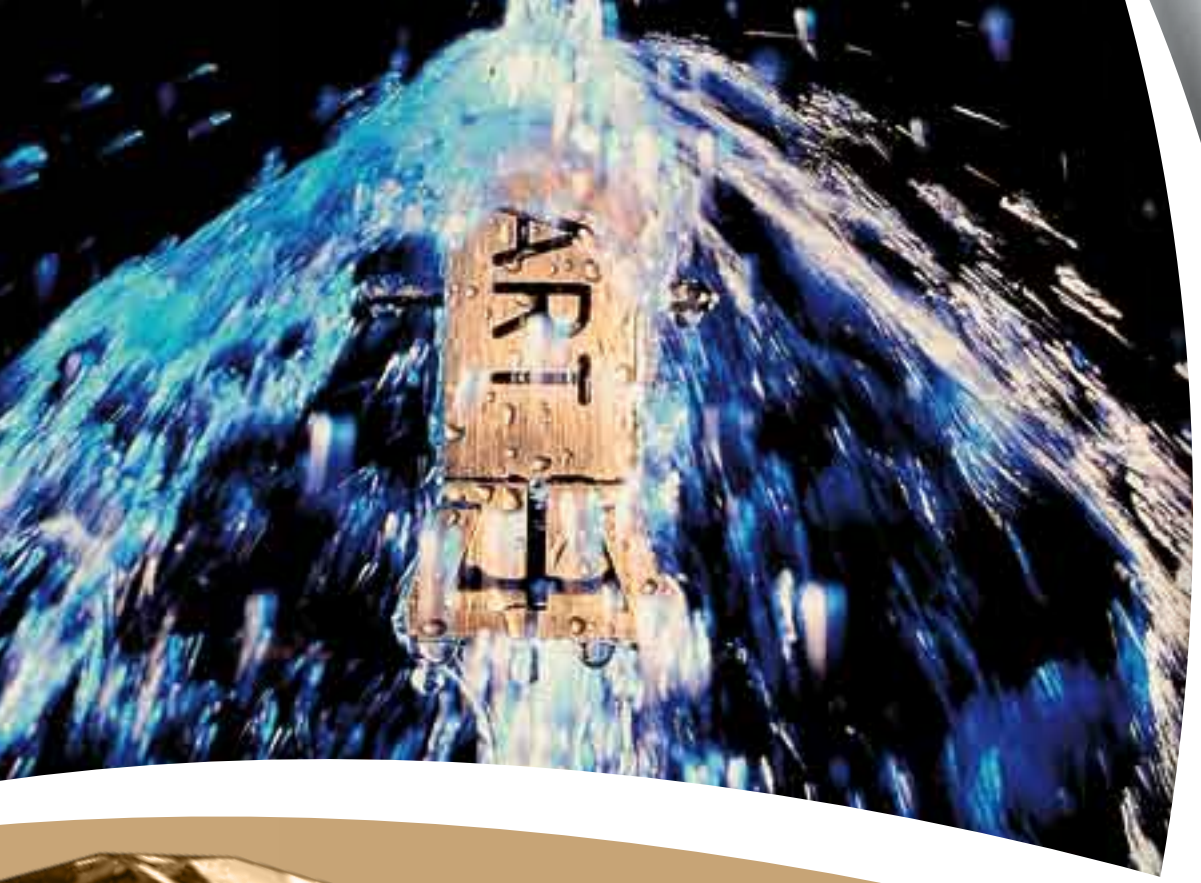

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ATTACHMENTS FOR DENTAL PROSTHESES

USEFUL INDICATIONS

ARTIGLIO

ALIS

THE EXCELLENCE IN DENTAL TECHNIQUE

www.artiglio-italia.it

Summary

Artiglio, with the present catalogue, has the pleasure to show its complete range of attachments for dental use. Besides the well-known Artiglio attachments series, the new line Alis widens the offer to satisfy all the needs of the dental laboratories. Please do not hesitate to contact us to obtain any other information you will need.

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Artiglio-Italia

The company

Since 1956 is Artiglio's trade mark a symbol of excellence in the field of equipment for dental technique. The founder, Lino Benecchi, started and passed down the quality culture that today means a very wide range of products, fruit of a careful survey and design, strict quality tests and of a mechanics with an absolute precision.

The great value of Artiglio is the capability to combine the most modern technologies together with traditional high precision working procedures realised by authentic masters of this field. This collection of skills confirms excellent production standards and exceptional reliability and life expectancy.

A8

ART ZERO

SILENO

NADIR

artiglio - italia®

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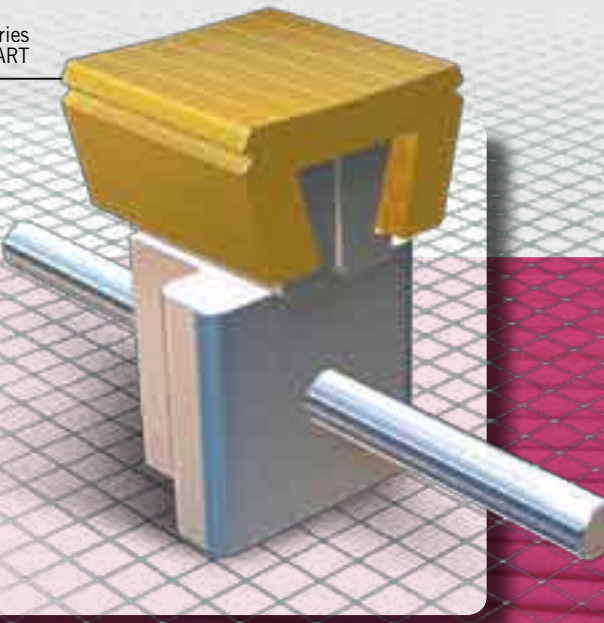
Artiglio's trademark is related also to dental equipments: see the Master Catalogue for more information.

What is an attachment?

Attachment series
DUPLI ART



Rigid attachment

Resilient attachment

Custom made attachment

Inserted custom made attachment

The attachment is a connection device between removable and fixed parts of combined prostheses.

It is the connecting element of the prosthesis with its supporting elements (natural teeth or implants). It can be **prefabricated,** which is to say industrially realized, **or custom made,** which is to say realized by the dental technician directly on the crown with the milling machine.

Kind of prefabricated attachments

The prefabricated attachments can be divided into:

- **RIGID ATTACHMENTS** (or more easily "attachments") which is to say those whose only function is the retention between fixed and removable parts in order to facilitate the insertion and to avoid the accidental detachment.
- **RESILIENT ATTACHMENTS** (improperly defined "damper" or "stress-breaking attachments") which is to say those devices designed to create the sufficient mechanical play (movement) to make the pillars (teeth or implants) able to withstand the variations in the seating of the prosthesis due to deformations of the mucosa and underlying tissues, without placing excessive stress on the abutments.

Attachments choice: rigid or resilient?

Until the '70 people used to think that rigid connections could stress the pillar teeth more than their load capability and so they were considered dangerous; that's why the choice was almost for resilient attachments. In the '70 was demonstrated that the use of resilient attachments caused a series of disadvantages such as a high reabsorption of the alveolar ridges and consequent damages to the alveolus of the pillar teeth. On the opposite, the rigid attachments caused very little atrophy of the ridges and needed few reline operations.
In any case the attachments choice between rigid or resilient depends basicly on three factors:

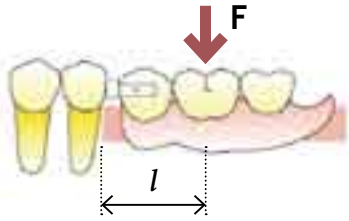
- the technicians and dentists personal philosophy of case design;
- the conditions of the specific oral cavity;
- the direction of occlusal load on the abutment teeth.

Which is the optimum retentive force of an attachment?

The fundamental reference parameter of pro-regress of the **retentive force** establishes that this should reach **its maximum (about 7N) unconditionally and exclusively when the prosthesis is completely inserted.** The retention force of the attachments with parallel sliding walls, gradually increases during the insertion and decreases, ever gradually, during the removing. The retention is maximum (about 7N) in the final insertion position of the matrix with the patrix. This is a **movement dynamics favourable for the patient,** as now scientifically validated. Retention peaks higher than the retentive value have to be avoided during the removal, because in this case the natural or implant pillar would suffer a too high extraction stress.
For this reasons the systems with elastic underequatorial retention present a higher stress on the prosthetic supporting structures (natural teeth or implants).

Principle of design and functioning of a rigid attachment

The essential condition for an attachment, to function correctly in time, is to be used only for its retentive function. The attachment must not be loaded by any vertical, sagittal or horizontal force so that it only has to avoid an adverse vertical displacement of the partial prosthesis during the function.
TO DO IT, IT IS NECESSARY TO COMBINE THE RIGID ATTACHMENT WITH THE MILLING.



In fact not everyone knows that...

No rigid attachment can resist alone! Why?

Because they must necessary have small dimensions to be functional and aesthetic!
Here you are the mathematical demonstration.

Everyone knows that:

1. 1 kg ≅ 9,81 N and so it can be assumed for convenience that 1 kg ≅ 10 N
2. the average mastication force for posterior teeth is equal to 400-600 N
3. the mastication forces are not uniformly distributed between pillar tooth and mucosa because the resilience of the first one is highly inferior in comparison with that of the second one. For this reason, using rigid attachments, begin some rotating movements loading on the pillar tooth that can be defined as bending moment.

How long can a rigid attachment resist to the stress caused by the mastication forces before to wear out, to break down or before to cause damages to the pillar teeth? The resistance to bending (σ),that is the resistance of rigid attachments to this solicitation, is determined:

1. by their geometric shape (resistant section), that determines the modulus of resistance to bending

SQUARE ATTACHMENTS with side (h) 2 mm $W_f = \frac{h^3}{6} = \frac{2^3}{6} = \frac{8}{6} \cong 1{,}3mm^3$

RECTANGULAR ATTACHMENTS with base (b) 1 mm and height (h) 4 mm $W_f = \frac{bh^2}{6} = \frac{1x4^2}{6} = \frac{1x16}{6} = \frac{16}{6} \cong 2{,}7mm^3$

2. by the safe load of the used material that, for instance, for stainless steel is equal to $k = 200\frac{N}{mm^2}$

In fact the resistance to bending is defined by the formula $\sigma = k \bullet W_f$

The attachments with the above mentioned dimensions that, even if are only examples, can be considered similar to the ones currently on the market, have a resistance to bending of respectively:

SQUARE ATTACHMENTS $\sigma = 200\frac{N}{mm^2} x1{,}3mm^3 = 260Nmm = 26Ncm$

RECTANGULAR ATTACHMENTS $\sigma = 200\frac{N}{mm^2} x2{,}7mm^3 = 540Nmm = 54Ncm$

But which is the stress to which they are submitted?

Supposing a mastication force (F) equal to 600 N and a lever arm (*l*) of 20 mm, the average solicitation (F*x*l) will be 12.000 Nmm which is to say 1.200 Ncm.
Here is the mathematical demonstration of why RIGID ATTACHMENTS, excluded those with huge dimensions not compatible with their using in the oral cavity (for instance 7x7 mm or 4,5x9 mm), **ARE ABSOLUTELY NOT ABLE TO RESIST TO MASTICATION FORCES!!! THEY HAVE A RESISTANCE TO BENDING OF 26 OR 54 Ncm, THAT IS ABOUT 30 TIMES LESS THEN THE SUBMITTED SOLICITATION (1.200 Ncm).**
AFTER THIS CONCRETE PROOF, BEWARE OF THOSE WHO SAY THE OPPOSITE.

Nevertheless, in case rigid attachments should be assembled without the milling, it would be necessary to remind what would occur: wear, retention loss, deformation and breaking due to stress.

Principles of connection in combined prosthesis

The anchorage system between fixed and removable parts of combined prostheses must be made up of:

1. **THE ATTACHMENT,** that has **RETENTIVE** functions which is to say that it HAS TO OPPOSE THE VERTICAL DETACHMENT FORCES (for instance during the mastication). This device must be positioned with a **PARALLELOMETER**.

with the support of

2. **THE MILLING,** made by a **MILLING MACHINE,** that has to supply the vertical, transversal and horizontal stabilization of the COMBINED PROSTHESIS thanks to its constituent elements:

- **one cervical and/or occlusal shoulder** with support functions, that oppose the vertical forces;
- **one guidance groove** with embrace and balancing functions of the transversal forces;
- **one milled arm** that takes part in the retention and oppose the horizontal forces.

Once confirmed the retentive force of the attachment, the milled arm must not have any play in the crown; the only possible movement between crown and milled arm, once reached the stroke limit, must be the vertical insertion one. In this way **the only function of the attachment will be the retentive one,** that is in fact the only one it must have.

What is a parallelometer?

The parallelometer is the essential work instrument in the dental laboratory to do model surveying, prosthesis design and a right attachments assembly.
The parallelometer allows a vertical arm to be brought into contact with the teeth and ridges of the dental cast, thus identifying parallel surfaces and points of maximum contour and so positioning dental attachments.

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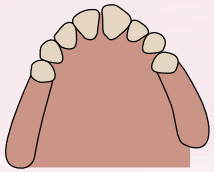
Parallelometer **BABY**

Classification of partially edentulous arches

The most widely accepted system of classification of partially edentulous arches was proposed by Dr. Edward Kennedy in 1923. It is based on the configuration of the remaining natural teeth and edentulous spaces. This system was further defined and expanded upon by Dr. O.C. Applegate and Dr. Jacques Fiset.
The value of the Kennedy-Applegate-Fiset classification system is that it is relatively simple, easy to remember, extremely comprehensive and very practical. **It permits the visualization of the partially edentulous arches or RPDs** (Removable Partial Dentures) designed for these arches. It indicates the type of support for the RPD, which suggests certain physiologic and mechanical principles of treatment and RPD design. **There is a correlation between the basic classes** and the incidence of the partially edentulous arch configurations. It allows a quick identification of the partially edentulous arches, which are difficult to treat, and that should be referred to a prosthodontist. **This system, at least the first four classes, is widely taught and generally accepted and used. The system also simplifies communication.**

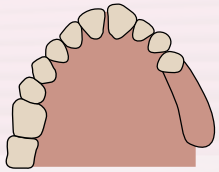
Class I
Bilateral distal extension (Bilateral free end saddle)

Bilateral edentulous areas located posterior to the remaining natural teeth. RPDs tooth-tissue supported.



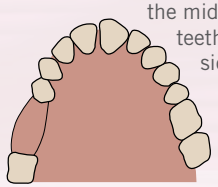
Class II
Unilateral distal extension (Unilateral free end saddle)

Unilateral edentulous area located posterior to the remaining natural teeth. RPDs tooth-tissue supported.



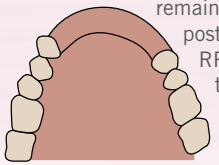
Class III
Unilateral tooth supported (Posterior bounded saddle)

Unilateral edentulous area with natural teeth anterior and posterior to it. This indicates a single edentulous area which does not cross the midline of the arch, with teeth present on both sides (anterior and posterior) of it. RPDs tooth-supported.



Class IV
Anterior edentulous span crossing the midline (Anterior bounded saddle)

Single, bilateral edentulous area located anterior to the remaining natural teeth. This is a single edentulous area, which crosses the midline of the arch, with remaining teeth present only posterior to it. RPDs tooth-supported or tooth-tissue supported if long span saddle.



Attachments used in implant restorations

The use of attachments in prosthodontics is commonly linked to restorations with natural teeth support.
Recently they have found a further use in implant dentistry. It is not a rule, but we can undoubtedly assert that most part of attachments on the market, and in particular those in calcinable plastic, is suitable to carry out a retentive action in implant-supported restorations.

It is possible to adopt various technical solutions such as, for example, magnets, bar-clip, ball-socket attachments. Among all available solutions we advise bar restorations conceived as follows:

1. Round **C-rider bars** of diam. 1,8 or 1,9 mm cast in precious alloys (or gold alloy bar soldered), retained with metal or plastic **C-riders** processed into the denture acrylic.
2. Milled bars with 2° taper joined with patrices in calcinable plastic such as patrices in extension of dove-tail guide **Swift-Art,** or round parallel patrices **V-slide** or rounded bar with stud **S-ball** and then retained with changeable matrices of different retentive strengths.
3. 0° milled bars matched with plastic friction-grip attachments **Skate** available in four levels of retention, or with plunger retention devices of elastic retention **Fox** to be incorporated into the distal portion of the framework.

Metal C-rider snapped over the round bar

Swift-Art patrix applied to a bar on implants

0° bar on implants with Skate

Path of insertion

A fundamental step for the right placing of attachments with vertical guide is **to establish the path of the insertion that is the direction in which a dental prosthesis is placed upon or removed from the supporting tissues or abutment teeth.**
It is usually up to the operator the choice of the path of insertion through a general evaluation of the involved elements made by a parallel analyser inserted in a parallelometer (see Fig. 1 and 2).
The result is therefore a middle course between the mesio-distal and the bucco-lingual walls of the dies but it is compromised **by subjective considerations and a not always coherent visual analysis.**

We think that the evaluation of this fundamental parameter deserves a more analytical procedure that starts from the precise measurement of the occlusal plane. To obtain this right value it is essential to use a specific tool named S25/R (surveying blade) that must be mounted in a parallelometer.
To find out the occlusal plane the movable arms of the S25/R must be brought to contact to **the following points:**

UPPER MODEL
Anterior side: the more occlusal point (usually the palatal area of incisors or the cingulum area of canines)
Posterior side: palatal cusps of first molar

LOWER MODEL
Anterior side: incisal edge of incisors
Posterior side: vestibular centric cusps of first molar

and the base must be inclined till the number of lines showed in all movable arms is the same (see Fig.3).

From this "value", to make easier the insertion and the removal of the prosthesis, it is suitable to tilt of about 5° the axis of the occlusal plane, procedure allowed by RAP model holder base (see Fig. 4), equivalent to about 5 mm between the anterior quota and the back quota of the model, anteriorly lifting the upper models and posteriorly lifting the lower models.
This tilt corresponds to around 3 lines of the movable arms of S25/R, if RAP base is not in the laboratory.

Fig.4 • Occlusal plane on RAP model holder

Fig.3 • Occlusal plane find out

Fig.5 • Lifting of upper models

Fig.6 • Lifting of lower models

Fig.1

Fig.2

Path of insertion in implant dentistry

Occlusion is an important variable in the success or failure of most prosthodontic reconstructions. With natural teeth, a certain degree of flexibility permits compensation for any occlusal irregularities. Implant dentistry is not as forgiving. **The most significant factor** affecting stability of an implant-supported restoration is occlusal loading. Excess loading may lead to loosening of abutment screws and, if undetected, to possible fracture. Overloading may also **damage the implant and superstructure and lead to loss of osseointegration.**
The literature generally agrees in recommending an implant placement in axis with the load and therefore perpendicular to the occlusal plane. In optimal situations and for little spans this can be realized. Nevertheless, if conditions are not optimal and the number and the distribution of **the implants are more complex placement of the implants with distant inclinations will be necessary.**
In fact, frequently implants are positioned in relation to future tooth replacement and within the extent of existing bone and they so present quite different angulations. **The choice of a common milling** axis to prepare the abutments is based on **several clinical and technical elements together with the experience of the operator.** Technicians usually define the milling implant axis arbitrarily without an exact evaluation of the angular inclination of each individual implant. As a consequence some implants **may present excessive angular preparations (millings)** in order to compensate for a common path of insertion. Extremely angulated abutments often have reduced height, compromised fixation screws and reduced structural integrity or may represent areas of stress concentration, prone to technical failure.
Since 2005 we defined the M.I.A. (mean implant axis) methodology in controlling the angular preparation of multiple implant abutments. **This method increase the probability to better prepare abutment by evaluating all implant angulations** (using RAP model holder base), calculating the mean implant axis (M.I.A.) and by preparing the abutments within the possible angular ranges offered by the chosen milling taper. **A dedicated software has been developed to calculate the mean implant** axis among a set of implants so to give the clinician and the technician a fast and precise system to prepare implant abutments. **Till today no other standard methodologies** have been defined in order to establish such a fundamental technical data.

• M.I.A. software

The soldering

Soldering is a process in which two or more metal items are joined together. **The soldering technique is the most used technique for the fixation of prefabricated dental attachments.**
The soldering can be divided in:

- **welding:** the joining together of two pieces of the same metal **without** the introduction of a solder as termed **"autogenous soldering".** That is the case, for example, of laser welding;
- **brazing:** the joining of two metals by the fusion of filler alloys that are of a lower melting temperature. The filler metal used in the process is called solder. If the melting point of the filler metal is:
  - below 400 °C ÷ 450 °C (750 ÷ 840 °F) the technique is called **soldering.**
  - above 400 °C ÷ 450 °C (750 ÷ 840 °F) the technique is called **blend brazing.**

In a soldering process, heat is applied to the parts to be joined, causing the solder to melt and be drawn into the joint and to bond to the materials to be joined by wetting action. After the metal cools, the resulting joints are stronger than the base metal.

The soldering is the most used procedure to fix prefabricated attachments and usually for:

- **Primary part,** we use a method called **braze soldering,** where the filler metal is not distributed by capillary action, but is applied to the joining metals from a welding rod during the heating phase.
- **Secondary part,** we use a method called **capillary brazing,** that implies that the solder is inserted between the parts to be joined before starting the heating. In brazing, the filler metal is drawn into the joint by capillary attraction. When heat is applied, the metal flows by capillary action into the gap between the base metals or materials and joins them by creating a metallurgical bond between them at the molecular level.

Benefits

- Procedure proven and under control
- Reliable technique made after taking the impression of the teeth that have been prepared
- Optimizes dissimilar metal joints
- Economical for complex assemblies
- Joints require little or no finishing
- Metallurgical bond is formed

Disadvantages

- Base metal erosion risk
- Manual skill needed
- No wetting or excessive wetting
- Flux entrapment
- Lack of fill (voids, porosity)
- Unsatisfactory surface appearance
- Little distortion, low residual stresses

The casting-on

The casting-on is an alternative technique to the soldering used for the fixing of prefabricated traditional attachments.
The use of this technique, whose employment is primarily known in dentistry, allows to insert a component of the attachment (generally the female) directly in the position desired in the wax or resin cap. With the casting-on of the metal we will get therefore **not only the construction of the crown but also the union of the components of the attachment.** This is obtained thanks to a "metallic connection" originated from a phenomenon of "superficial adhesion for diffusion" between the alloy of the crown and that of the attachment.

In order to obtain a good casting-on result the **following conditions and indications must be respected:**

1. The **attachment alloy** must **not oxidize**;
2. The **solidus temperature of the attachment** alloy must be **at least 100 °C higher** than the casting temperature of the casting alloy;
3. **Sprues** should be **far** and **should not be placed near** to the attachment;
4. The **preheating temperature should be higher** than usual;
5. The **stay time** of the cylinder **at the preheating temperature** should be **longer** than usual;
6. The **cooling time** of the cylinder **should be longer than usual;**
7. **Attachments with thickness higher than 0,5 mm have to be preferred** to attachments with thickness lower than 0,5 mm because after the casting-on these latter can shows deformations or penetrations hardly removable with a mechanical touch-up;
8. If not already conceived in the construction of the attachment, **realise a mechanical retention on the contact side;**
9. If possible, **create a cap that includes all the attachment.**

Benefits

- Reduces the number of different alloys in the oral mouth (polymetallism)
- Reduced working times
- No deformation

Disadvantages

- Working procedure out of control
- Reduced number of casting alloys suitable for this procedures
- No perfect fitting after the impression

The casting

Casting is a technique adopted in dentistry from the 80's to cast attachments directly positioned in the wax.
Such a technique is applied only with attachments made of a special burnout plastic that is eliminated by calcination and susbstituted by metal.
The calcinable component, patrix or matrix, is generally situated in the primary part, while the other component of the attachment (in plastic or metal) is fitted in the framework.
This method eliminates some drawbacks caused by the traditional systems (soldering and casting-on), but it will never reach the level of precision of a mass produced attachement. **That's why to achieve a good result the following indications must be respected:**

1. Casting alloys must have mechanical strength similar to alloys suitable for milling (type 4);
2. Use phosphate-bonded investments avoiding quick pre-heating cycles;
3. Avoid using stress-relieving agents;
4. Make the surface finishing by blasting with glass beads and then handly polish.

Only some shapes of attachments (such as Swift-Art) allow the attachment surface to be rectified with a milling machine.

Benefits

- Cost-effective components
- Adaptable to the gum contour

Disadvantages

- Matrix and patrix hard coupling
- Misfit of the connection
- Lost of retentive life
- Undefined mechanical strength

The fitting

Technique that consists in inserting the matrix in a housing obtained by duplication or modelling of in the framework. The component is so held in a removable partial denture. The fitting is usually combined with the casting to obtain the coupling with the cast male or female.
To grant the right holding of the attachments in its case a precise housing is needed, otherwise an accidental detachment can occur or an accessive force is required to remove the denture.
Components provided with retentive impressions and the use of specific accessories can surely make easier the right execution of this technique.

Benefits

- Components easy changeable
- Cost-effectiveness
- Easy finding of colour coded spare parts

Disadvantages

- Inaccuracy of the housing
- Unwelcome disconnection
- Excess of retention

The bonding

Reliable technique (also used for important applications in aeronautical field) that has been proposed by different companies for the fixing of the attachments both in the primary parts and in the secondary ones.
In theory bonding offers to dentistry such a series of advantages to make obsolete any other technique till today used.
In practice however, the high costs of the components and a rooted mistrust of both dentists and technicians respect the effectiveness and the working-life of the adhesives have limited its diffusion in favour of the casting. In any case is worldwide agreed that the bonding grants:

1. The precision of the connection thanks to all prefabricated components used;
2. Compensation of potential misfittings due to mistakes occurred during the positioning;
3. The original mechanical strength of the material that has been made from cold-drawn material subsequently machined;
4. Possibility of modifications or change taking away the old components and bonding the new ones;
5. The technique foresees to obtain through duplication and/or modelling or using special accessories an housing where to insert and then bond with an adhesive the component of the attachment.

To achieve a good result it is fundamental to use devices intended for dental attachments and to verify:

1. The effectiveness of the adhesive, the observance of the instructions of use and the control of its expiry date;
2. The shape and the completeness of the housing of the component to be bonded;
3. The surface roughness of the housing that must be increased by blasting Al_2O_3 (precious alloys 150 micron / non precious alloys 300 micron) shelting the connection guides of the attachment.

The research and the continuous evolution in the chemical field suggests to verify, before any reorder, the presence on the market of new adhesives having features more suitable for the bonding.

Benefits

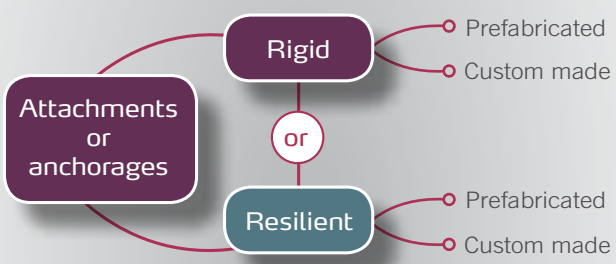
- Precision of the fitting
- Mechanical strength of all components
- No work effort

Disadvantages

- High costs of the components
- Mistrust on its reliability

Combined prosthesis

The COMBINED PROSTHESIS is obtained by the connection between different kinds of prostheses. The connection between fixed and removable parts of restorations is given by connector devices that can be:



PREFABRICATED

Prefabricated dental attachments are mass-produced devices made to retain or stabilize the component fixed to an abutment and the other component integrated into a removable prosthesis.

CUSTOM MADE

Attachment made by using a milling machine that gives the functions of the mass produced attachment (that is to say the retention of the prosthesis) and conveys all displacing forces (horizontal and vertical) present in the oral cavity.

Prefabricated attachments

Resilient: attachments allowing **MOVEMENT** between the abutment teeth and the attachment

Damper Art

Stress-breaker Tv

Balancer Tv | Hinge Gelb

Microhinge A3

Sweet

Clock

Fox

S-ball

Rigid: attachments allowing **NO MOVEMENT** between the abutment teeth and the attachment

Art | Rec

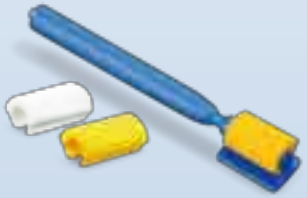
Swift-Art | Ter

Rec-intra

Skate

Wing

V-slide

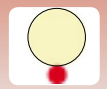


C-rider

ARTIGLIO attachments

Since the ’50s a prestigious trademark
synonymous of quality, reliability and precision.

Extracoronal



Kennedy's classes

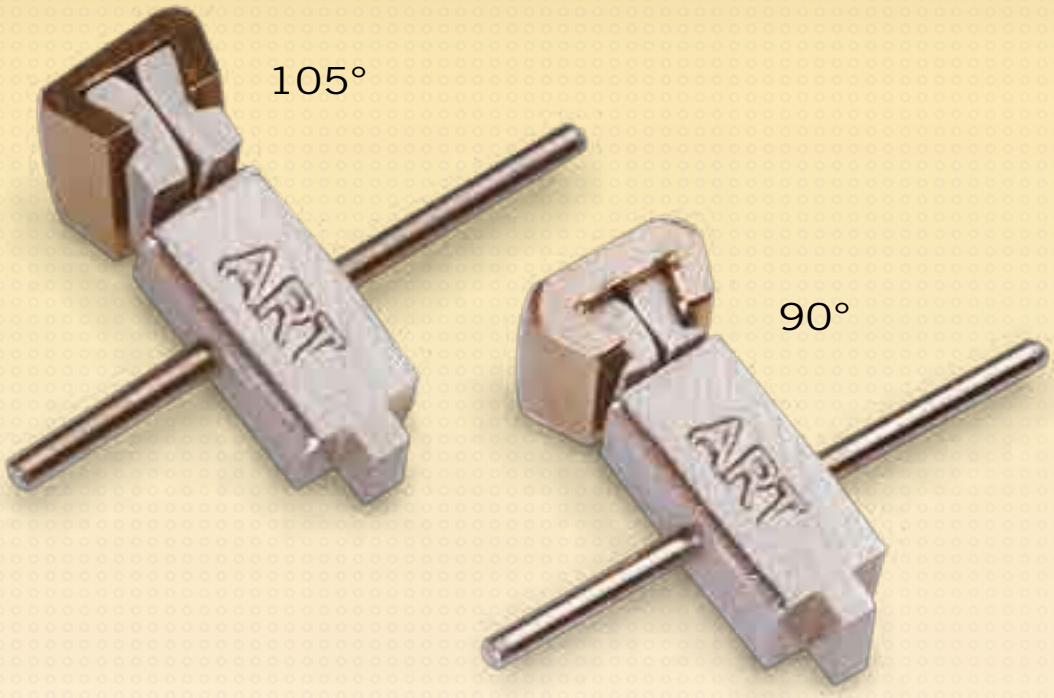
I

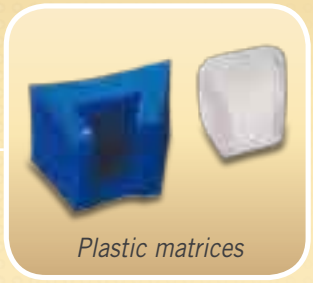
IV

Art

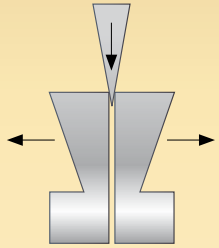
Rigid attachment

It is defined "the attachment par excellence" thanks to its elevated technical content that allows to reach the best compromise between functionality and essentialness. It doesn't exist, in fact, a more efficient and simpler system than **Art** attachment. Restorations made with **Art** attachments applied without any milled arm have amazingly exceeded a duration of beyond 15 years.

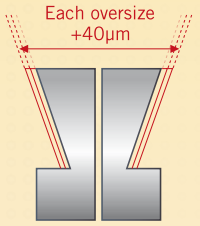




Plastic matrices

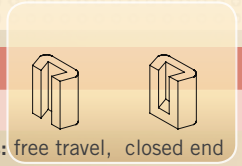


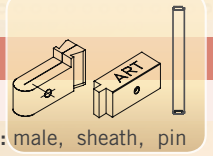
Activation of the male



Benefits

- Two different burnout plastic matrices: standard and strengthened
- Four extra oversized males for greater retention in cases of matrix worn
- Interchangeability of matrices and patrices
- It can be activated
- Male easily changed without any accessory
- Precision machined
- Can be transformed in resilient





Features

MATRIX

- **Two shapes:** free travel, closed end
- **Four materials:** resin alloy, ceramic alloy, stainless steel, non-residual burnout plastic
- **Universal** for all patrix versions
- Available also strengthened

PATRIX

- **Three components:** male, sheath, pin
- **Three different versions:** MICRO, SUPERMICRO and CORTO
- **Two materials:** precious alloy and stainless steel
- **Two inclinations:** 90° and 105°

Usage advices

Indications

- Lower and upper partial dentures
- Free-end and/or bounded restorations
- Unilateral and bilateral dentures

Fixation

MATRIX: soldered or cast-on or cast with precious and non precious alloys

PATRIX: soldered to removable partial dentures with preciuos and non precious alloys

Working procedures

With metal matrix

With plastic matrix

Rigid attachment for removable partial dentures

Art matrix mounted in its mandrel

Positioning of **Art** matrix

Art matrix right placed

Art matrix soldered

Inserting of **Art** patrix

Gingival room

Insertion of removable denture

Patrix fixation with resin into the framework

Positioning of strenghtened and standard plastic matrix

Art matrix of standard plastic waxed to the crown

Art matrix cast as part of the crown

Art attachment in place

The range

Art MICRO version

ART MICRO 90°

ART MICRO 105°

"HIGH and LONG" attachment!
Its generous dimensioning, joined to the common qualities of all **Art** attachments, give to **Art MICRO** an exceptional resistance endowment. We recommend their use every time there is enough space.

Dimensions		Height	Width	Lenght
Alloy	mm	3,8	3,5	9,4
Stainless steel/Plastic	mm	3,5	2,6	9,1

Art SUPERMICRO version

ART SUPERMICRO 90°

ART SUPERMICRO 105°

"LOW and LONG" attachment!
All features of Art attachments are further enhanced by the compact size of **Art SUPERMICRO**, which permits its application in almost all prosthetic cases, and make it particularly indicated for those with a low bite, where there is not enough space available to house the **Art MICRO**.

Dimensions		Height	Width	Lenght
Alloy	mm	3,8	3,5	9,1
Stainless steel/Plastic	mm	3,5	2,6	8,8

Art CORTO version

ART CORTO 90°

ART CORTO 105°

"LOW and SHORT" attachment!
Due to its minimum overall size and the possibility of intracoronal fitting of the female, the application of **Art CORTO** provides a satisfactory solution for prosthetic cases where there is very limited space (3-4, 4-5).

Dimensions		Height	Width	Lenght
Alloy	mm	3,8	3,5	7,1
Stainless steel/Plastic	mm	3,5	2,6	6,8

Extracoronal
Intracoronal

Kennedy's classes

I
IV

Rec

Rigid attachment

The cylindrical connection of **Rec** attachments grants the optimal *"softness"* of insertion and removal limiting shocks provoked to the pillar teeth. Its shape, in a wide range of dimensions and inclinations, allows a compensation of a potential inaccuracy of fit. Matrices of different versions permit the choice of all fixation techniques nowadays known.

Working procedures

- Extracoronal metal matrix
- Intracoronal metal matrix to be bonded
- Intracoronal matrix obtained by milling

Benefits

- Intracoronal matrix available also in non-residual burnout plastic
- Extracoronal matrix of high dimension to grant an high fixation
- Easy insertion of the prosthesis
- It can be activated
- Male easily changed
- Matrix can be bonded avoiding problems of soldering and casting-on
- Matrix can be obtained by milling directly in the crown

Intracoronal matrix

The range

Rec MICRO version

REC-intra MICRO 105°

REC-intra MICRO 90°

"HIGH and LONG" attachment!
Dimensions: little differences based on materials (HxWxL mm)
4,0 x 3,5 x 10,4

Rec SUPERMICRO version

REC-intra SUPERMICRO 105°

REC SUPERMICRO 90°

"LOW and LONG" attachment!
Dimensions: little differences based on materials (HxWxL mm)
4,0 x 3,5 x 9,7

Rec CORTO version

REC CORTO 105°

REC CORTO 90°

"LOW and SHORT" attachment!
Dimensions: little differences based on materials (HxWxL mm)
4,0 x 3,5 x 8,3

1 **Rec** matrix positioning

2 Insertion of **Rec** patrix

1 Moulding of the housing for **Rec-intra** matrix

2 Sandblasting of **Rec-intra** matrix

3 Insertion of the patrix in a **Rec-intra** matrix

1 Milling of **Rec-intra** matrix

2 Insertion of the patrix in a **Rec-intra** milled matrix

Features

MATRIX

- Extracoronal and intracoronal versions
- **Universal** for all patrix versions
- **Four materials:** resin alloy, ceramic alloy, stainless steel, non-residual burnout plastic
- **Two shapes:** free travel, closed end
- Available also strengthened

PATRIX

- **Three components:** male, sheath and pin (see as example Art drawing at page 14)
- **Three different versions:** MICRO, SUPERMICRO and CORTO
- **Two materials:** precious alloy and stainless steel
- **Two inclinations:** 90° and 105°

Usage advices

Indications

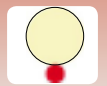
- Upper and lower dentures
- Dentures with bounded saddles and free-end sections
- Unilateral and bilateral dentures

Fixation

MATRIX: soldered or cast-on or bonded or cast with precious and non precious alloys. Matrix can also be obtained by milling directly in the crown.

PATRIX: soldered to removable partial denture with precious and non-precious alloys

Extracoronal



Kennedy's classes

I

IV

Ter

Rigid attachment

Ter is the up-to-date version of one old Artiglio attachment. It has been the first attachment with interchangeable patrices that still brags the greater number of imitations. Two versions patrix allow the attachment being used as rigid or semi-rigid connection.

The range

Ter MICRO version

TER MICRO 105°

TER MICRO 90°

"HIGH and LONG" attachment!
Dimensions: little differencies based on materials (HxWxL mm)
3,5 x 3,4 x 9,7

Ter SUPERMICRO version

TER SUPERMICRO 105°

TER SUPERMICRO 90°

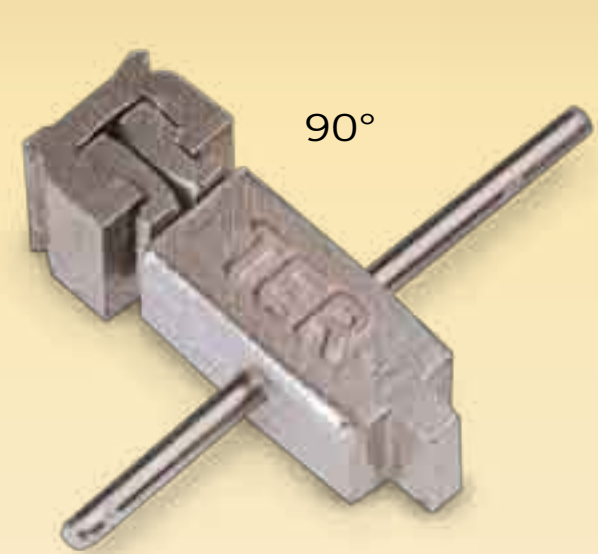
"LOW and LONG" attachment!
Dimensions: little differencies based on materials (HxWxL mm)
3,5 x 3,4 x 9,0

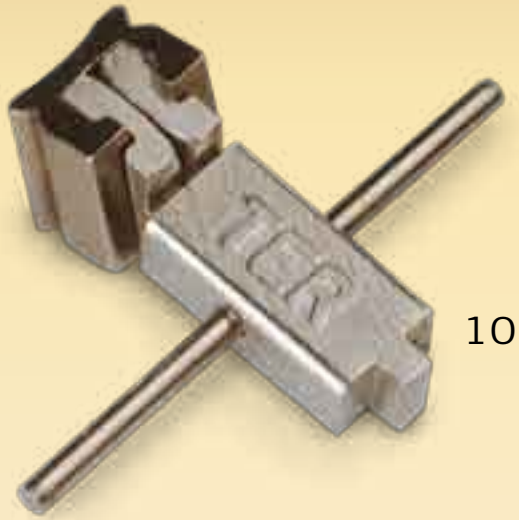
Ter CORTO version

TER CORTO 105°

TER CORTO 90°

"LOW and SHORT" attachment!
Dimensions: little differencies based on materials (HxWxL mm)
3,5 x 3,4 x 7,5





Ter matrix mounted in its mandrel

Ter matrix positioning

Ter matrix soldering

Ter matrix right positioned and soldered

Ter patrix inserted in the matrix

Benefits

- Reduced males available for an easier connection (**Ter libe** version)
- Precision machined
- Interchangeability of matrices and patrices
- It can be activated
- Male easily changed

Features

MATRIX

- **Universal** for all patrix versions
- **Three materials:** resin alloy, ceramic alloy, stainless steel
- **Two shapes:** free travel, closed end
- Available also strengthened

PATRIX

- Available also with a higher degree of freedom (**Ter libe** version)
- **Three components:** male, sheath and pin (see as example Art drawing at page 14)
- **Three different versions:** MICRO, SUPERMICRO and CORTO
- **Two materials:** precious alloy and stainless steel
- **Two inclinations:** 90° and 105°

Usage advices

Indications

- Upper and lower dentures
- Dentures with bounded and free-end saddles
- Unilateral and bilateral dentures

Fixation

MATRIX: soldered or cast-on with precious and non precious alloys

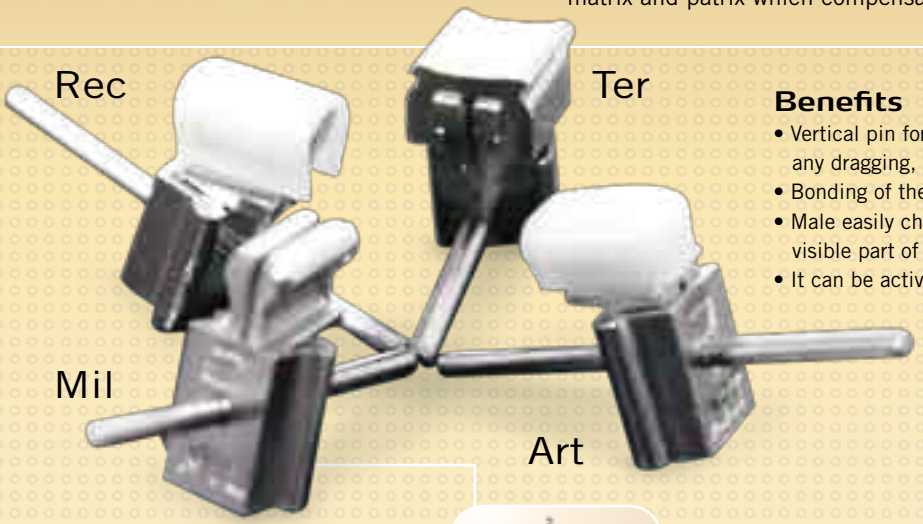
PATRIX: soldered to removable partial denture with precious and non-precious alloys

Extracoronal
Intracoronal

Kennedy's classes
I
IV

Dupli version

A **Dupli** version is available for all the series **Art, Rec, Ter** and **Mil** only in version CORTO.
Features distinguishing **Dupli** version are the vertical position of the retention pin and the shape of the sheath granting restoration of high esthetical value. **Dupli Rec** intra version allows the bonding of both matrix and patrix which compensate any potential inaccuracy of fit.



Benefits

- Vertical pin for an easier duplicating proceeding without any dragging, cracks and inaccuracies in the silicon
- Bonding of the sheath avoiding problems of soldering
- Male easily changed without any intervention in the visible part of the denture
- It can be activated

Working procedures

- Extracoronal metal matrix
- Intracoronal metal matrix

Mil is a special attachment whose intracoronal matrix must be obtained only by milling inside the crown

Sheath bonded

The range

Dupli Art CORTO	 **Dupli Art** CORTO 90°	 **Dupli Art** CORTO 105°	**Approx. Dimensions.** Little differencies based on materials (HxWxL mm): **3,8 x 3,5 x 6,6**
Dupli Rec CORTO	 Dupli Rec CORTO 90°	 **Dupli Rec** CORTO 105°	**Approx. Dimensions.** Little differencies based on materials (HxWxL mm): **4,0 x 3,5 x 8,0**
Dupli Ter CORTO	 **Dupli Ter** CORTO 90°	 **Dupli Ter** CORTO 105°	**Approx. Dimensions.** Little differencies based on materials (HxWxL mm): **3,5 x 3,4 x 6,9**

Insertion of the patrix in the soldered matrix

Application of the housing to provide into the framework enough room for bonding

Sheath bonded into the framework

Creation of the housing for **Rec-intra** matrix

Insertion of **Rec-intra** matrix into the crown for bonding

Fitting of the patrix into **Rec-intra** matrix bonded

Features

MATRIX

- All matrices of all series of attachments
- **Differents materials** following the series chosen

PATRIX

- **Three components:** male, sheath and pin (see as example Art drawing at page 14)
- **One version** CORTO for all series **Art, Rec, Ter** and **Mil**
- **Two materials:** precious alloy and stainless steel
- **Two inclinations:** 90° and 105°

Usage advices

Indications

- Upper and lower dentures
- Dentures with bounded saddles and free-end sections
- Unilateral and bilateral dentures

Fixation

MATRIX: soldered or cast-on or bonded or cast with precious and non precious alloys depending on the serie **Art, Rec, Ter** and **Mil**

PATRIX: bonded or soldered to removable partial denture with precious and non precious alloys

Extracoronal
Intracoronal

Kennedy's classes

I
II
IV

Miscellaneous

Resilient attachments

• Damper Art

Usage advices

Indications

- Lower and upper partial dentures
- Free-end and/or bounded restorations
- Unilateral and bilateral dentures

Fixation

MATRIX: soldered or cast-on or cast with precious and non precious alloys

PATRIX: soldered to removable partial denture

• Stress-breaker Tv

STRESS-BREAKER TV
ALTO 90°

STRESS-BREAKER TV
CORTO 90°

STRESS-BREAKER TV
BASSO 90°

Usage advices

Indications	Fixation
• Lower and upper partial dentures • Free-end and/or bounded restorations • Unilateral and bilateral dentures	**MATRIX:** soldered or cast-on or cast with precious and non precious alloys **PATRIX:** soldered to removable partial denture with precious and non-precious alloys

• Hinge Gelb

Usage advices

Indications

- Free single-sided saddles

Fixation

MATRIX: soldered or cast-on with precious and non precious alloys

PATRIX: soldered to removable partial dentures

• Balancer Tv

Usage advices

Indications

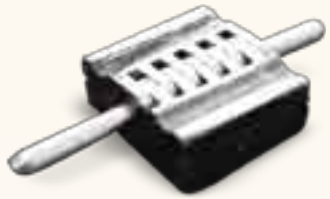
- To balance large prosthetic saddles

Fixation

MATRIX: soldered or cast-on or cast with precious and non precious alloys

PATRIX: soldered to removable partial dentures

• Microhinge A3



Usage advices

Indications

- Single-sided saddles

Fixation

Soldered between the fixed and the movable part of the prosthesis

RPD's on implants

0° bars

2° bars

Kennedy's classes

I

IV

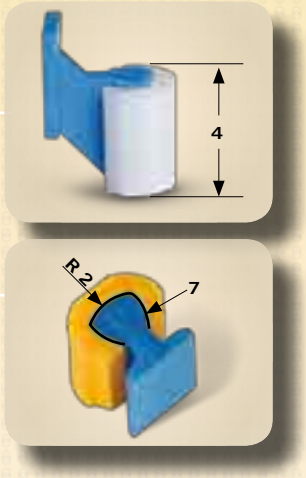
Swift-Art Rigid attachment

Easy to adapt during the positioning and simple to finish up during the fitting, **Swift-Art** represents the calcinable product of highest precision on the market. Economic and reliable, **Swift-Art** is the best answer to whom desires an universal attachment suitable both to the simplest traditional combined prostheses and to the most complex implant-supported restorations.

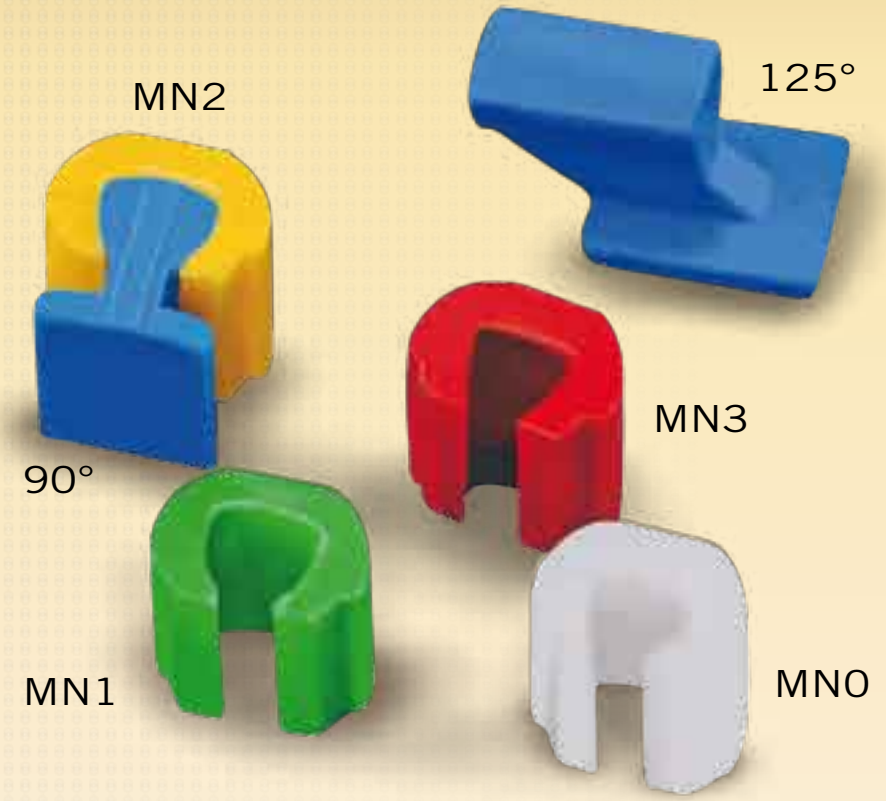
Benefits

- White fabrication matrix
- One offset male (125°) that allows the male to be placed closer to the tissue
- Four colour coded matrices for a consistent level of retention: white, green, yellow and red
- Matrix easily changed
- Patrix can be reduced up to 3 mm
- 13 year life duration, if positioned and maintained following the instructions for use
- Great retention thanks to a friction area of 28 mm² (so obtained: heightxperimeter = 4x7)

dimensions in mm



Dimensions (mm)	Height	Width	Lenght
90° Patrix	4,0	2,0	3,0
105° Patrix	6,0	2,0	3,9
Matrix	4,0	3,7	2,5



Features

MATRIX

- **Four different** friction levels

PATRIX

- **Two inclinations:** 90° and 125°

Usage advices

Indications

- Lower and upper partial dentures
- Free-end and/or bounded restorations
- Unilateral and bilateral dentures
- Bars on implants

Fixation

MATRIX: fitted in the removable partial denture and held in it
PATRIX: cast as part of crown pattern

Working procedures

- Combined prosthesis on abutment teeth
- Bar on implants

Rigid attachment for removable partial dentures on abutment teeth or implants

Insertion of 125° and 90° patrix

Wax milling

Finishing of the groove

Passivatin proof with white matrix

Master model prepared for duplicating

Wax modelling of the milled surface

Removal of the white matrix

Framework cast

Fitting of the green matrix into the framework

Swift-Art patrix applied to a bar on implants

Bar cast and finished

Swift-Art matrix fitted into the framework

The range

Matrices

Duplicating matrix
4 pieces
601505 MN0-B4

Low friction
4 pieces
601505 MN1-B4

Standard friction
4 pieces
601505 MN2-B4

High friction
4 pieces
601505 MN3-B4

Patrices

90° Patrix
4 pieces
602505-B4

125° Patrix
4 pieces
602205-B4

Accessories

Paralleling mandrel
1 piece
6070

Matrix inserting tool
1 piece
6080

Starter Kit

Swift-Art • 18 pieces

- **2** Patrices 90°
- **2** Patrices 105°
- **4** Duplicating matrices, WHITE
- **4** Matrices, GREEN, low friction
- **2** Matrices, YELLOW, standard friction
- **2** Matrices, RED, high friction
- **1** Matrix inserting tool
- **1** Paralleling mandrel

CODE: 615000

RPD's on implants

0° bars

telescopic crowns

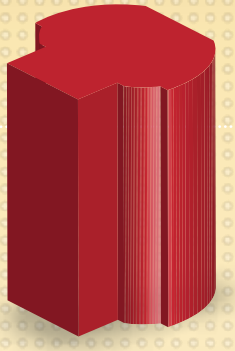
Skate

Friction-grip attachment

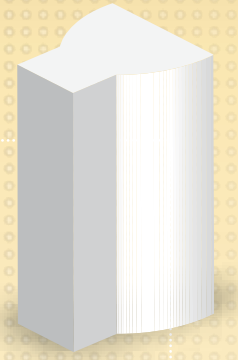
An innovative device implying an evolution of the milling technique. **Skate** is a simple and economic attachment conceived to recover the retentive ability of parallel guidance surfaces and grooves. **Skate** is a mechanical push able to immediately restore the friction area of its opposite surface, regaining the original retention of the milling.

Benefits

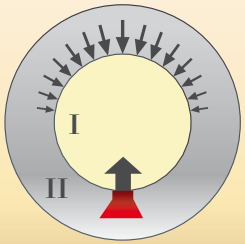
- Double duration: restore of 50% friction area
- White fabrication patrix
- Four colour coded patrix for a consistent level of retention: white, green, yellow and red
- Patrix easily changed
- Patrix can be reduced up to 3 mm
- Placed without any tool



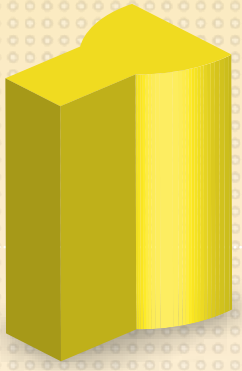
Skate
MN3



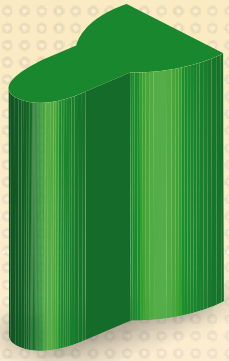
micro-Skate
MN0



Activation's principle of Skate attachments



mini-Skate
MN2

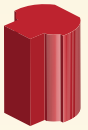
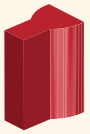
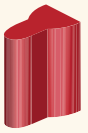
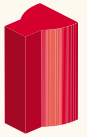


mini-Skate Round
MN1

Features	Usage advices	
PATRIX	Indications	Fixation
• **Four different** retention levels	• Lower and upper partial dentures • Free-end and/or bounded restorations • Unilateral and bilateral dentures • Bars on implants	**PATRIX:** fitted in the removable partial denture and held in it

Dimensions (mm)	Height	Width	Lenght
Skate	4,0	3,7	3,5
mini-Skate	4,0	2,0	3,0
mini-Skate Round	4,0	2,0	3,0
micro-Skate	4,0	2,0	2,0

The range

Skate				
	4 pieces	*4 pieces*	*4 pieces*	*4 pieces*
	902005 MN0-B4	902005 MN1-B4	902005 MN2-B4	902005 MN3-B4
mini-Skate				
	4 pieces	*4 pieces*	*4 pieces*	*4 pieces*
	902605 MN0-B4	902605 MN1-B4	902605 MN2-B4	902605 MN3-B4
mini-Skate Round				
	4 pieces	*4 pieces*	*4 pieces*	*4 pieces*
	902705 MN0-B4	902705 MN1-B4	902705 MN2-B4	902705 MN3-B4
micro-Skate				
	4 pieces	*4 pieces*	*4 pieces*	*4 pieces*
	902805 MN0-B4	902805 MN1-B4	902805 MN2-B4	902805 MN3-B4

Working procedures

- Combined prosthesis on abutment teeth
- Bar on implants

Rigid attachment for removable partial dentures on abutment teeth or implants

Telescopic crown milled from wax

Finishing of a telescopic crown in metal

Positioning of **Skate** on the cap

Waxing up

Waxing up completed

Removal of white component

Waxing up of the framework connector

Insertion of the framework in the cast connector

Fitting of **Skate** into the framework

Waxing up of a 0° bar on implants

Application of a **Skate** on a bar cast and finished

Fitting of **Skate** into the removable partial denture

Starter Kit 1

Skate • 12 pieces

4 Duplicating patrices, WHITE
4 Patrices, GREEN, low friction
2 Patrices, YELLOW, standard friction
2 Patrices, RED, high friction

CODE: 910000

Starter Kit 2

mini-Skate • 12 pieces

4 Duplicating patrices, WHITE
4 Patrices, GREEN, low friction
2 Patrices, YELLOW, standard friction
2 Patrices, RED, high friction

CODE: 916000

Starter Kit 3

mini-Skate Round • 12 pieces

4 Duplicating patrices, WHITE
4 Patrices, GREEN, low friction
2 Patrices, YELLOW, standard friction
2 Patrices, RED, high friction

CODE: 917000

Starter Kit 4

micro-Skate • 12 pieces

4 Duplicating patrices, WHITE
4 Patrices, GREEN, low friction
2 Patrices, YELLOW, standard friction
2 Patrices, RED, high friction

CODE: 918000

ALIS attachments

A range of attachments that widens the ARTIGLIO's offer in order to satisfy all needs of the dental laboratories.

RPD's on implants

0° bars

telescopic crowns

Kennedy's classes

III

Fox

Resilient attachment

Fox acts as the retentive part of a clasp adding a possible reactivation of the retention by changing the spring and/or the plunger. Furthermore, it allows a high aesthetics joined with usefulness. **Fox** provides an elastic retention, especially forceful in case of undercuts of 0,25 and 0,50 mm, that can be used also as plunger retention in milled joints.

Assembled attachment

Spare parts

Sheath

Spring

Plunger

Nut

Benefits

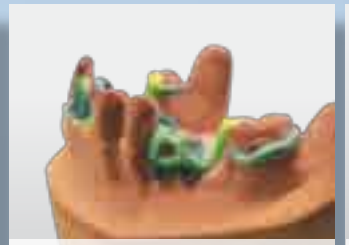
- Easy reactivation changing the internal spring and plunger
- Safeguard of the shape and the dimensions of the teeth
- Excellent aesthetic result in basic and cost-effective restorations
- Spring operated plunger retention

Survey of the model

Measuring of the extent of undercuts by gauges

Positioning of Fox

Control of the Fox right placing in the centre of the ridge



Wax up of the later framework

Metal cast framework

Features

- **Four components:** nut, plunger, spring and sheath
- **Mixed** stainless steel and plastic

Usage advices

Indications

- Lower and upper restorations
- Bounded dentures
- Retentive element to be mounted into secondary parts of milled works (telescopic crowns, individually milled bar sleeves, individual slide attachments). In that way it is suitable also for Kennedy's classes I and II.

Fixation

- Soldered to the framework
- Retained into the denture acrylic resin

Dimensions (mm)	ø	Length
Complete attachment	3,0	6,0

Extracoronal

Kennedy's classes

I

IV

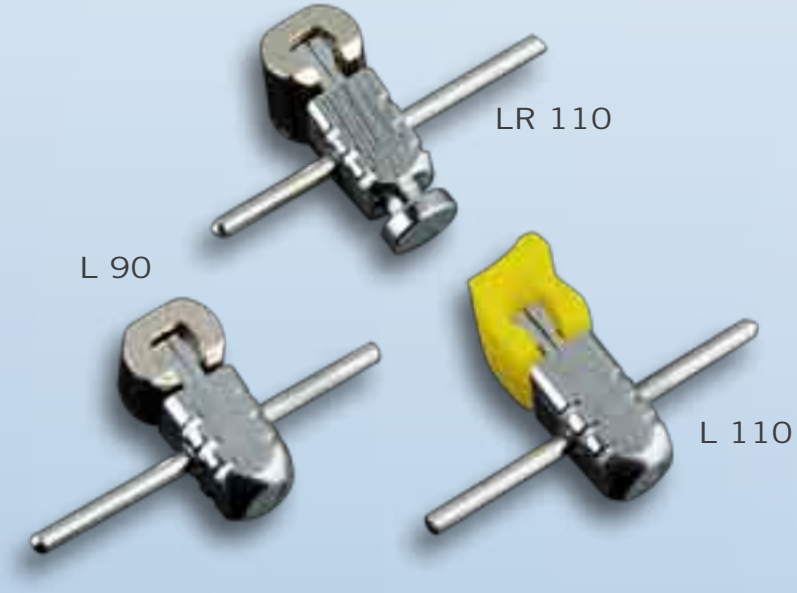
Wing

Rigid attachment

Wing, thanks to a mixed sliding shape, permits to divide the friction from the back tightness of the attachment granting an excellent restoration in many combined prostheses. Although its rigid connection, **Wing** offers an easy insertion of the prosthesis combined with a high stability.

Benefits

- Three different materials of the female to allow any technique: soldering, casting-on, casting
- Small dimensions
- Easy insertion of the prosthesis with a high stability
- Quick reactivation lightly introducing a blade in the male groove
- Male easily changed without any accessory



The range

C	 WING C 90	 WING C 110	**Approx. Dimensions.** Little differencies based on materials (HxWxL mm): **3,8 x 3,6 x 6,9**
L	 WING L 90	 WING L 110	**Approx. Dimensions.** Little differencies based on materials (HxWxL mm): **3,8 x 3,6 x 7,6**
LR	 WING LR 90	 WING LR 110	**Approx. Dimensions.** Little differencies based on materials (HxWxL mm): **3,8 x 3,6 x 8,7**


Positioning of the plastic and metal matrix


Matrix positioning following the ridge


Matrix positioned


Patrix inserted in the matrix


Insertion of the framework over the patrix for the soldering


Patrix fixation with resin into the framework

Features

MATRIX

- **Universal** for all patrix versions
- **Four materials:** resin alloy, ceramic alloy, stainless steel and calcinable plastic

PATRIX

- **Three components:** male, sheath and pin (see as example Art drawing at page 14)
- **Three versions:** C (short), L (long), LR (long with retentive sheath),
- **One material:** stainless steel
- **Two inclinations:** 90° and 110°

Usage advices

Indications

- Lower and upper partial dentures
- Free-end and/or bounded restorations
- Unilateral and bilateral dentures

Fixation

MATRIX: soldered or cast-on or cast with precious and non-precious alloys

PATRIX: soldered to the framework or retained into the denture acrylic

Extracoronal

Kennedy's classes

I

II

Sweet

Resilient attachment

Sweet is a rectangular slide attachment available in different shapes and dimensions. Its feature is a soft and progressive friction to grant an optimal retention. **Sweet** offers a combined support; more rigid in short span saddles and more resilient in long span saddles in extension.

Benefits

- Combined connection: rigid retention and resilient support
- Oversized matrix of long duration

The range

C	 SWEET C 90	 SWEET C 110	**Approx. Dimensions.** Little differencies based on materials (HxWxL mm): **3,9 x 3,6 x 6,7**
L	 SWEET L 90	 SWEET L 110	**Approx. Dimensions.** Little differencies based on materials (HxWxL mm): **3,9 x 3,6 x 7,5**
LR	 SWEET LR 90	 SWEET LR 110	**Approx. Dimensions.** Little differencies based on materials (HxWxL mm): **3,9 x 3,6 x 9,1**


Matrix positioning following the ridge


Matrix positioned


Patrix inserted in the matrix


Positioning of the patrix


Fixation of the patrix with resin into the metal framework

Features

MATRIX

- **Universal** for all patrix versions
- **Three materials:** resin alloy, ceramic alloy and stainless steel

PATRIX

- **Three components**: male, sheath and pin (see as example Art drawing at page 14)
- **Three versions:** C (short), L (long), LR (long with retentive sheath),
- **One material:** stainless steel
- **Two inclinations:** 90° and 110°

Usage advices

Indications

- Lower and upper partial dentures
- Free-end and/or bounded restorations
- Unilateral and bilateral dentures

Fixation

MATRIX: soldered or cast-on or cast with precious and non precious alloys

PATRIX: soldered to the framework or retained into the denture acrylic

Extracoronal

Kennedy's classes

I

II

Clock

Resilient attachment

Clock is a very effective attachment which grants the easiest insertion and allows the movement of the prosthesis without transfering, in standard version, any load to the abutment teeth. The prosthesis is securely connected and, in the same time, can be easily removed and adjusted to obtain the wished degree of retention. The ball and socket joint is combined with a damped spring to absorb stress.

Assembled attachment of standard version

Plastic matrix

Metal matrix

Patrix with upper protection

Dimensions (mm)	Height	Width	Lenght
Stainless steel / Precious Alloy	4,3	3,5	9,9
Stainless steel / Plastic	5,2	3,9	9,9

Benefits

- Eliminates clasps
- Abutment teeth not affected by stresses
- Replaceable and adjustable patrix and spring using the suitable tool
- Spherical patrix granting an elastic retention and a resilient function
- Easy insertion favouring the daily cleaning of the prosthesis

Matrix inserted in its mandrel

Positioning of metal and plastic female

Matrix positioned

Patrix inserted in the matrix

Positioning of the patrix

Patrix soldered to the framework

Features

MATRIX

- **Four materials:** resin alloy, ceramic alloy, stainless steel and non residual burnout plastic

PATRIX

- **Five components:** screwable pin, outer nut, spring, internal nut, sheath
- **Two sheath versions:** with or without the upper protection
- **One material:** stainless steel

Usage advices

Indications

- Free-end partial dentures
- Free single-sided saddles

Fixation

MATRIX: soldered or cast-on or cast with precious and non precious alloys

PATRIX: soldered to the framework or retained in the acrylic denture

RPD's on implants

round bars

Kennedy's classes

III

IV

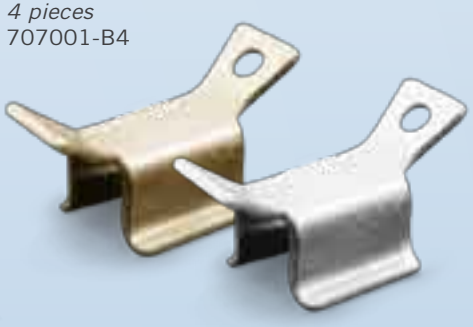
C-rider

C-rider is a primary connector that consolidates the abutment teeth with periodontal deseases giving stability to the prosthesis. Its reduced room allows a use in whichever application either on traditional prostheses or on implant-supported dentures. **C-rider** function can be rigid or resilient depending on the diameter of the bar chosen: the smallest one offers a vertical resiliency whereas the bigger one gives a rigid fit.

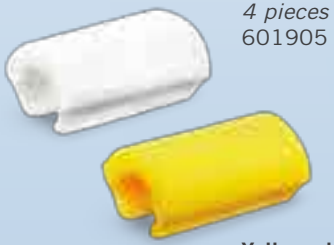
Bar ø 1,9 mm
4 pieces
706005-B4

Bar ø 1,8 mm
4 pieces
705005-B4

Precious alloy rider
4 pieces
707001-B4



Stainless steel rider
4 pieces
707003-B4



White plastic rider
4 pieces
601905 MN0-B4

Yellow plastic rider
4 pieces
601905 MN2-B4

Benefits

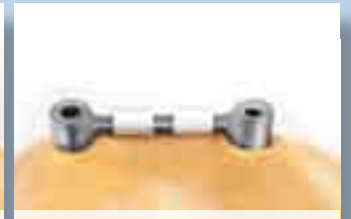
- Two color coded plastic riders for two retentive strengths: white (standard retention) and yellow (high retention)
- Round plastic bar more easily bent to follow the the ridge anatomy, or in close-bit situations.

Fixation of the bar to the abutments with wax

Bar cast

Metal rider snapped over the bar

Plastic rider snapped over the bar



Bar with two plastic riders

Plastic rider fitted into the framework

Features

BAR
- **Two** bar patterns of 1,8 and 1,9 mm

RIDER
- **Three materials:** precious alloy, stainless steel and plastic
- **Two retentive strengths:** standard and high

Usage advices

Indications

- Tooth and tooth/gingivial supported dentures
- Implant supported dentures
- Splint across anterior and posterior tooth bounded spaces

Fixation

RIDER: metal rider retained in processed denture acrylic socket; **plastic rider fitted into the removable part of the denture**

BAR: pattern cast as part of retainer castings

Dimensions (mm)	Height	Width	Lenght
Metal rider	3,6	3,4	3,4
Plastic rider	2,9	3,5	5,0

RPD's on implants

0° bars

2° bars

Kennedy's classes

I

III

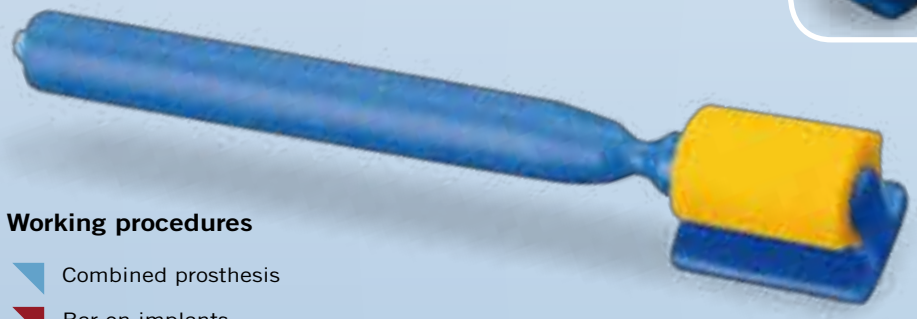
IV

V-slide

V-slide attachments are aesthetic, serviceable, cost-friendly, patient-friendly and adaptable to all situations. They combine an easy insertion with an optimal retention and represent the design more used by manufacturers of dental attachments. The elastic matrices need a minimal and quick maintenance that can be made by the technician or also at chairside in a few seconds.

Benefits

- Frictional retention
- Two colour coded matrices for two retentive strengths
- Patrix with built in paralleling mandrel
- Patrix height can be reduced up to 3 mm vertical height
- Elastic matrices easily replaced



Patrix
4 pieces
602905-B4

White matrix
4 pieces
601905 MN0-B4

Yellow matrix
4 pieces
601905 MN2-B4

Dimensions (mm)	Height	Width	Lenght
Patrix	6,0	ø 1,8	3,5
Matrix	5,0	3,5	2,9

Starter Kit

V-slide • 6 pieces

2 Matrices, WHITE, standard friction
2 Matrices, YELLOW, high friction
2 Patrices with built in paralleling mandrel

CODE: 619000

Working procedures

Combined prosthesis

Bar on implants

Easy positioning of the patrix with its built in paralleling mandrel

Patrix positioned and provided with a lingual milling

Patrix cast as part of crown pattern

Insertion of white patrix for passive fit proof

Positioning of the patrix with a bar on implants

Finishing of the bar with a milling machine

Features

MATRIX

- **Two retention strenghts:** standard (white) and high (yellow)

PATRIX

- **Plastic** pattern patrix
- **Paralleling mandrel** as extension of the patrix that has to be removed after positioning

Usage advices

Indications

- Lower and upper partial dentures
- Free-end and/or bounded restorations
- Unilateral and bilateral dentures

Fixation

MATRIX: fitted and retained in the removable partial denture
PATRIX: cast as part of crown pattern

RPD's on implants

2° bars

overdentures

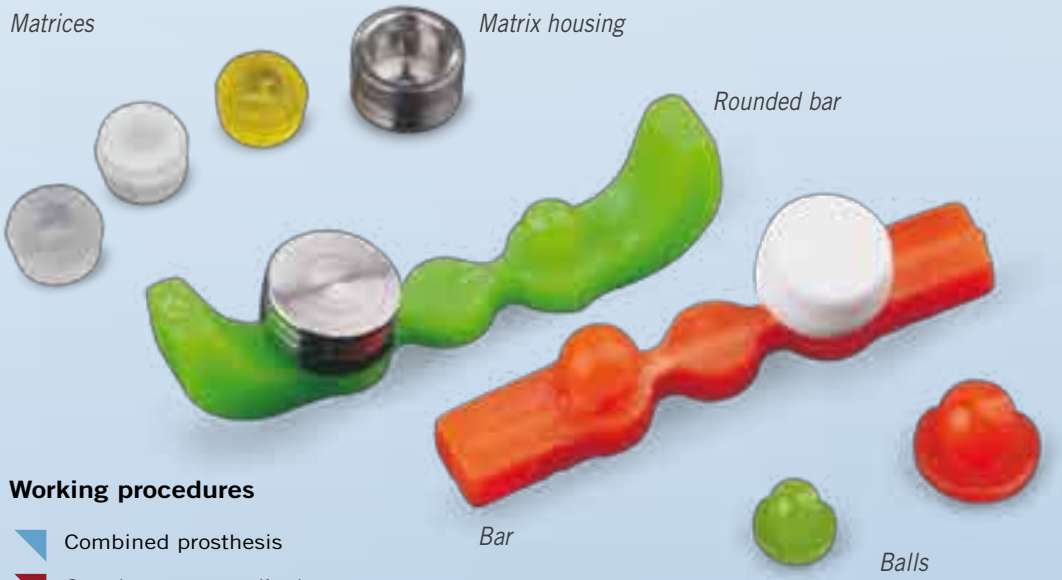
Kennedy's classes

I

III

S-ball

S-ball is a ball & socket stud type attachment very easy to use, economical and versatile; it is suitable either for simple restorations or for overdentures on implants. Available in Micro and Supermicro size, **S-ball** offers matrices with three color coded degrees of retention. The matrix housing retained in the framework allows the matrices to be easily replaced also at chairside. The calcinable plastic patrices of different shapes permit their positioning both in extension or intraradicularly.



Working procedures

- Combined prosthesis
- Overdenture on radicular caps

Benefits

- Does not require exact parallelism
- Frictional retention
- Radicular snap
- Patrix with built in paralleling mandrel
- Three colour coded matrices for three retentive strengths (lightest to strongest): transparent, white, yellow.
- Can be used with or without the metal housing

Transfer analog

Starter Kit 1

micro (ø 2,21 mm) • **16 pieces**

1 Bar
1 Rounded bar
2 Balls
6 Matrices, TRANSPARENT, light friction
2 Matrices, WHITE, standard friction
2 Matrices, YELLOW, high friction
1 Matrix inserting accessory
1 Paralleling mandrel

CODE: 311000

Starter Kit 2

supermicro (ø 1,71 mm) • **16 pieces**

1 Bar
1 Rounded bar
2 Balls
6 Matrices, TRANSPARENT, light friction
2 Matrices, WHITE, standard friction
2 Matrices, YELLOW, high friction
1 Matrix inserting accessory
1 Paralleling mandrel

CODE: 312000

Positioning of the portion of the bar needed

Bar placed following the alveolar ridge

Bar cast

Place the balls on the radicular root

Plastic ball before and after the casting

Metal housing and matrix "clipped" into position

Features

MATRIX

- **Three retentive strengths:** light, standard and high
- **One housing** that can or can not be used to hold the matrix in the framework

PATRIX

- **Two sizes:** micro (ø 2,21 mm) and supermicro (ø 1,71 mm)
- **Three shapes:** bar, rounded bar and sigle ball

Usage advices

Indications

- Lower and upper partial dentures
- Free-end and/or bounded restorations
- Unilateral and bilateral dentures
- Overdenture bars
- Overdentures on radicular caps

Fixation

MATRIX: fitted directly in the framework or in its housing retained in the removable partial denture

PATRIX: waxed and cast with a coping or bar pattern

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THE EXCELLENCE IN
DENTAL TECHNIQUE

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