (see page 14). The final tightening torque for prosthetic products on castable posts with premade alloy base is 20-25 Ncm.

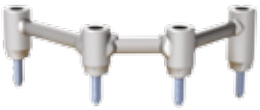
IMPORTANT WARNING

Always use spare screws for work in the laboratory, these are available in a single pack with codes VM2-180 for abutments with connection 3.30 and 3.80 mm, and VM2-200 for connections 4.25, 5.00 and 6.00 mm. Use the final screws only for the final fastening in the patient's mouth.

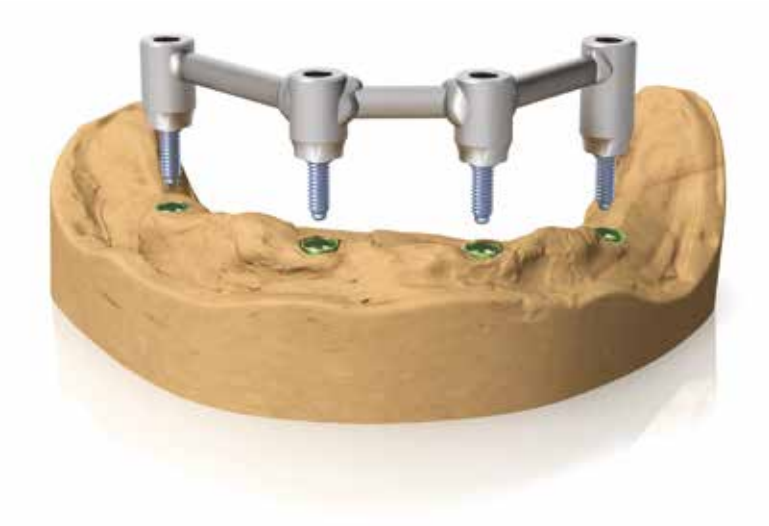
Reduce the castable sleeves to a dimension suited to the patient's vertical dimension, using the silicone mask obtained from preassembly or putting the structure in an articulator with relation to the space left by the opposing arch.

Fix a Dolder castable bar with ovoid profile (code BARC-CAV-TIT) or a Hackermann castable bar with a round profile (code BARC) to the castable sleeves with resin.





Cast the structure according to the standard protocol. Try out the structure first on the model and then in the patient's mouth to check its complete passivity. The recommended tightening torque for all the over-structures obtained by casting to the abutments is 20-25 Ncm.



IMPORTANT WARNING

If the structure is not completely passive even after having followed the normal checking protocol before casting, it may be possible to correct the stress by cutting the bar close to the sleeve and welding it again in the correct position.

In the case of the bar with an ovoid profile, insert a segment of the spacer bar (included in the pack) between the bar attachment and the cast bar before including the attachments at the base of the overdenture: this step will ensure correct resilience of the prosthetic rehabilitation.

Make the structure in wax and then transform it in resin, incorporating the top of the bar attachments, or reposition the prefabricated teeth in the mask.

IMPORTANT WARNING

Attention must be paid to ensure that the resin does not completely cover the side walls of the bar attachments, hampering their horizontal movement which allows the anchoring and release of the bar.
Each bar requires the use of a specific bar attachment, since the sections of the bars are different and are not compatible.

IMPORTANT WARNING

It is advisable to instruct patients adequately on the correct procedures for inserting and removing the prostheses, inviting them to practise these simple manoeuvres. Patients must also be urged to report any discomfort of the prosthesis, including the loss of retention of the bar attachments, so as to allow the operator to perform prompt maintenance or replace the retainers or the bar attachments.

Bar obtained with entirely castable posts: indirect method

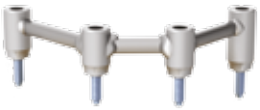
Once the model has been made according to the standard procedures, screw the entirely castable posts (code ACCR-***) onto the analogs using the driver HSM-20-*** (see page 14). Before casting, care must be taken in the laboratory to ensure that the entirely castable posts are not fastened to the models with a torque exceeding 8-10 Ncm, because polymers are not as resistant as metal.
For the technical specifications of PMMA, refer to page 105.

IMPORTANT WARNING

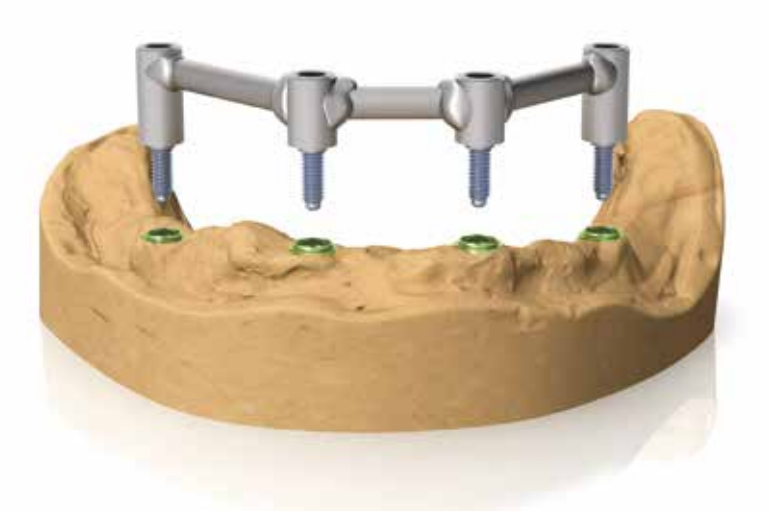
Always use spare screws for work in the laboratory, these are available in a single pack with codes VM2-180 for abutments with connection 3.30 and 3.80 mm, and VM2-200 for connections 4.25, 5.00 and 6.00 mm. Use the final screws only for the final fastening in the patient's mouth.

Reduce the castable sleeves to a dimension suited to the patient's vertical dimension, using the silicone mask obtained from preassembly or putting the structure in an articulator with relation to the space left by the opposing arch.

Fix a Dolder castable bar with ovoid profile (code BARC-CAV-TIT) or a Hackermann castable bar with a round profile (code BARC) to the castable posts with resin.



Cast the structure according to the standard protocol. Try out the structure first on the model and then in the patient's mouth to check its complete passivity. The recommended tightening torque for all the over-structures obtained by casting to the abutments is 20-25 Ncm.



IMPORTANT WARNING

If the structure is not completely passive even after having followed the normal checking protocol before casting, it may be possible to correct the stress by cutting the bar close to the sleeve and welding it again in the correct position.

In the case of the bar with an ovoid profile, insert a segment of the spacer bar (included in the pack) between the bar attachment and the cast bar before including the attachments at the base of the overdenture: this step will ensure correct resilience of the prosthetic rehabilitation.

Make the structure in wax and then transform it in resin, incorporating the top of the bar attachments, or reposition the prefabricated teeth in the mask.

IMPORTANT WARNING

Attention must be paid to ensure that the resin does not completely cover the side walls of the bar attachments, hampering their horizontal movement which allows the anchoring and release of the bar.
Each bar requires the use of a specific bar attachment, since the sections of the bars are different and are not compatible.

IMPORTANT WARNING

It is advisable to instruct patients adequately on the correct procedures for inserting and removing the prostheses, inviting them to practise these simple manoeuvres. Patients must also be urged to report any discomfort of the prosthesis, including the loss of retention of the bar attachments, so as to allow the operator to perform prompt maintenance or replace the retainers or the bar attachments.

GENERAL INDICATIONS

GRADE 4 TITANIUM (cold worked)*	Maximum allowed values (%)	Tolerance
Chemical composition:		
Nitrogen	0.05	+/- 0.02
Carbon	0.08	+/- 0.02
Hydrogen	0.015	+/- 0.002
Iron	0.50	+/- 0.10 (%<0.25)
		+/- 0.15 (%>0.25)
Oxygen	0.40	+/- 0.02 (%<0.20)
		+/- 0.03 (%>0.20)
Titanium	remainder	-

Mechanical properties*	
Tensile stress:	750 MPa (N/mm^2)
Yield strenght (0.2%):	520 MPa (N/mm^2)
Elongation at yield:	15 %
Section reduction:	25 %

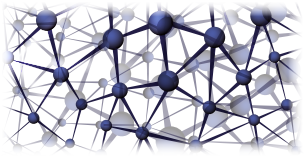
** This technical information complies with the express specifications of the regulations in force for the use Gr. 4 titanium in implantology.*

PLEASE NOTE: the use of bars obtained from cold processing, for the production of Sweden & Martina Spa implants, allows the exploitation of the mechanical characteristics of tensile strength and yield strength about 15% higher than those that can be obtained with a hot process (respectively 550 MPa and 483 MPa).

GRADE 5 TITANIUM**	Maximum allowed values (%)	Tolerance
Chemical composition:		
Nitrogen	0.05	+/- 0.02
Carbon	0.08	+/- 0.02
Hydrogen	0.012	+/- 0.002
Iron	0.25	+/- 0.10
Oxygen	0.13	+/- 0.02
Aluminium	5.50÷6.50	+/- 0.40
Vanadium	3.50÷4.50	+/- 0.15
Titanium	remainder	-

Mechanical properties*	Minimum allowed values
Tensile stress (for bar diameters up to 44.45 mm):	860 MPa (N/mm^2)
Yield strength (0.2%):	795 MPa (N/mm^2)
Elongation at yield:	10 %
Section reduction:	25 %

*** This technical information complies with the express specifications of the regulations in force for the use Gr. 5 titanium in implantology.*



PMMA	
Chemical Designation:	Polymethylmethacrylate
Colour:	Transparent
Physical and mechanical properties	
Density (DIN 53479):	1.18 g/cm³
Compressive yield strength (ISO 527, DIN 53454):	110 N/mm²
Elongation at Break (DIN 53455, ISO 527)	5.5 %
Flexural strength	115 N/mm²
Modulus of elasticity (ISO 527, DIN 53457):	3300 N/mm²
Tangent modulus of elasticity at ca. Hz (DIN 53445)	1700 N/mm²
BRINELL hardness, ball impression (DIN 53456)	200 N/mm²
Thermal properties	
Linear expansion coefficient for 0…50° (DIN VDE 0304/01):	70-10 · 1/°C
Thermal conductivity (DIN 52612):	0.19 W/m °C
Forming temperature:	≈ 160 °C
Tempering temperature:	>80 °C
Maximum continuous working temperature:	78 °C
VICAT softening temperature procedure B (DIN 53460):	115 °C
Thermal indeformability ISO 75 bending stress 1.80 N/mm2 (DIN 53461):	105 °C
Thermal indeformability according to Martens (DIN 53458):	95 °C
Various data	
Water absorption in weight increase after 1 day of immersion (DIN 53495):	0.3 %

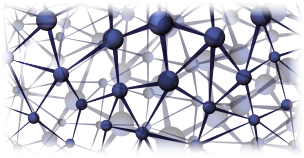
POM	
Chemical Designation:	Polyoxymethylene (copolymer)
Colour:	Opaque white
Physical and mechanical properties	
Density (DIN 53479):	1.41 g/cm³
Yield strength (DIN 53455):	65 MPa
Elongation at break (ISO 527, DIN 53455):	40 %
Modulus of elasticity – Tensile test (ISO 527, DIN 53455):	3100 MPa
Ball impression hardness (30s) DIN 53456:	155 MPa
Impact strength (Charpy, DIN 53453):	Not broken
Creep rupture strength (after 1000 hours with static load):	40 MPa
Thermal properties	
Melting temperature (DIN 53736):	165 °C
Glass transition temperature (DIN 53736):	-60 °C
Dimensional stability temperature (method A, ISO 75):	110 °C
Dimensional stability temperature (method B, ISO 75):	160 °C
Service temperature for short-term use:	140 °C
Service temperature for long-term use:	100 °C
Specific heat:	1.5 J/(gK)
Thermal conductivity:	0.31 W/ (mK)
Coefficient of Linear thermal expansion:	10·10-5/K
Various data	
Humidity absorption: equilibrium in standard atmosphere (23 °C / 50% RH, ISO 62, DIN 53714):	0.3 %
Water absorption to saturation at 23° (ISO 62, DIN 53495):	0.5 %

GENERAL INDICATIONS

PEEK *(tested on the same quantity of material)	Radiopaque	Classic
Chemical Designation:	Polyetheretherketone	Polyetheretherketone
Colour:	Cream white opaque	Cream white opaque
Physical and mechanical properties		
Density:	1.65 g/cm^3	1.4 g/cm^3
Modulus of elasticity – Tensile test (DIN EN ISO 527-2):	5200 MPa	4100 MPa
Yield strength (DIN EN ISO 527-2):	77 MPa	97 MPa
Yield strength at 0.2% (DIN EN ISO 527-2):	77 MPa	97 MPa
Elongation at 0.2% (DIN EN ISO 527-2):	2%	5%
Elongation at break (DIN EN ISO 527-2):	2 %	13 %
Flexural strength (DIN EN ISO 178):	178 MPa	174 MPa
Modulus of elasticity –Flexural test (DIN EN ISO 178):	5000 MPa	4000 MPa
Bulk modulus (EN ISO 604):	4000 MPa	3500 MPa
Thermal properties		
Glass transition temperature:	-	150 °C
Service temperature for short-term use:	300 °C	300 °C
Service temperature for long-term use:	260 °C	260 °C
Chemical properties		
Absorption at 23° in 24/96 h (DIN EN ISO 62):	-	0.02/0.03 %

GOLD ALLOY	Aleación de oro 1	Aleación de oro 2	Aleación de oro 3
Designation	Aleación de oro 1	Aleación de oro 2	Aleación de oro 3
Colour:	Blanco	Amarillo	Amarillo
Composition			
Au	60 %	> 68.60 %	70 %
Pt	24 %	2.45 %	8.5 %
Pd	15 %	3.95 %	-
Ir	1 %	0.05 %	0.10 %
Ag	-	11.85 %	13.40 %
Cu	-	10.60 %	7.50 %
Zn	-	2.50 %	0.50 %
Au	-	75.35 %	-
Ru	-	-	-
Physical and mechanical properties			
Density:	18.1 g/cm^3	15.0 g/cm^3	15.7 g/cm^3
Melting range:	1400 ÷ 1460 °C	880 ÷ 940 °C	895 ÷ 1010 °C
Modulus of elasticity – Tensile test:	115 GPa	97 GPa	100 GPa
Vickers hardness HV1 (gold alloy 1) HV5 (gold alloy 2, gold alloy 3)	160 (annealed) 250 (hardened) 220 (after deformation) 240 (after casting)	> 240	170 (annealed) 295 (after deformation)
Limit of elasticity:	400 MPa (annealed) 700 (after deformation) 800 (after casting)	> 710 MPa	380 MPa (annealed) 730 (after deformation)
Elongation:	20% (annealed) 15% (after deformation) 1% (after firing)	> 4 %	37 % (annealed) 13 % (after deformation)

- *Gold alloy 1: all the castable posts with pre-made alloy base (e.g. A-UCR ETC…)*
- *Gold alloy 2: CAP-1 Cap for ball attachments in gold alloy*
- *Gold alloy 3: CAV-375 bar attachment in alloy for round bars Ø 2.20 mm*



COBALT CHROME ALLOY	Maximum allowed values (%)
Chemical composition:	
C	0.10
Mn	1.00
Cr	26.00 ÷ 30.00
Ni	1.00
Mo	5.00 ÷ 7.00
N	0.25
Fe	0.75
Co	remainder
Physical and mechanical properties:	
Density	8.27 g/cm^3
Modulus of elasticity – Tensile test:	241 GPa
Yield strength (0.2%):	585 MPa
Tensile stress:	1035 MPa
Elongation at yield:	25 %
Section reduction:	23 %
Hardness:	30 HRc
Thermal properties	
Melting range:	1400 ÷ 1450 °C
Coefficient of thermal expansion:	
at 500 °C:	14.15
at 600 °C:	14.47
Thermal conductivity:	
at 600 °C:	25.76 W/mK

Advice for overcasting non-precious alloys (by Dental Technician Loris Zamuner)

The casting of non-precious alloys, less predictable than that of precious alloys, increases the difficulty of maintaining precision at the level of the prosthetic connection because, besides factors of intimate contact between alloys and mechanical resistance, there are also the problems of corrosive phenomena, of which dental technicians are well aware. Since these alloys oxidise during heating, further precautions are necessary during preparation of the models and during the procedure of coating and casting, to avoid not only mechanical but also biological complications (e.g. gingival tattoos, that is blackish stains due to the redox reaction of the metals in the prosthesis, which are very difficult to treat and remove). On this point we would like to give some advice which, while not completely eliminating the problems described above, may be useful in the laboratory for a correct use of castable posts with a cobalt chrome base:

- Remove the castable sleeve from the base and seal the interstice with wax or castable resin, so as to avoid the formation of any cracks;
- Apply a layer of deoxidising solution (e.g. flux) on the metal surface before repositioning and securing the castable sleeve: this procedure can reduce the quantity of oxides formed during heating of the alloy;
- The modelling must clearly mark off the area of the join between castable sleeve and prefabricated base with a well represented closing edge, so as to prevent the overcast alloy penetrating the base of the post;
- The formation of pivots for the creation of the cylinder must be carried out in an area with an adequate surrounding volume to prevent the injected alloy cooling during casting before the final shape has been completely filled. Do not place the casting pin in thin areas to avoid deformations caused by the heat of the cast alloy;
- The expansion of the refractory casting coating must be kept at minimum values to avoid the creation of a space between the metal base and the coating, due to the different expansion of the two layers. If there is no intimate contact between the coating and the metal base, a thin film of metal could form on the prefabricated base which, reaching also the connecting platform between implant and prosthesis, will influence precision with obvious biomechanical and biological problems;
- The heating of the cylinder must be uniform in all parts. Since the prefabricated metal parts are enclosed inside it, which by their nature absorb heat, it is advisable to maintain the final heating temperature for a long time and then raise it by about 20-30° higher than the temperature recommended by the alloy manufacturer;
- When choosing the alloy for overcasting it is advisable to accurately consider the casting temperature with respect to the temperature of the component to be overcast, which must be about 80-100°C higher so as not to be deformed, but to allow a good bond between the two alloys;
- After casting, let the cylinder cool slowly to avoid the formation of stress between the two alloys;
- Avoid contact between ceramic and base alloy during firing of the ceramic because the different thermal expansion coefficients (TEC) can create cracks in the coating layer;
- Where possible (in non aesthetic areas), keep the area of interface between the prefabricated base and the overcast structure out of the gingival sulcus;
- In composite screw-retained prostheses, enclose the line of interface between the prefabricated base and the overcast structure within the aesthetic coating;
- Use the same type of alloy for the whole prosthetic reconstruction, to avoid partial weakening, breakages and incorrect unloading of forces on the implants.

Remember that this technique is subject to problems of mechanical resistance, corrosion and galvanic reactions typical of precious alloys, and which are therefore even more present in non precious alloys.

Clinical indications

Modern oral implantoprosthesis, with immediate or deferred loading, is a well-tested and reliable discipline able to solve almost all edentulism problems, both functional and cosmetic. Restorations can replace a single tooth (implant-supported crown), a group of neighbouring teeth (implant-supported bridge) or an entire arch. Prosthetic components can be used to stabilise pre-existing full dentures.
This manual refers to the creation of overdentures for the rehabilitation of total edentulism.
Implant-prosthetic rehabilitation must meet certain fundamental criteria:

- the presence of a certain amount of bone;
- the primary stability of the implants after insertion;
- good periodontal (gingival) support;
- no bruxism (teeth grinding) or serious malocclusion;
- the presence of good occlusal balance (correct masticatory occlusal plane).

Warnings and contraindications

When assessing the patient, in addition to his/her eligibility as regards implant-prosthetic rehabilitation, it is usually necessary to consider the contraindications that apply to oral surgery procedures in general. These include:

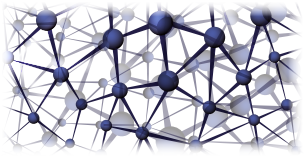
- clotting disorders, anticoagulant therapy;
- healing or bone regeneration disorders;
- decompensated diabetes mellitus;
- metabolic or systemic diseases that compromise tissue regeneration with a particular influence on healing and bone regeneration;
- alcohol abuse, smoking and use of drugs;
- immunosuppressive therapy, such as: chemotherapy and radiotherapy;
- infections and inflammations, such as periodontitis and gingivitis;
- poor oral hygiene;
- inadequate motivation;
- occlusion and/or articulation disorders as well as an inadequate interocclusal space;
- inadequate alveolar process.

It is contraindicated to insert implants and implant restorations in patients with poor general or oral health, those who are unable to monitor their general conditions properly or those who have had organ transplants. Psychologically unstable patients, alcohol or drug abusers, and poorly motivated or uncooperative patients should also be considered unsuitable for this kind of treatment. Patients with poor periodontal health should first be treated and allowed to recover. In the presence of a lack of bone substance or poor quality of the receiving bone, such as to compromise the stability of the implant, suitable guided tissue regeneration must be performed prior to implant treatment. Contraindications also include: bruxism, allergy to titanium (extremely rare), acute or chronic infectious diseases, sub-acute chronic maxillary osteitis, systemic diseases, endocrine disorders, diseases resulting in microvascular disorders, pregnancy, breastfeeding, previous exposure to radiation, haemophilia, neutropenia, steroid use, diabetes mellitus, kidney failure and fibrous dysplasia. The normal contraindications common to all oral surgery must also be observed. Surgery is not recommended for patients on anti-coagulant, anti-convulsant and immunosuppressant therapies, with active inflammatory-infective processes of the oral cavity, and patients with BUN and creatinine values outside the norm. Patients with cardiovascular disease, hypertension, thyroid or parathyroid diseases, malignant tumours found in the 5 years preceding the operation, or nodular swellings must also be rejected. Chemotherapies reduce or eliminate the ability of osseointegration, therefore patients undergoing these treatments must be carefully screened before being rehabilitated with oral implantoprostheses. Numerous cases of bisphosphonate-associated peri-implant osteonecrosis of the mandible have been reported in the literature. This problem particularly applies to patients treated intravenously.
Restoration work must always be planned in advance. Restoration planning must be performed in concert with the dental technician. The restoration-guided placement of implants facilitates the prosthodontist's work and provides better guarantees in terms of duration. It is recommended to collect and file all the clinical, radiological and radiographic records.
Each pack reports the code, description of the contents and batch number. These same details are also indicated on the labels to be attached to the patient's records and must be referred to by the doctor whenever necessary. When handling the devices, both during use and during cleaning and sterilisation, it is recommended to use surgical gloves for personal protection from bacterial contaminations. Failure to comply with these warnings may lead to cross-infection. The packaging conforms to European standards.

Identification of the manufacturer

The manufacturer of the prosthetic components and of the instruments described in this manual, unless indicated otherwise, is:

Sweden & Martina
Via Veneto 10
35020 Due Carrare (Padova) – Italia
Tel. +39 049.9124300 - Fax + 39 049.9124290
e-mail: info@sweden-martina.com www.sweden-martina.com



Risk classes

In accordance with Directive 93/42/EEC implemented in Italy with L.D. 46/97 of 26/03/97, Annex IX, Sweden & Martina identifies the prosthetic components and surgical instruments described in this manual as medical devices and identifies their risk class as shown in the table below. Even though they can be used in all patients who have the suitable therapeutic indications, all the devices listed must only be used by professional dentists or surgeons with the necessary qualifications and training and by dental technicians in the preparation of the prostheses.

device	classification	pack	rule annex IX	risk class
Transgingival healing screws	Long-term, invasive, surgical	Single use, non-sterile.	8	2B
Transfers	Short-term, invasive, surgical	Single use, non-sterile, provided with connecting screws	7	2A
Caps for taking impressions on posts	Short-term, invasive, surgical	Single use, non-sterile.	7	2A
Transfer screws	Short-term accessories for medical devices, invasive, surgical	Single use, non-sterile.	5	2A
Abutments and components for screw-retained restorations, using conventional or P.A.D. techniques	Long-term, invasive, surgical	Single use, non-sterile, complete with connecting screws	8	2B
Custom-made posts, entirely castable or castable with metal base	Long-term, invasive, non-surgical components for use in the oral cavity	Single use, non-sterile, complete with connecting screws.	5	2A
Connecting screws for posts, abutments and over-structures (post and restoration screws)	Long-term accessories for medical devices, invasive, surgical components for use in the oral cavity	Single use, non-sterile. Sold together with the corresponding posts or individually, in single or multiple packs.	5	2A
Components for removable overdenture anchorage (ball connections; titanium, polyamide or gold alloy caps, O-ring devices)	Long-term, invasive, surgical components for use in the oral cavity	Single use, non-sterile, complete with connecting screws.	8	2B
Premade alloy bars and bar attachments for overdentures	Long-term, invasive, non-surgical components for use in the oral cavity	Single use, non-sterile.	5	2A
Analogs	Medical device, non invasive	Single use, non-sterile.	1	1
Spare castable sleeves and premade castable bars	Medical device, non invasive	Single use, non-sterile, without connecting screws	5	1
Drivers/ screwdrivers and extension	Invasive surgical instruments for temporary use (for less than 60 minutes at a time)	Reusable, non-sterile.	6	2A
Drivers/ screwdrivers, hand knobs, parallelism pins	Invasive surgical instruments for temporary use (for less than 60 minutes at a time), not intended to be connected to an active medical device	Reusable, non-sterile.	6	1

Single use devices

Prosthetic components are single use products. Single use means that each individual device may be used just once, on a single patient.
It is common practice for prosthetic components to be tried in the patient's mouth several times and then sent back to the dental technician for final restoration. This practice is valid and does not alter the single-use concept, provided the same prosthetic component is always used by the same patient and him/her alone. In the case of multiple restorations, it is important that the same component is always used in the same position and connected to the same implant, i.e. that the components are not switched within the same restoration project. Failure to comply with these indications may compromise the precision of the work. Any reuse in other patients must be considered off-label use and in such cases, Sweden & Martina declines all responsibility.

GENERAL INDICATIONS

Special warnings

When tightening transgingival screws, post screws or prosthetic screws, always use the tightening torques indicated below:

Transgingival healing screws	8-10 Ncm
Passing screws for fastening posts and abutments to the implants	20-25 Ncm
Passing screws for fastening prosthetic over-structures to the abutments	20-25 Ncm
Direct screw-retained components on the implants (e.g. ball attachments, abutments that do not have a passing screw but form a single body with the screw	25-30 Ncm
Passing screws for fastening over-structures directly onto the implants (without using intermediate abutments)	20-25 Ncm

Excessive tightening torques can weaken the screws' mechanical structure and compromise restoration stability, with potential damage to the implant connection.

Maintenance

Some implant restoration-related complications are reported in the literature. These complications may lead to a loss of osseointegration and implant failure. Correct maintenance by the patient, good home dental care and regular sessions with a professional hygienist increase the device's service life. Complications such as the pull-out of screws that fasten the restoration to the implants or bone reabsorption causing the loss of the mucosal resting surface in patients with removable restorations can be easily prevented with regular check-ups. If post or prosthetic connecting screws are needed, these operations must be performed by the practitioner using suitable devices with torque tightening control. The calibration of these devices should be checked regularly.
In the event of complications of this kind, patients should contact their practitioner as soon as possible, so that the restoration can be repaired and functionality restored. A delay in contacting the doctor may lead to fractures in the connecting screw and the prosthesis, in the first case, and to implant failure in the second case, which could impair the rehabilitative result. Practitioners must make this clear to their patients.
Complications can be of a biological nature (loss of integration) or mechanical nature (fracture of a component due to overloading). If there are no complications, duration depends on the devices and the whole restoration system depends on mechanical resistance in relation to the fatigue accumulated by the device.
Any de-cementing of cement-retained crowns or bridges secured using final cement, such as to transmit shocks to the implant structures, can lead to the failure of the same. Sweden & Martina has conducted 5.000.000-cycle fatigue resistance tests on its implant-post-connecting screw sets. The sets passed the test. Fatigue tests are conducted according to applicable standards and further assessed by means of finite element calculations.

Cleaning / sterilisation / storage of prosthetic components and instruments

Caution!: All prosthetic components and instruments for dental implants are sold NON-STERILE. Before use, these devices must be cleaned, disinfected and sterilised according to the following procedure validated by Sweden & Martina S.p.A.. These processes must also be performed before intraoral use, i.e. before each use for any test phases and in any case before final restoration loading. Repetition of the processes described in this paragraph does not alter the characteristics of these devices. The failure to follow these instructions may cause cross infections.

a. Cleaning: Containers and transport to be used for washing: there are no special requirements. In case of automatic cleaning, use an ultrasound bath with a suitable detergent solution. Use neutral detergents only. Follow the manufacturer's instructions concerning concentrations and washing times. Use demineralised water to prevent the formation of stains and marks. When draining, check the recesses of the devices, holes, etc. to make sure all residues have been completely removed. If necessary, repeat the cycle or clean manually. When cleaning manually: use a suitable neutral detergent and follow the manufacturer's user instructions. Brush the products with a soft-bristled brush under plenty of running water. Use the brush to apply the detergent to all surfaces. Rinse with distilled water for at least four minutes. Make sure plenty of running water passes through any holes. After rinsing, dry the devices thoroughly and place them inside suitable sterilisation bags. Do not exceed 120°C when performing a drying cycle in a washing and disinfection appliance.

b. Sterilisation: Place in a vacuum autoclave and sterilise as follows:
- Temperature = 121 – 124°C, with autoclave cycle of at least 20 minutes and drying cycle of 15 minutes.

c. Storage: After sterilisation, the product must remain in the sterilisation bags. The bags should only be opened immediately prior to reuse. In normal conditions, sterilisation bags maintain the sterility of the contents, unless the wrapping is damaged. Therefore, do not use components if the bags in which they were kept are damaged, and resterilise in new bags before using them again. The storage time of products sterilised inside the bags should not exceed that recommended by the manufacturer of the bags. The product must be stored in a cool dry place, away from direct sunlight, water and heat sources.

Cleaning, sterilisation and storage of the dynamometric ratchet CRI5

The processes described below must be performed before use and before each subsequent operation. Repetition of the processes described in this paragraph has minimal effect on the wear of the device. The failure to follow these instructions may cause cross infections. Containers and transport to be used for washing: there are no special requirements. As soon as possible after each use, the key must be placed in a container filled with a disinfecting/cleansing solution and covered with a cloth. This prevents the desiccation of the contaminating agents coming from the patient, and dissolves them, thus making cleaning easier and more effective.
Completely disassemble the key as shown below:

Completely unscrew the torque adjustment screw and remove the spring inside the handle of the ratchet body. Do not separate the spring from the pin that acts as a stop.

Use the hexagon tip at the bottom of the torque adjustment screw to unscrew and completely remove the connecting screw of the cover from the side marked "OUT". Exert a light pressure in order to avoid damaging the hexagon tip.

After removing the cover, pull out the two components contained inside the ratchet head: the toothed pawl wheel and wheel stop tooth.

In case of manual cleaning, clean the outer and inner surfaces of the instrument mechanically under hot water with a soft bristled brush. Inject hot water using a needleless syringe to wash the hard-to-access holes of the head and the area around the pawl wheel and wheel stop. If necessary, proceed in the same way for the inside of the handle and of the torque adjustment device. Use a suitable neutral detergent and follow the manufacturer's user instructions. Use the brush to apply the detergent to all surfaces. Rinse with distilled water for at least four minutes. Make sure the running water passes abundantly through the passages. In case of automated ultrasound cleaning: use an ultrasound bath with a suitable detergent solution. Use neutral detergents only. Follow the manufacturer's instructions concerning concentrations and washing times.
Use demineralised water to prevent the formation of stains and marks. During this cycle, avoid contact between the pieces because this causes the machined surfaces to deteriorate, and consequently, loss of precision of the torque measurement. When draining, check the recesses of the devices, holes, etc. to make sure all residues have been completely removed. If necessary, repeat the cycle or clean manually.
Please note: Blood residues or other deposits reduce the efficacy of the sterilisation process, which is why it is important to clean thoroughly. During cleaning, avoid sprays or jets of liquid and adopt adequate protections. Avoid contact between this instrument and other nickel-plated instruments.
The pieces must be reassembled prior to sterilisation. Dry the parts, lubricate the functional areas lightly and reassemble the key as shown in the figures below. Too much lubrication may cause the surfaces of the instrument to resurface during sterilisation. Use only the lubricant supplied.

After lubricating the parts shown in the figure, insert the two elements of the ratchet head according to the following sequence: the toothed pawl wheel and then the wheel stop tooth.

Lubricate the contact areas between the tooth of the pawl wheel and the pin of the wheel stop tooth.

Once parts 2 and 3 have been lubricated and inserted in the head of the ratchet body, position the cover and turn the ratchet body from the "OUT" side. Tighten the screw with the hexagon tip of the torque adjustment screw.

Lubricate the spring inside the ratchet handle as shown in the figure. Assemble the torque adjustment screw, making sure the instrument functions properly. Manually activate the pawl wheel.

Sterilisation: in a vacuum autoclave, proceeding as follows:
Temperature = 121 – 124 °C, with autoclave cycle of at least 20 minutes and drying cycle of 15 minutes.
This procedure is important in order to preserve the precision of the instrument within a tolerance of ± 3.5 Ncm. Operate the torque and insertion mechanism to check their proper functioning. Remove any traces of lubricant from the outer surface of the key. Place the device in suitable sterilisation bags. It is recommended to practise the disassembly and reassembly operations, following the instructions.

BIBLIOGRAPHY ON SWEDEN & MARTINA IMPLANTS

Responsibility for defective products and warranty terms

Optimal patient care and attention to their needs are necessary conditions for the success of implantation procedures and, therefore, patients must be carefully selected and informed of the associated risks and obligations connected with the treatment and encouraged to cooperate with the odontologist in the interests of the success of the same treatment. The patient must, therefore, maintain good hygiene, which should be confirmed during check-up appointments, guaranteed and recorded and the practitioners instructions and orders shall be observed. The warranty only covers manufacturing defects as long as the faulty piece is identified by the article code and batch number and returned within the validity period of the warranty.

The warranty terms are available on the website www.sweden-martina.com

Warning

The prosthetic components manufactured by Sweden & Martina are for anchoring to dental implants and prosthetic instruments also manufactured by Sweden & Martina. Use of non-original components limits the responsibility of Sweden & Martina S.p.A. and renders the product warranty void.
Prosthetic components must be fastened to the implants using dedicated instruments. When tightening prosthetic components, use original instruments manufactured by Sweden & Martina. Sweden & Martina declines all responsibility for use of any non-original instruments.
The instruments manufactured by Sweden & Martina are designed for use with dental implants and prosthetic components also manufactured by Sweden & Martina. Use of the instruments for working with implants other than those manufactured by Sweden & Martina limits the responsibility of Sweden & Martina and renders the product warranty void. Sweden & Martina declines all responsibility for use of any non-original instruments.

The devices in this user manual are designed and manufactured in accordance with the most recent directives and harmonised standards regarding the materials used, production processes, sterilisation, information supplied and packaging.

Each packaging indicates the code, description of the contents and batch number. These same details, which are also indicated on the labels inside the packs, must always be provided by the practitioner in any relevant correspondence.
The prosthetic components and instruments manufactured by Sweden & Martina do not contain any material of human or animal origin or phthalates. Remember to ask patients whether they are allergic to any of the substances used. Although very rare, titanium allergy is possible. Patients should therefore always be asked whether they are allergic to this material before use. Refer to pages 104-107 for detailed data sheets of all the materials used, to check the relative chemical compositions and the physical and mechanical properties.

Disposal

If removed from the oral cavity due to biological or mechanical failure, the prosthetic components must be disposed of as biological waste. The instruments are made of small components, mostly metal. They may be disposed of as such. If dirty, they must be disposed of as biological waste. In general, the local regulations apply.

Key to symbols used on the packs:

symbol	description
	Attention! See instruction leaflet
	Batch number
	Code
	Non sterile product (only prosthetic components and surgical instruments)
	Single use product, do not reuse
	Manufacturer
	Consult the instruction leaflet
	CE conformity marking, class 1 products.
	CE conformity marking, class 2a and 2b products.
	American federal law restricts this device to sale by or on the order of a dental surgeon.

THE LATEST REVISION DATE OF THIS MANUAL IS MARCH 2014

- Segura Andrés G., Martìnez Lage J. F., Ferreiroa A., Faus Lòpez J., Agustìn Panadero R.; Rehabilitación protésica en un maxilar atrófico a consecuencia de un trauma facial; Gaceta Dental, 2013; 244:112-118
- Canullo L., Micarelli C., Clementini M.; Hard tissue response to argon plasma cleaning treatment on titanium abutments: 2-year follow-up RCT; European Journal of Oral Implantology, 6 (Suppl. Spring), 2013: S21-S22
- Rossi F., Lang N. P., De Santis E., Morelli F., Favero G., Botticelli D.; Bone-healing pattern at the surface of titanium implants: an experimental study in the dog; Clinical Oral Implant Research, Early View, First Published online on 2013, January 4th; DOI: 10.1902/jop.2010.100428
- Clementini M., Canullo L., Micarelli C.; Fibroblast growth on titanium disks treated by argon plasma: an in vitro triple-blinded study; European Journal of Oral Implantology, 6 (Suppl. Spring), 2013: S29-S30
- Canullo L., Micarelli C., Iannello G.; Microscopical and chemical surface characterization of the gingival portion and connection of an internal hexagon abutment before and after different technical stages of preparation; Clinical Oral Implant Research, 2013, 24: 606-611; DOI: 10.1111/j.1600-0501.2012.02499.x
- Canullo L., Heinemann F., Gedrange T., Biffar R., Kunert-Keil C.; Histological evaluation at different times after augmentation of extraction sites grafted with a magnesium-enriched hydro xypatite: double-blinded randomized controlled trial; Clinical Oral Implant Research, Early View, First Published online on 2013,January 4th; DOI: 10.1111/clr.12035
  Canullo L., Micarelli C., Clementini M., Carinci F.; Cleaning procedures on customized abutments: microscopical, microbiological and chemical analysis; Clinical Oral Implant Research, 2012; 23 Suppl 7: 55-56; DOI: 10.1111/clr.12019, 2012, 23(s7_128)
- Canullo L., Micarelli C., Lembo-Fazio L., Iannello G., Clementini M.; Microscopical and microbiologic characterization of customized titanium abutments after different cleaning procedures; Clinical Oral Implant Research, Early View, First Published online on 2012, December 5th, DOI: 10.1111/clr.12089
- Wennstrom J. L., Derks I.; Is there a need for keratinized mucosa around implants to maintain health and tissue stability?; Clinical Oral Implant Research, 2012; 23 Suppl 6: 136-146; DOI: 10.1111/j.1600-0501.2012.0254.x
- Sisti A., Canullo L., Mottola M. P., Covani U., Barone A., Botticelli D.; Clinical evaluation of a ridge augmentation procedure for the severely resorbed alveolar socket: multicenter randomized controlled trial, preliminary results; Clinical Oral Implant Research, 2012; 23: 526–535; DOI: 10.1111/j.1600-0501.2011.02386.x
- Sailer I., Muhlemann S., Zwahlen M., Hämmerle C. H. F., Schneider D.; Cemented and screw-retained implant reconstructions: a systematic review of the survival and complication rates; Clinical Oral Implant Research, 2012; 23 Suppl 6: 163-201; DOI: 10.1111/j.1600-0501.2012.02538.x
- Barone A., Orlando B., Cingano L., Marconcini S., Derchi G., Covani U.; A randomized clinical trial to evaluate and compare implants placed in augmented vs. non-augmented extraction sockets A 3-year evaluation; Journal of Periodontology, 2012; 83: 836-846; DOI: 10.1902/jop.2011.110205
- Sisti A., Canullo L., Mottola M. P., Iannello G.; Crestal minimally invasive sinus lift on severely resorbed maxillary crest: prospective study; Biomedizinische Technik/Biomedical Engineering, 2012, 57, ISSN (Online) 1862-278X, ISSN (Print) 0013-5585; DOI: 10.1515/bmt-2011-0038
- Crespi C., Capparè P., Gherlone E.; Sinus floor elevation by osteotome: hand mallet versus electric mallet. A prospective clinical study; The International Journal of Oral & Maxillofacial Implants, 2012; 27: 1144-50; DOI: 10.1111/j.1708-8208.2012.00485.x
- Al-Nsour M., Chan H. L., Wang H. L.; Effect of the platform-switching technique on preservation of peri implant marginal bone: a systematic review; International Journal of Oral and Maxillofacial Implants, 2012; 27: 138-145
- Annibali S., Bignozzi I., Cristalli M. P., Graziani F., La Monaca G., Polimeni A.; Peri-implant marginal bone level: a systematic rewiew and meta-analysis of studies comparing platform switching versus conventionally restored implants; Journal of Clinical Periodontology, 2012; 39: 1097-1113; DOI: 10.1111/j.1600-051X.2012.01930.x
- Csonka M.; Switching Platform chirurgico e protesico; Italian Dental Journal, 2012; 08: 24
- Lang N. P., Pun L., Lau K. Y., Li K. Y., Wong M. C.; A systematic review on survival and success rates of implants placed immediately into fresh extraction sockets after at least 1; Clinical Oral Implants Research, 2012; 23 (Suppl 5): 39-66; DOI: 10.1111/j.1600-0501.2011.02372.x
- Ortega Martinez J., Pérez Pascual T., Mereque Bueno S., Hernàndez Alfaro F., Ferrés Padrò E.; Immediate Implants following tooth extraction - A systematic review; Medicina Oral Patología Oral y Cirugía Bucal, 2012; 17: 251-261; DOI: 10.4317/medoral.17469
- Vignoletti F., Morante Mudarra S., Lorenzo Vignau R., Oteo Pérez A., Rodrigo Gómez D.; "Implantes immediatos en alveolos posextracción. Factores críticos en la cicatrizaci ón de los tejidos duros y blandos"; Maxillaris, Ciencia y Actualidad Profesional e Industrial del Sector Dental, 2012, XV, 155: 110-126
- Bruschi G., Crespi R., Capparé P., Gherlone E.; Clinical study of flap design to increase the keratinized gingiva around implants. 4-year, follow-up; Journal of Oral Implantology,Early View, First published online in 2012, November; DOI: 10.1563/AAID-JOI-D-11-00236.1
- Canullo L., Gotz W.; Peri-implant hard tissue response to glow-discharged abutments: Prospective study. Preliminary radiological results; Annals of Anatomy, 2012; 194: 174-478; DOI: org/10.1016/j.aanat.2012.03.006
- Canullo L., Micarelli C., Clementini M.; Effect of titanium abutment plasma cleaning on peri-implant bone level changes: randomized contolled trial, preliminary results; Poster, Winner, Prize Martignoni, AIOP Congress Bologna, 22-24 Novembre 2012
- Bastieri A.; espansione ossea controllata con Drill Bone Expander (D.B.e.): variabili e polifunzionalità; Numeri Uno 15, 2013, 10-12
- Scavia S.; Studio prospettico sul mantenimento del volume osseo verticale in impianti inseriti con tecnica M.I.S.E.; Numeri Uno 14, 2012, 14-15
- Crespi R., Bruschi G. B.; Vantaggi chirurgici nell'uso del Magnetic Mallet; Numeri Uno 13, 2012, 16-18.
- Csonka M.; Postestrattivo a carico immediato con Tecnica Simple e Platform Switching; Numeri Uno 12, 2012, 8-9
- Minenna F., De Leo L.; Riabilitazione implanto protesica con tecnica One Stage e protesi avvitata in materiale composito; Numeri Uno, 12;2012, 12-13
- Micarelli C., Canullo L., Baldissara A., Clementini M.; Abutment screw removal torque values before and after plasma cleaning; Clinical Oral Implant Research, 2012; 23 Suppl 7: 72; DOI: 10.1111/clr.12019, 2012, 23(s7_162)
- Micarelli C., Canullo L., Baldissara P., Clementini M.; Abutment screw reverse torque values before and after plasma cleaning; International Journal of Prosthodontics, Accepted and Overview Published online, on 2012, September, 12th
- Peñarrocha Diago M., Pellicer Chover H., Peñarrocha Oltra D.; Rehabilitación con prótesis fija de arco completo maxilary mandibular sobre implantes postextracción. A propósito de un caso; Numeri Uno 11, 2012, 15-17
- Galli C., Piemontese M., Meikle S. T., Santin M., Macaluso G. M., Passeri G.; Biomimetic coating with phosphoserine-tethered poly(epsilon-lysine) dendrons on titanium surfaces enhances Wnt and osteoblastic differentiation; Clinical Oral Implant Research, Early View, First Published online on 2012, December 5th; DOI: 10.1111/j.1600-0501.2011.02227.x
- Bengazi F., Lang N. P., Canciani E., Viganò P., Urbizo Velez J., Botticelli D.; Osseointegration of implants with dendrimers surface characteristics installed conventionally or with Piezosurgery®. A comparative study in the dog; Clinical Oral Implant Research, Early View, First Published online on 2012, December 12th; DOI: 10.1111/clr.12082
- Schweikert M., Baffone G., Botticelli D., Favero G., Lavia P. P., Lang N. P.; Influence of buccal bony crest width on marginal dimensions of peri-implant tissues after implant installation in dogs; Clinical Oral Implant Research, 2012; 23 Suppl 7: 77-78; DOI: 10.1111/clr.12019, 2012, 23(s7_171)
- Baffone G. M., Botticelli D., Pereira F. P., Favero G., Schweikert M., Lang N. P.; Influence of buccal bony crest width on marginal dimensions of peri-implant hard and soft tissues after implant installation. An experimental study in dogs; Clinical Oral Implants Research, 2013; 24: 250-254; DOI: 10.1111/j.1600-0501.2012.02512.x
- Crespi R., Capparé P., Gherlone E.; A comparison of manual and electrical mallet in maxillary bone condensing for immediately loaded implants: a randomized study; Clinical Implant Dentistry and Related Research, Early View, First Published online on 2012, August, 15th, DOI: 10.1111/j.1708-8208.2012.00485.x
- Calvo-Guirado J. L., Boquete-Castro A., Negri B., Delgado Ruiz R., Gomez-Moreno G., Iezzi G.; Crestal bone reactions to immediate implants placed at different levels in relation to crestal bone. A pilot study in foxhound dogs; Clinical Oral Implant Research, Early View, First Published online on 2013, January 25th; DOI: 10.1111/clr.12110
- Scala A., Lang N. P., Schweikert M. T., de Oliveira J. A., Rangel- Garcia I. Jr, Botticelli D.; Sequential healing of open extraction sockets. An experimental study in monkeys; Clinical Oral Implant Research, Early View, First Published online on 2013, April 1st;; DOI: 10.1111/clr.12148
- Rossi F., Lang N. P., Favero G., Pantani F., Tschon M., Botticelli D.; Bone healing pattern at the surface of titanium implants: an experimental study in the dog; Clinical Oral Implant Research, 2012; 23 Suppl 7: 76-77; DOI: 10.1111/clr.12019, 2012, 23(s7_171)
- Sivolella S., Bressan E., Salata L. A., Urrutia Z. A., Lang N. P., Botticelli D.; Osteogenesis at implants without primary bone contact - An experimental study in dogs; Clinical Oral Implant Research, 2012; 23: 542-549, DOI: 10.1111/j.1600-0501.2012.02423.x
- Sivolella S., Bressan E., Salata L. A., Quiñones M. E., Urrutia Z. A., Lang N. P., Botticelli D.; Deproteinized bovine bone mineral particles and osseointegration of implants without primary bone contact: an experimental study in dogs; Clinical Oral Implant Research, Early View, First Published online on 2013, April 8th; DOI: 10.1111/clr.12154
- Caneva M., Botticelli D., Viganò P., Morelli F., Rea M., Lang N. P.; Connective tissue grafts in conjunction with implants installed immediately into extraction sockets. An experimental study in dogs; Clinical Oral Implant Research, 2013; 24: 50-56; DOI: 10.1111/j.1600-0501.2012.02450.x
- De Santis E., Lang N. P., Cesaretti G., Mainetti T., Beolchini M., Botticelli D.; Healing outcomes at implants installed in sites augmented with particulate autologous bone and xenografts. An experimental study in dogs; Clinical Oral Implants Research, 2013; 24: 77-86; DOI: 10.1111/j.1600-0501.2012.02456.x
- Negri M., Lumetti S., Manfredi E., Galli C., Chiacci G., Macaluso G. M.; Marginal bone remodelling of Sweden&Martina Premium implants: 2-years clinical results; Clinical Oral Implant Research, 2012; 23 Suppl 7: 98; DOI: 10.1111/clr.12019, 2012, 23(s7_218)
- Cosyn J., Hooghe N., De Bruyn H.; A systematic review on the frequency of advanced recession following single Immediate Implant treatment; Journal of Clinical Periodontology, 2012 Jun; 39: 582-589; DOI: 10.1111/j.1600-051X.2012.01888.x
- Covani U., Chiappe G., Bosco M., Orlando B., Quaranta A., Barone A.; A 10-year evaluation of implants placed in fresh extraction sockets: a prospective cohort study; Journal of Periodontology, 2012; 83: 1226-1234; DOI: 10.1902/jop.2012.110583
- Covani U., Ricci M., D'Ambrosio N., Quaranta A., Barone A.; Changes in soft tissues around immediate full-arch rehabilitations: a prospective study; Clinical Oral Implant Research, Early View, First Published online on 2012, January, 6th; DOI: 10.1111/j.1600-0501.2011.02394.x
- Crespi R., Capparè P., Gherlone E., Romanos G.; Immediate provisionalization of dental implants placed in fresh extraction sockets using a flapless technique; The International Journal of Periodontics & Restorative Dentistry, 2012; 32: 29-37
- Morelli F.; Rigenerazione ossea orizzontale e verticale peri-implantare con mesh in Titanio ed osso autologo; Numeri Uno 11; 2011, 7-9
- Crespi R., Capparè P., Gherlone E.; Electrical mallet provides essential advantages in maxillary bone condensing. A prospective clinical study; Clinical Implant Dentistry and Related Research, Early View, First Published online on 2012, January, 11th, DOI: 10.1111/j.1708-8208.2011.00432.x
- Galli C., Macaluso G.M., Elezi E., Ravanetti F., Cacchioli A., Gualini G., Passeri G.; The Effects of Er:YAG Laser Treatment on Titanium Surface Profile and Osteoblastic Cell Activity: An In Vitro Study; Journal of Periodontology, 82 (8): 1169-1177, 2011; DOI: 10.1902/jop.2010.100428
- Ramaglia L., Postiglione L., Di Spigna G., Capece G., Salzano S., Rossi G.; Sandblasted-acid-etched titanium surface influences in vitro the biological behavior of SaOS-2 human osteoblast-like cells; Dental Material Journal, 30: 183-192, 2011; DOI:10.4012/dmj.2010-107
- Scala A., Botticelli D., Faeda R.S., Rangel I.G. Jr., de Oliveira J.A., Lang N.P.; Lack of influence of the Schneiderian membrane in forming new bone apical to implants simultaneously installed with sinus floor elevation: an experimental study in monkeys; Clinical Oral Implant Research, Early View, First Published online on 2011, June 13th; DOI: 10.1111/j.1600-0501.2011.02227.x
- Rossi F., Botticelli D., Pantani F., Pereira F.P., Salata L.A., Lang N.P.; Bone healing pattern in surgically created circumferential defects around submerged implants: an experimental study in dog; Clinical Oral Implant Research, Early View, First Published online on 2011, March 28th; DOI: 10.1111/j.1600-0501.2011.02170.x
- Caneva M., Botticelli D., Pantani F., Baffone G.M., Rangel I.G. Jr., Lang N.P.; Deproteinized bovine bone mineral in marginal defects at implants installed immediately into extraction sockets: an experimental study in dogs; Clinical Oral Implant Research, Early View, First Published online on 2011, May 5th; DOI: 10.1111/j.1600-0501.2011.02202.x
- De Santis E., Botticelli D., Pantani F., Pereira F.P., Beolchini M., Lang N.P.; Bone regeneration at implants placed into extraction sockets of maxillary incisors in dogs; Clinical Oral Implant Research 22, 2011; 430-437; DOI: 10.1111/j.1600-0501.2010.02122.x
- De Santis E., Lang N.P., Scala A., Viganò P., Salata L.A., Botticelli D.; Healing outcomes at implants installed in grafted sites: an experimental study in dogs; Clinical Oral Implant Research, Early View, First Published online on 2011, October 3rd; DOI: 10.1111/j.1600-0501.2011.02326.x
- Caneva M., Botticelli D., Morelli F., Cesaretti G., Beolchini M., Lang N.P.; Alveolar process preservation at implants installed immediately into extraction sockets using deproteinized bovine bone mineral - an experimental study in dogs; Clinical Oral Implant Research, Early View, First Published online on 2011, October 21st; DOI: 10.1111/j.1600-0501.2011.02332.x
- Caneva M., Botticelli D., Rossi F., Carvalho Cardoso L., Pantani F., Lang N.P.; Influence of implants with different sizes and configurations installed immediately into extraction sockets on peri-implant hard and soft tissues: an experimental study in dogs; Clinical Oral Implant Research, Early View, First Published online on 2011, September 29th; DOI: 10.1111/j.1600-0501.2011.02310.x
- Vignoletti F., De Sanctis M., Sanz M.; Impianti immediati post-estrattivi: fattori critici per la guarigione dei tessuti; Il Dentista Moderno, 9:94-114, 2011
- Farronato D., Santoro G., Canullo L., Botticelli D., Maiorana C., Lang N.P.; Establishment of the epithelial attachment and connective tissue adaptation to implants installed under the concept of "platform switching": a histologic study in minipigs; Clinical Oral Implant Research, Early View, First Published online on 2011, April 15th; DOI: 10.1111/j.1600-0501.2011.02196.x
- Baffone G.M., Botticelli D., Pantani F., Cardoso L.C., Schweikert M.T., Lang N.P.; Influence of various

BIBLIOGRAPHY ON SWEDEN & MARTINA IMPLANTS

implant platform configurations on peri-implant tissue dimensions: an experimental study in dog; Clinical Oral Implant Research 22, 2011; 438-444; DOI: 10.1111/j.1600-0501.2010.02146.x

- Canullo L., Pellegrini G., Allievi C., Trombelli L., Annibali S., Dellavia C.; Soft tissues around long-term platform switching implant restorations: a histological human evaluation. Preliminary results; Journal of Clinical Periodontology, 2011; 38: 86-94; DOI: 10.1111/j.1600-051X.2010.01641.x
- Canullo L., Iannello G., Netuschil L., Jepsen S.; Platform switching and matrix metalloproteinase-8 levels in peri-implant sulcular fluid; Clinical Oral Implant Research, Early View, First Published online on 2011, March 28th; DOI: 10.1111/j.1600-0501.2011.02175.x
- Della Via C., Canullo L., Allievi C., Lang N.P., Pellegrini C.; Soft tissue surrounding switched platform implants: an immunohistochemical evaluation; Clinical Oral Implant Research, Early View, First Published online on 2011, September 29th; DOI: 10.1111/j.1600-0501.2011.02301.x
- Baffone G.M., Botticelli D., Canullo L., Scala A., Beolchini M., Lang N.P.; Effect of mismatching abutments on implants with wider platforms - an experimental study in dogs; Clinical Oral Implant Research, Early View First Published online on 2011, November 2nd; DOI: 10.1111/j.1600-0501.2011.02320.x
- Canullo L., Pace F., Coelho P., Sciubba E., Vozza I.; The Influence of Platform Switching on the Biomechanical Aspects of the Implant-Abutment System. A Three Dimensional Finite Element Study; Med Oral Patol Oral Cir Bucal. 2011 Sep 1;16 (6):e852-6; DOI:10.4317/medoral.17243
- Canullo L., Iannello G., Götz W.; The influence of individual bone patterns on peri-implant bone loss: preliminary report from a 3-year randomized clinical and histologic trial in patients treated with implants restored with matching-diameter abutments or the platform-switching concept; International Journal of Oral and Maxillofacial Implants, 2011 May-Jun;26(3):618-30
- Serrano-Sánchez P., Calvo-Guirado J.L., Manzanera-Pastor E., Lorrio-Castro C., Bretones-López P., Pérez-Llanes J.A.; The influence of platform switching in dental implants. A literature review; Medicina Oral Patología Oral Cirugía Bucal. 2011 May 1;16 (3):e400-5; DOI: 10.4317/medoral.16.e400
- Bruschi G.B., Crespi R., Capparè P., Bravi F., Bruschi E., Ghenlone E.; Localized Management of Sinus Floor Technique for Implant Placement in Fresh Molar Sockets; Clinical Implant Dentistry and Related Research, 2011 May 20. [Epub ahead of print]; DOI: 10.1111/j.1708-8208.2011.00348.x
- Sisti A., Canullo L., Mottola M.P., Iannello G.; A case series on crestal sinus elevation with rotary instruments; European Journal of Oral Implantology. 2011 Summer;4(2):145-52
- Garcia-Fajardo Palacios C.; Sinus Lift. Ottimizzazione dei risultati; NumeriUno 10(06), 2011, 04-07
- Canullo L.; RIGENERAZIONE DI UN SITO POST-ESTRATTIVO con grave deficit osseo vestibolare con idrossiapatite arrichita di magnesio. CASE REPORT CON FOLLOW UP DEL RESTAURO IMPLANTO-PROTESICO A 2 ANNI; Odontoiatria - Rivista degli Amici di Brugg, 2: 166-167, 2011
- Becattelli A., Biscaro L., Ferlin P., Soattin M.; Riabilitazione implanto-protesica di entrambe le arcate mediante Toronto Bridge su impianti tiltati a carico immediato; NumeriUno 10(06) 2011, 10-12
- Marano G., Tomarelli F.; Carico implantare immediato e condizionamento dei tessuti molli con provvisorio in ceramica; NumeriUno 10 (06) 2011, 18-21
- Avvanzo P., Fabrocini L., Avvanzo A., Ciavarella D., Lo Muzio L., De Maio R.; Use of intra-oral welding to stabilize dental implants in augmented sites for immediate provisionalization: a case report; Journal of Oral Implantology, 2010 Oct 8. [Epub ahead of print]; DOI: 10.1563/AAID-JOI-D-10-00047
- Dominci A.D.; Solidarizzazione elettronica su impianti a carico immediato: un caso clinico in chirurgia flapless; Dental Cadmos, 79(8):545-550, 2011; DOI: 1 0.10161j.cadmos.2011.03.002
- De Paolis G., Quaranta A., Zappia S., Vozza I., Quaranta M.; Valutazione clinica e microbiologica di impianti a connessione conometrica rispetto a impianti a connessione esagonale: caso clinico; Dental Cadmos, 79(7):443-454, 2011; DOI: 10.1016/j.cadmos.2010.1 2.010
- Canullo L., Bignozzi I., Cocchetto R., Cristalli M.P., Iannello G.; Immediate positioning of a definitive abutment versus repeated abutment replacements in post-extractive implants: 3-year follow-up of a randomised multicentre clinical trial; European Journal of Oral Implantology, 2010 Winter;3(4):285-96
- Csonka M.; Carico Immediato di una Cresta Mandibolare Edentula con Tecnica SIMPLE; Italian Dental Journal, 2011
- Canullo L., Baffone G.M., Botticelli D., Pantani F., Beolchini M., Lang N.P; Effect of wider implant/abutment mismatching: an histological study in dogs; Clinical Oral Implant Research, 22(9), 2011:910; DOI: 10.1111/j.1600-0501.2011.02271.x
- Rossi F., Botticelli D., Salata L.; Bone healing in animal surgically created circumferential defects around submerged implants; Clinical Oral Implant Research, 22(9), 2011: 937; DOI: 10.1111/j.1600-0501.2011.02271.x
- Ricci M., Funel N., Orazio V., Bobbio A., Barone A., Covani U.; Analysis of osteoblastic gene dynamics in the early human mesenchymal cell response to an implant support: an in vitro study; Clinical Oral Implant Research, 22(9), 2011: 1071; DOI: 10.1111/j.1600-0501.2011.02271.x
- Canullo L., Gotz W.; Cell growth on titanium disks treated by plasma of Argon: experimental study; Clinical Oral Implant Research, 22(9), 2011: 1082-3; DOI: 10.1111/j.1600-0501.2011.02271.x
- Bruschi G. B., Crespi R.; TECNICHE DI ESPANSIONE OSSEA IN CHIRURGIA IMPLANTARE; Quintessenza Edizioni S.r.l., 2011, Milano (Anteprima)
- Avellino W., Milan U., Delle Rose D.; SOLUZIONI CLINICHE E TECNICHE PER LA REALIZZAZIONE DI UN PROVVISORIO FULL-ARCH SU IMPIANTI CON FUNZIONE IMMEDIATA; NumeriUno, 7: 11-13, 2010
- Branchi R., Vangi D., Virga A., Guertin G., Fazi G.; RESISTANCE TO WEAR OF FOUR MATRICES WITH BALL ATTACHMENTS FOR IMPLANT OVERDENTURES: A FATIGUE STUDY; Journal of Prosthodontics, 19(8):614-619, 2010
- Bruschi G.B., Crespi R., Capparè P., Ghenlone E.; TRANSCRESTAL SINUS FLOOR ELEVATION: A RETROSPECTIVE STUDY OF 46 PATIENTS UP TO 16 YEARS; Clinical Implant Dentistry and Related Research, 2010 Oct 26
- Caneva M., Salata L.A., Scombatti de Souza S., Baffone G., Lang N.P., Botticelli D.; INFLUENCE OF IMPLANT POSITIONING IN EXTRACTION SOCKETS ON OSSEOINTEGRATION: HISTOMORPHOMETRIC ANALYSES IN DOGS; Clinical Oral Implant Research 21; 43-49, 2010
- Caneva M., Salata L.A., Scombatti de Souza S., Bressan E., Botticelli D., Lang N.P.; HARD TISSUE FORMATION ADJACENT TO IMPLANTS OF VARIOUS SIZE AND CONFIGURATION IMMEDIATELY PLACED INTO EXTRACTION SOCKETS: AN EXPERIMENTAL STUDY IN DOGS; Clinical Oral Implant Research, 21(9):885-90, 2010
- Caneva M., Botticelli D., Stellini E., Souza S.L., Salata L.A., Lang N.P.; MAGNESIUM-ENRICHED HYDROXYAPATITE AT IMMEDIATE IMPLANTS: A HISTOMORPHOMETRIC STUDY IN DOGS; Clinical Oral Implant Research, Early View, first published online 2010 Dec 9
- Caneva M., Botticelli D., Salata L.A., Scombatti de Souza S., Carvalho Cardoso L., Lang N.P.; COLLAGEN MEMBRANES AT IMMEDIATE IMPLANTS: A HISTOMORPHOMETRIC STUDY IN DOGS; Clinical Oral Implant Research, 21(9):891-7, 2010
- Caneva M., Botticelli D., Salata L.A., Scombatti de Souza S.L., Bressan E., Lang N.P.; FLAP VS. "FLAPLESS" SURGICAL APPROACH AT IMMEDIATE IMPLANTS: A HISTOMORPHOMETRIC STUDY IN DOGS; Clinical Oral Implant Research, 21 (12):1314-1319, 2010
- Canullo L., Quaranta A., Teles R.P.; THE MICROBIOTA ASSOCIATED WITH IMPLANTS RESTORED WITH PLATFORM SWITCHING: A PRELIMINARY REPORT; Journal of Periodontology, 81:403-411, 2010
- Canullo L., Rossi Fedele G., Iannello G., Jepsen S.; PLATFORM SWITCHING AND MARGINAL BONE-LEVEL ALTERATIONS: THE RESULTS OF A RANDOMIZEDCONTROLLED TRIAL; Clinical Oral Implant Research, 21:115-121, 2010
- Canullo L., Bignozzi I., Cocchetto R.; "ONE ABUTMENT-ONE TIME": OPTIMIZING PLATFORM-SWITCHING CONCEPT. THREE-YEAR CONTROLLED PROSPECTIVE STUDY; Clinical Oral Implant Research, 21 (10): 1085, 2010
- Canullo L.; CASO CLINICO: AGENESIA DELL'INCISIVO LATERALE SUPERIORE DESTRO; Italian Dental Journal, 4: 16, 2010
- Canullo. L., Cocchetto R., Loi I.; PERI-IMPLANT TISSUES REMODELING: SCIENTIFIC BACKGROUND & CLINICAL IMPLICATIONS; Quintessenza Edizioni S.r.l., 2010, Milano (Anteprima)
- Canullo L., Sisti A.; EARLY IMPLANT LOADING AFTER VERTICAL RIDGE AUGMENTATION (VRA) USING E-PTFE TITANIUMREINFORCED MEMBRANE AND NANOSTRUCTURED HYDROXYAPATITE: 2-YEAR PROSPECTIVE STUDY; European Journal Oral Implantology, 3(1):59-69, 2010
- Canullo L., Patacchia O., Sisti A., Heinemann F.; IMPLANT RESTORATION 3 MONTHS AFTER ONE STAGE SINUS LIFT SURGERY IN SEVERELY RESORBED MAXILLAE: 2-YEAR RESULTS ON A MULTI-CENTER PROSPECTIVE CLINICAL STUDY; Clinical Implant Dentistry and Related Research, Early view - Published online in ahead of printing, 21-10-2010
- Cicciù M., Risitano G., Maiorana C., Herford A., Oteri G., Cicciù D.; "TORONTO" SCREWED MANDIBULAR OVERDENTURE ON DENTAL IMPLANTS: FEM AND VON MISES ANALYSIS OF STRESS DISTRIBUTION; The Journal of Implants and Advanced Dentistry, 2(9): 41-58, 2010
- Covani U., Marconcini S., Santini S., Cornelini R., Barone A.; IMMEDIATE RESTORATION OF SINGLE IMPLANTS PLACED IMMEDIATELY AFTER IMPLANT REMOVAL. A CASE REPORT; International Journal of Periodontics & Restorative Dentistry, 30:639-645, 2010
- Crespi R., Capparè P., Ghenlone E.; OSTEOTOME SINUS FLOOR ELEVATION AND SIMULTANEOUS IMPLANT PLACEMENT IN GRAFTED BIOMATERIAL SOCKETS: 3 YEARS OF FOLLOW-UP; Journal of Periodontology, 81:344-349, 2010
- Crespi R., Capparè P., Ghenlone E.; A 4-YEAR EVALUATION OF THE PERI-IMPLANT PARAMETERS OF IMMEDIATE LOADED IMPLANTS PLACED IN FRESH EXTRACTION SOCKETS; Journal of Periodontology, 81 (11):1629-1634, 2010
- Crespi R., Capparè P., Ghenlone E.; IMMEDIATE LOADING OF DENTAL IMPLANTS PLACED IN PERIODONTALLY INFECTED AND NON INFECTED SITES IN HUMANS: A FOUR YEARS FOLLOW-UP CLINICAL STUDY; Journal of Periodontology, 81 (8):1140-1146, 2010
- Crespi R., Capparè P. and Ghenlone E.; FRESH-SOCKET IMPLANTS IN PERIAPICAL INFECTED SITES IN HUMANS; Journal of Periodontology, 81:378-383, 2010
- Galli C., Passeri G., Piemontese M., Lumetti S., Manfredi E., Carra M.C., Macaluso G.M.; PHOSPHOSERINE-POLY (LYSINE) COATINGS PROMOTE OSTEOBLASTIC DIFFERENTIATION AND WNT SIGNALING ON TITANIUM SUBSTRATES; Clinical Oral Implant Research, 21(10): 1172, 2010
- Mantoan G.; LE CORONE PROVVISORIE IMMEDIATE SU IMPIANTI GLOBAL (METODICA CLINICA); NumeriUno, 7: 17-18, 2010
- Momen A. A., Hadeel M. I., Ahmad H. A.; PLATFORM SWITCHING FOR MARGINAL BONE PRESERVATION AROUND DENTAL IMPLANTS: A SYSTEMATIC REVIEW AND META-ANALYSIS; Journal of Periodontology, 81 (10):1350-1366, 2010
- Pantani F., Botticelli D., Rangel Garcia I. Jr., Salata L.A., Jayme Borges G., Lang N. P.; INFLUENCE OF LATERAL PRESSURE TO THE IMPLANT BED ON OSSEOINTEGRATION: AN EXPERIMENTAL STUDY IN DOGS; Clinical Oral Implant Research, 21(11): 1264-70, 2010
- Passeri G., Cacchioli A., Ravanetti F., Galli C., Elezi E., Macaluso G.M.; ADHESION PATTERN AND GROWTH OF PRIMARY HUMAN OSTEOBLASTIC CELLS ON FIVE COMMERCIALLY AVAILABLE TITANIUM SURFACES; Clinical Oral Implant Research 21: 756-765, 2010
- Raddi F.; ANALISI COMPARATIVA TEST DI RESISTENZA A FATICA SPERIMENTALI E VIRTUALI; Relazione interna, Sweden & Martina, 2010
- Scala A., Botticelli D., Oliveira J.A., Okamoto R., Garcia Rangel I. Jr., Lang N.P.; EARLY HEALING AFTER ELEVATION OF THE MAXILLARY SINUS FLOOR APPLYING A LATERAL ACCESS - A HISTOLOGICAL STUDY IN MONKEYS; Clinical Oral Implant Research, 21 (12): 1320-6, 2010
- Silvasan M.H.; TIMING OF DENTAL IMPLANT LOADING - A LITERATURE REVIEW; Implants - Oemus, 11 (3): 06-16, 2010
- Sbordone L, Levin L, Guidetti F, Sbordone C, Glikman A, Schwartz-Arad D.; APICAL AND MARGINAL BONE ALTERATIONS AROUND IMPLANTS IN MAXILLARY SINUS AUGMENTATION GRAFTED WITH AUTOGENOUS BONE OR BOVINE BONE MATERIAL AND SIMULTANEOUS OR DELAYED DENTAL IMPLANT POSITIONING; Clinical Oral Implants Research. , 2010 Nov 19. [Epub ahead of print]
- Ballini D., Attini M., Giunta S., Mezzanotte E.; MINI IMPIANTI: UN CASE REPORT; NumeriUno, 5: 18-20, 2009
- Biscaro L., Becattelli A., Soattin M.; RIABILITAZIONE IMPLANTO-PROTESICA DELLE DUE ARCATE CON CARICO IMMEDIATO: PROTOCOLLO DI LAVORO CON L'UTILIZZO DELLA TECNICA DEL MODELLO UNICO E DELLA SISTEMATICA PAD; NumeriUno, 8, 04-05, 2009
- Briguglio F., Briguglio E., Sidoti Pinto G.A., Lapi M., Zappia D., Briguglio R.; VALUTAZIONE CLINICA COMPARATIVA SULL'UTILIZZO DI UN COPOLIMERO DELL'ACIDO POLIGLICOLICO E POLILATTICO NEL SINUS LIFT; Implantologia.1:9-14, 2009
- Bruschi G. B., Bravi F., Di Felice A.; RIABILITAZIONE PROTESICA SU DENTI E IMPIANTI MEDIANTE TECNICHE CHIRURGICHE DI ESPANSIONE CRESTALE E SOLLEVAMENTO DEL SENO E CHIRURGIA PROTESICAMENTE GUIDATA; NumeriUno, 5: 8-14, 2009
- Calesini G., Micarelli C., Coppe S., Scipioni A.; EDENTOLOUS SITE ENHANCEMENT: A REGENERATIVE APPROACH TO THE MANAGEMENT OF EDENTULOUS AREAS. PART 2- PERI-IMPLANT TISSUES; International Journal of Periodontics & Restorative Dentistry, 29(1):49-57, 2009
- Canullo L., Iurlaro G., Iannello G.; DOUBLE-BLIND RANDOMIZED CONTROLLED TRIAL STUDY ON POSTEXTRACTION IMMEDIATELY RESTORED IMPLANTS USING THE SWITCHING PLATFORM CONCEPT: SOFT TISSUE RESPONSE. PRELIMINARY REPORT; Clinical Oral Implant Research, 20 (4):414-420, 2009
- Canullo L., Goglia G., Iurlaro G., and Iannello G.; SHORT-TERM BONE LEVEL OBSERVATIONS ASSOCIATED WITH PLATFORM SWITCHING IN IMMEDIATELY PLACED AND RESTORED SINGLE MAXILLARY IMPLANTS: A PRELIMINARY REPORT; International Journal of Prosthodontics, 22 (3):277-282, 2009
- Canullo L., Iannello G., Jepsen S.; MATRIX-METALLOPROTEINASES AND BONE LOSS AT IMPLANTS RESTORED ACCORDING TO THE PLATFORM SWITCHING CONCEPT: A RANDOMIZED CONTROLLED TRIAL ON THE INFLUENCE OF DIFFERENT MISMATCHING; Clinical Oral Implant Research, 20(9):873-874, 2009
- Canullo L., Vozza I., Caricato F., Dellavia C.; MAXILLARY SINUS FLOOR AUGMENTATION USING A NANO-CRYSTALLINE HYDROXYAPATITE SILICA GEL. A PROSPECTIVE STUDY - HYSTOLOGICAL RESULTS AFTER 3 MONTHS OF HEALING; Implants 2, 24-27, 2009
- Cardelli P., Montani M., Gallio M., Biancolini M., Brutti C., Barlattani A.; ABUTMENTS ANGOLATI E TENSIONI PERIMPLANTARI: ANALISI F.E.M.; Oral Implantology, 1:7-14, 2009
- Carinci F., Guidi R., Franco M., Viscioni A., Rigo L., De Santis B., Tropina E.; IMPLANTS INSERTED IN FRESH-FROZEN BONE: A RETROSPECTIVE ANALYSIS OF 88 IMPLANTS LOADED 4 MONTHS AFTER INSERTION; Quintessence International, 40(5): 413-419, 2009
- Carusi G., Sisti A., Mottola M.P., Matera G., Veruggio P., Gelmi L., Bailo A.; TECNICA DI RIALZO DI SENO MINIMAMENTE INVASIVA NEL TRATTAMENTO IMPLANTARE DEL MASCELLARE EDENTULO; Dental Cadmos, 77(10): 31-40, 2009
- Ceccherini A., De Angelis L., Silvestrelli S.; CHIRURGIA SOFTWARE ASSISTITA CON LA TECNICA MODEL GUIDE: PROGETTO 3D - POSA DELL'IMPIANTO GUIDATA; TeamWork, 11(6), 63:75, 2009
- Cicciù M., Risitano G., Maiorana C., Franceschini G.; PARAMETRIC ANALYSIS OF THE STRENGTH IN THE "TORONTO" OSSEOUS-PROSTHESIS SYSTEM; Minerva Stomatologica, 58(1-2):9-23, 2009

- Covani U.; I VANTAGGI DELL'IMPIANTO PREMIUM/KOHNO NELLA CHIRURGIA SOSTITUIVA DELL'ARCATA DENTARIA; Atti del Congresso, X Congresso Nazionale di Implantoprotesi Integrata Premium Day 2009, 18-20 giugno 2009, Abano Terme, pp. 14-15
- Crespi R., Capparè P., Gherlone E.; RADIOGRAPHIC EVALUATION OF MARGINAL BONE LEVELS AROUND PLATFORM-SWITCHED AND NON -PLATFORM-SWITCHED IMPLANTS USED IN AN IMMEDIATE LOADING PROTOCOL; The International Journal of Oral and Maxillofacial Implants, 24:920-926, 2009
- Crespi R., Capparè P., Gherlone E.; DENTAL IMPLANTS PLACED IN EXTRACTION SITES GRAFTED WITH DIFFERENT BONE SUBSTITUTES: RADIOGRAPHIC EVALUATION AT 24 MONTHS; Journal of Periodontology, 80 (10):1616-1621, 2009
- Figliuzzi M.; LA TECNICA FLAPLESS: INDICAZIONI E LIMITI; NumeriUno, 3 (12-3); 2009, 04-07
- Lenzi C.; LA RIGENERAZIONE DEI DIFETTI OSSEI NEI SITI POSTESTRATTIVI MEDIANTE OSSO BOVINO DEPROTEINIZZATO. VALUTAZIONE DELLE DIFFERENTI TECNICHE CHIRURGICHE; Implantologia, 1: 51-59, 2009
- Maiorana C., Cicciú M., Andreoni D., Beretta M.; CARICO IMMEDIATO DI DENTE SINGOLO: CASO CLINICO E REVISIONE DELLA LETTERATURA; Journal of Osseointegration, 2(1): 1-10, 2009
- Maiorana C., Cicciú M., Beretta M., Andreoni D.; RISULTATI DEL TRATTAMENTO CON CARICO FUNZIONALE PRECOCE SU PROTESI TORONTO DOPO IL POSIZIONAMENTO DI IMPIANTI IN SITI POSTESTRATTIVI; Journal of Osseointegration, 2(1): 95-100, 2009
- Mazzella M., Prota V., Mazzella A.; IL PONTIC A CONFORMAZIONE OVOIDALE IN PROTESI IMPIANTARE; NumeriUno, 6: 6-7, 2009
- Monguzzi R., Pozzi E., Franceschini F. G.; PROTESI IN ZIRCONIO SU IMPIANTI ED ELEMENTI NATURALI; NumeriUno, 6, 04-05, 2009
- Paniz G.; L'UTILIZZO DELLA TECNOLOGIA CAD-CAM ECHO PER IL TRATTAMENTO PROTESICO DI TIPO CEMENTATO DELLE EDENTULIE SINGOLE IN ZONA ESTETICA; NumeriUno, 4 (4-6):04-05, 2009
- Quaranta A., Maida C., Scrascia A., Campus G., Quaranta A.; ER:YAG LASER APPLICATION ON TITANIUM IMPLANT SURFACES CONTAMINATED BY PORPHYROMONAS GINGIVALIS: AN HISTOMORPHOMETRIC EVALUATION; Minerva Stomatologica, 58:317-30, 2009
- Ricci M., Tonelli P., Barone A., Covani U.; RUOLO DEL PLATFORM SWITCHING NEL MANTENIMENTO DELL'OSSO PERIMPLANTARE; Dental Cadmos, 77(9): 31-39, 2009
- Severi G.; CARICO PRECOCE DI IMPIANTI DENTALI CHE SOSTENGONO UNA PROTESI FISSA NELLA MANDIBOLA POSTERIORE EDENTULA; NumeriUno, 4: 6-8, 2009
- Barone A., Cornelini R., Ciaglia R., Covani U.; IMPLANT PLACEMENT IN FRESH EXTRACTION SOCKETS AND SIMULTANEOUS OSTEOTOME SINUS FLOOR ELEVATION: A CASE SERIES; International Journal of Periodontics Restorative Dentistry, 28(3):283-9, 2008
- Bosisio C.; CARICO IMMEDIATO MANDIBOLARE; NumeriUno, 0: 7-9, 2008
- Canullo L., Malagnino G., Iurlaro G.; RIABILITAZIONE PROTESICA DI IMPIANTI SINGOLI A CARICO IMMEDIATO: STUDIO PROSPETTICO; Dental Cadmos, 76(6): 1-8, 2008
- Canullo L., Nuzzoli A., Marinotti F.; TECNICHE DI REALIZZAZIONE DI UN PROVVISORIO SU MONOIMPIANTO A CARICO IMMEDIATO; Implantologia, 1: 21-29, 2008
- Canullo L.; PLATFORM SWITCHING E CARICO IMMEDIATO SUL DENTE SINGOLO IN ZONA ESTETICA; NumeriUno, 1: 6-7, 2008
- Cicciú M., Beretta M., Risitano G., Maiorana C.; CEMENTED-RETAINED VS SCREW-RETAINED IMPLANT RESTORATIONS: AN INVESTIGATION ON 1939 DENTAL IMPLANTS; Minerva Stomatol, 57(4):167-79, 2008
- Covani U., Barone A., Cornelini R.; BUCCAL BONE AUGMENTATION AROUND IMMEDIATE IMPLANTS WITH AND WITHOUT FLAP ELEVATION: A MODIFIED APPROACH; International Journal Oral and Maxillofacial Implants, 23:841-846, 2008
- Crespi R.; CARICO IMMEDIATO IN IMPLANTOPROTESI. PROTOCOLLI SPERIMENTALI E APPLICAZIONI CLINICHE; Quintessenza Edizioni S.r.l., 2008, Milano
- Crespi R., Capparè P., Gherlone E., Romanos G.E.; IL CARICO IMMEDIATO IN IMPIANTI POSTESTRATTIVI IMMEDIATI; Implantologia, anno 6, marzo 2008
- Crespi R., Capparè P., Gherlone E., Romanos G.E.; IMMEDIATE VERSUS DELAYED LOADING OF DENTAL IMPLANTS PLACED IN FRESH EXTRACTION SOCKETS IN THE MAXILLARY ESTETHIC ZONE: A CLINICAL COMPARATIVE STUDY; International Journal of Oral Maxillofacial Implants, 23:753-758, 2008
- Lenzi C. C.; LA RIABILTAZIONE IMPLANTOPROTESICA FUNZIONALE ED ESTETICA CON SINUS LIFT MONOLATERALE. CASE REPORT; Implantologia, 4:63-65, 2008
- Risitano G., Franceschini G., Cicciù M., Maiorana C.; ANALISI PARAMETRICA DELL'EFFICIENZA DEL SISTEMA PROTESI TIPO "TORONTO"; XXXVII Convegno Nazionale, AIAS Associazione Italiana per l'Analisi delle Sollecitazioni, 10-13 settembre 2008, Università di Roma la Sapienza, Atti del Congresso
- Scipioni A., Calesini G., Micarelli C., Coppe S., Scipioni L.; MORPHOGENIC BONE SPLITTING: DESCRIPTION OF AN ORIGINAL TECHNICQUE AND ITS APPLICATION IN AESTHETICALLY SIGNIFICANT AREAS; The International Journal of Prosthodontics, 21(5):389-397, 2008
- Tagliani M., Morandini E.; RIABILITAZIONE IMPLANTO-PROTESICA BIMASCELLARE DI UN PAZIENTE CON GRAVE ATROFIA OSSEA MEDIANTE TECNICA DI ESPANSIONE CRESTALE ASSOCIATA A CARICO IMMEDIATO NELL'ARCATA INFERIORE E A RIALZO DI SENO MASCELLARE LOCALIZZATO CON APPROCCIO CRESTALE; NumeriUno, 2(10-12):04-06, 2008
- Covani U., Marconcini S., Galassini G., Cornelini R., Santini S., Barone A.; CONNECTIVE TISSUE GRAFT USED AS A BIOLOGIC BARRIER TO COVER AN IMMEDIATE IMPLANT; Journal of Periodontology, 78:1644-1649, 2007
- Covani U., Barone A., Cornelini R.; VERTICAL CRESTAL BONE CHANGES AROUND IMPLANTS PLACED INTO FRESH EXTRACTION SOCKETS; Journal of Periodontology, 78:810-815, 2007
- Crespi R., Capparè P., Gherlone E., Romanos G.E.; IMMEDIATE OCCLUSAL LOADING OF IMPLANTS PLACED IN FRESH SOCKETS AFTER TOOTH EXTRACTION; International Journal of Oral Maxillofacial Implants, 22:955-962, 2007
- Elezi E., Galli C., Passeri G., Lumetti S., Manfredi E., Bonanini M., Macaluso G.M.; IL COMPORTAMENTO DEGLI OSTEOBLASTI UMANI SU SUPERFICI DI TITANIO TRATTATE IN MODO DIVERSO; IADR General Session & Exhibition - Abstract Collection, 2007
- Pappalardo S., Milazzo I., Nicoletti G., Baglio O., Blandino G., Scalini L., Mastrangelo F., Tete S.; DENTAL IMPLANTS WITH LOCKING TAPER CONNECTION VERSUS SCREWED CONNECTION: MICROBIOLOGIC AND SCANNING ELECTRON MICROSCOPE STUDY; International Journal of Immunopathologic Pharmacology, 20 (Suppl1) Jan-Mar: 13-17, 2007
- Ravasini T., Malaguti G., Coppi C., Bortolini S., Consolo U.; APPLICAZIONE CLINICA DI UN NUOVO IMPIANTO CORTO; Dental Cadmos, 6: 57-62, 2007
- Barone A., Rispoli L., Vozza I., Quaranta A., Covani U.; IMMEDIATE RESTORATION OF SINGLE IMPLANTS PLACED IMMEDIATELY AFTER TOOTH EXTRACTION; Journal of Periodontology, 77 (11):1914-1920, 2006
- Barone A., Santini S., Sbordone L., Crespi R., Covani U.; A CLINICAL STUDY OF THE OUTCOMES AND COMPLICATIONS ASSOCIATED WITH MAXILLARY SINUS AUGMENTATION; International Journal of Oral Maxillofacial Implants, 21(1):81-5, 2006
- Covani U., Barone A., Cornelini R., Crespi R.; CLINICAL OUTCOME OF IMPLANTS PLACED IMMEDIATELY AFTER IMPLANT REMOVAL; Journal of Periodontology, 77:722-727, 2006
- Petrillo N.; CARICO IMMEDIATO POST-ESTRATTIVO SU MONOIMPIANTI MASCELLARI; Dental Cadmos, 8:37-45, 2006
- Sbordone L., Guidetti F., Menchini Fabris G.B., Sbordone C.; LANGERHANS' CELL HISTIOCYTOSIS: A CASE REPORT OF AN EOSINOPHILIC GRANULOMA OF THE MANDIBLE TREATED WITH BONE GRAFT SURGERY AND ENDOSSEOUS TITANIUM IMPLANTS; International Journal of Oral and Maxillofacial Implants, 21: 124-130, 2006
- Seganti P.; TORONTO IN FIBRA, UN'ALTERNATIVA MODERNA; Quintessenza Odontotecnica, 3:30-38, 2006
- Barone A., Crespi R., Santini S., Cornelini R., Covani U.; RIALZO DEL SENO MASCELLARE IN CASI DI SPLIT MOUTH: OSSERVAZIONI ISTOLOGICHE; Italian Oral Surgery, 2: 19-24, 2005
- Conserva E., Tealdo I., Acquaviva A., Bevilacqua E., Volpara G., Pera P.; ANALISI MORFOLOGICA E VALUTAZIONE DELLA PROLIFERAZIONE CELLULARE IN RELAZIONE A DIFFERENTI TRATTAMENTI DI SUPERFICIE IMPLANTARE: STUDIO IN VITRO; Implantologia, 4: 303-317, 2005
- Covani U., Barone A., Marconcini S., Cornelini R.; IMPIANTI POSTESTRATTIVI A PROTESIZZAZIONE IMMEDIATA. STUDIO CLINICO PRELIMINARE; Implantologia Orale, 5 (11): 40-45, 2005
- Pappalardo S., Baglio O.A., Carlino P., Grassi F.R.; INDAGINE AL MICROSCOPIO ELETTRONICO A SCANSIONE DI DIVERSE SUPERFICI IMPLANTARI: STUDIO COMPARATIVO; European Journal of Implant Prosthodontics, 1 (1): 25-34, 2005
- Riley D., Bavastrello V., Covani U., Barone A., Nicolini C.; AN IN-VITRO STUDY OF THE STERILIZATION OF TITANIUM DENTAL IMPLANTS USING LOW INTENSITY UV-RADIATION; Dental materials; official publication of the Academy of Dental Materials, 21 (8): 756-60, 2005
- Barone A., Ameri S., Santini S., Covani U.; GUARIGIONE OSSEA MARGINALE IN IMPIANTI POSTESTRATTIVI IMMEDIATI; Implantologia Orale, 5 (11): 37-40; 2004
- Barone A., Santini S., Covani U.; IMPIANTI POST-ESTRATTIVI IMMEDIATI. STUDIO LONGITUDINALE A 4 ANNI. RISULTATI PRELIMINARI; Il Circolo, Rivista Periodica di Odontostomatologia, 1: 7-11, 2004
- Barone A., Ameri S., Santini S., Covani U.; IMPIANTI POST-ESTRATTIVI SENZA LEMBO CHIRURGICO: GUARIGIONE DEI TESSUTI MOLLI; DoctorOs, 15 (3): 223-227, 2004
- Bruschi G.B.; TECNICA DI ESPANSIONE VERTICALE DELLA CRESTA EDENTULA CON DISLOCAMENTO DEL PAVIMENTO DEL SENO MASCELLARE; Implantologia Orale, 3 (5): 9-24; 2004
- Calesini G., Scipioni A.; RITRATTAMENTO IMPLANTARE: RIFLESSIONI SU UN CASO CLINICO; Il Circolo, Rivista Periodica di Odontostomatologia, 1: 21-26, 2004
- Carinci F., Pezzetti F., Volinia S., Francioso F., Arcelli D., Marchesini J., Caramelli E., Piattelli A.; ANALYSIS OF MG63 OSTEOBLASTIC-CELL RESPONSE TO A NEW NANOPOROUS IMPLANT SURFACE BY MEANS OF A MICROARRAY TECHNOLOGY; Clinical Oral Implant Research, 15: 180-186, 2004
- Cassetta M., Dell'Aquila D., Calasso S., Quaranta A.; LA MODULAZIONE DEI TEMPI DELLA TERAPIA IMPLANTARE. ANALISI DELLA FREQUENZA DI RISONANZA (AFR); Dental Cadmos, 1: 1-30, 2004
- Covani U., Barone A., Cornelini R., Crespi R.; SOFT TISSUE HEALING AROUND IMPLANTS PLACED IMMEDIATELY AFTER TOOTH EXTRACTION WITHOUT INCISION: A CLINICAL REPORT; The International Journal Of Oral and Maxillofacial Implants, 19:(4) 549-553, 2004
- Covani U., Crespi R., Cornelini R., Barone A.; IMMEDIATE IMPLANTS SUPPORTING SINGLE CROWN RESTORATION: A 4-YEAR PROSPECTIVE STUDY; Journal of Periodontology, 75(7):982-8, 2004
- Covani U., Bortolaia C., Barone A., Sbordone L.; BUCCO-LINGUAL CRESTAL BONE CHANGES AFTER IMMEDIATE AND DELAYED IMPLANT PLACEMENT; Journal of Periodontology, 75(12):1605-12, 2004
- Morra M., Cassinelli C., Crespi R., Covani U.; VALUTAZIONE IN VITRO DI UNA NUOVA SUPERFICIE IMPLANTARE CON MORFOLOGIA NANO-STRUTTURATA; Il Circolo, Rivista Periodica di Odontostomatologia, 1: 27-34, 2004
- Perrotti V., Scarano A., Iezzi G., Piattelli A.; RISPOSTA OSSEA AD IMPIANTI A SUPERFICIE ANODIZZATA; Il Circolo, Rivista Periodica di Odontostomatologia, 1: 13-20, 2004
- Postiglione L., Di Domenico G., Ramaglia L., di Lauro A.E., Di Meglio F., Montagnani S.; DIFFERENT TITANIUM SURFACES MODULATE THE BONE PHENOTYPE OF SAOS-2 OSTEOBLAST-LIKE CELLS; European Journal of Histochemistry 49 (3): 213-222, 2004
- Bellabona G.; IMPIANTO POST-ESTRATTIVO CON INNESTO DI OSSO AUTOLOGO E MEMBRANA NON RIASSORBIBILE; Il Dentista Moderno, 7 (9): 121-126, 2003
- Biancolini M., Brutti C.; STUDIO COMPARATIVO DEL COMPORTAMENTO MECCANICO DI QUATTRO IMPIANTI; Relazione interna, Sweden & Martina, 15 gennaio 2003
- Cassetta M., Vozzolo S.V., Stasolla A., Marini M.; LA RISONANZA MAGNETICA NELLA VALUTAZIONE PREIMPLANTARE; Dental Cadmos, 3: 19-37, 2003
- Covani U., Cornelini R., Barone A.; BUCCO-LINGUAL BONE REMODELING AROUND IMPLANTS PLACED INTO IMMEDIATE EXTRACTION SOCKETS: A CASE SERIES; Journal of Periodontology, 74(2):268-73, 2003
- Covani U., Barone A., Cornelini R., Gherlone E.; RADIOGRAPHIC BONE DENSITY AROUND IMMEDIATELY LOADED ORAL IMPLANTS; Clinical Oral Implant Research; nr. 14 (5); 610-615, 2003
- Marzo G., Di Martino S., Marchetti E., Mummolo S.; VALUTAZIONE RETROSPETTIVA DELLA METODICA IMPLANTARE POSTESTRATTIVA: 10 ANNI DI OSSERVAZIONE; Doctor OS, 14 (4): 366-379, 2003
- Masolini P.; IMPIANTO POSTESTRATTIVO IMMEDIATO; Il Dentista Moderno, 4:115-122, 2003
- Postiglione L., Di Domenico G., Ramaglia L., Montagnani S., Salzano S., Di Meglio F., Sbordone L., Vitale M., Rossi G.; BEHAVIOR OF SAOS-2 CELLS CULTURED ON DIFFERENT TITANIUM SURFACES; Journal of Dental Research, 82 (9): 692-696, 2003
- Scarano A., Iezzi G., Petrone G., Quaranta A., Piattelli A.; VALUTAZIONE DELLA DENSITÀ OSSEA PERIMPLANTARE: UNO STUDIO SPERIMENTALE SU CONIGLIO; Il Dentista Moderno, 5:95-107, 2003
- Covani U., Barone A., Cornelini R.; RIALZO DEL SENO MASCELLARE UTILIZZANDO PLASMA RICCO DI PIASTRINE E SOLFATO DI CALCIO; Doctor OS, 6: 725-730, 2002
- Covani U., Barone A.; IMPIANTI IMMEDIATI E PLASMA RICCO DI PIASTRINE: CASO CLINICO; Dental Cadmos, 10:79-85, 2002
- Cilenti C., Grasso G., Pinco S., Pulvirenti G.; SISTEMA COMBINATO PER LA CARATTERIZZAZIONE A FATICA DI MATERIALI IMPLANTOLOGICI E PROTESICI; Relazione interna, Università di Catania, 2001
- Conforti A., Madini G.; MONO IMPIANTI: REALIZZAZIONI PROTESICHE CON L'AUSILIO DI VETROPOLIMERI OCCLUSO FUNZIONALI; Rassegna Odontotecnica, 9: 33-48, 2000

Rev. 03-14

sweden & martina

www.sweden-martina.com

Sweden & Martina S.p.A.
Via Veneto, 10 - 35020 Due Carrare (PD), Italy
Tel. +39.049.9124300
Fax +39.049.9124290
info@sweden-martina.com

Sweden & Martina Mediterránea S.L.
Sorolla Center, Oficina 801
Avda. Cortes Valencianas 58, 8pl - 46015 Valencia, España
Tel. +34.96.3525895
info.es@sweden-martina.com
Numero gratuito 900993963