

As with Flexi-Post®, Flexi-Overdenture® has the unique threaded split shank that creates maximum retention with minimum stress to the root. It is manufactured in titanium for direct/non-coping or indirect/coping technique. Flexi-Overdenture Attachments enormously enhance denture retention when used with residual roots. The threaded split shank design assures the dentist that the root will not fracture, nor will the post come loose under function.

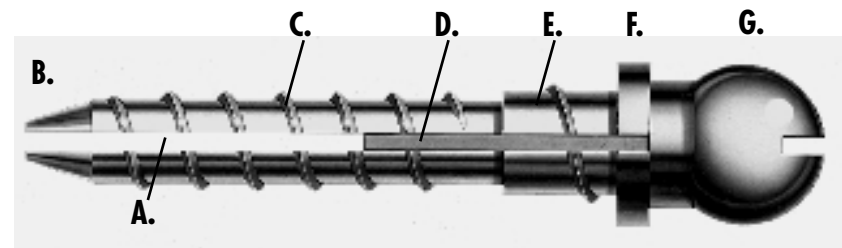
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Flexi-Overdenture Characteristics



A. THE UNIQUE SPLIT SHANK DESIGN OF THE FLEXI-OVERDENTURE

- redirects all stresses of insertion safely to the post, not the root.
- creates vertical blades which remove all dentinal debris from the thread line during insertion, further enhancing the ease of placement.
- creates a threaded post-hole in a gradual fashion, once again minimizing stress to the root.

B. TAPERED TIP permits deep seating (an additional 1–2 mm into the canal) of the Flexi-Overdenture without risk of tooth fracture. Non-threaded, this tip offers the advantage of self-limiting insertion, further protecting the root from potential fracture.

C. PARALLEL-SIDED SUPER SHARP THREADS cut into the dentin rather than push it aside. Flexi-Overdenture's construction maximizes post retention without contributing to the production of tensile

stresses. Flexi-Overdenture requires no separate tapping and may be trial seated prior to the final insertion.

D. THE FLEXI-OVERDENTURE VENT releases internal hydrostatic pressure upon cementation.

E. THE SECOND TIER OF THE SHANK increases the intimacy of fit between the post and the natural point at which the canal widens, thereby reducing destructive lever arms.

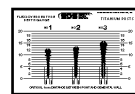
F. THE FLANGE, when used in the direct technique (non-coping), provides greater stability for the post and better distribution of masticatory stresses to the root.

When used in the indirect technique (with coping), it does the same, and also provides a positive seal with the cast coping.

G. THE FLEXI-OVERDENTURE POST has one slot on the top of the ball. The slot enables the wrench to grip the post head for insertion. The head on all post sizes is the same.



Components and Their Uses



Depth Gauge - Used in conjunction with a radiograph, it facilitates the proper choice of post size, placed within the root.



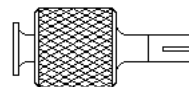
Primary Reamer - Used to create the primary post-hole after use of the Peeso or Gates Glidden reamers (Essential Gates Glidden drills are recommended.) The Primary reamer is self limiting within each size.



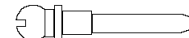
Secondary Drill - Used to create the space for the second tier. The second tier of the post allows better adaptation of the post to the normal anatomic flare of the post-hole. Used when doing indirect/coping technique.



OVD Countersink Drill/Root Facer - Used to create the preparation for the second tier and the flange of the head of the post, in one operation. Used when doing direct/non-coping technique.



Wrench - Fits snugly over the post and drives the overdenture attachment into place.



Transfer Stud - Used in the laboratory technique for incorporating the attachment cap and forming a coping.



Attachment Cap - Incorporated within the denture to retain the denture to the overdenture attachments.

Flexi-Overdenture Facts

The Flexi-Overdenture attachments are color-coded and come in three different sizes. While the head of the posts are of a constant diameter, the length and width of the shanks vary. Because you can shorten the Flexi-Overdenture attachment to accommodate varying root lengths, they will satisfy practically all of your overdenture needs.

Post Number	1	2	3
Color Code	RED	BLUE	GREEN
Length of Head	2.70mm	2.70mm	2.70mm
Length of Shaft	10.00mm	11.00mm	13.50mm
Total length of Post	12.70mm	13.70mm	16.20mm
Height of Head With Attachment Cap	4.00mm	4.00mm	4.00mm
Diameter of Shaft (Without Threads)	1.00mm	1.25mm	1.50mm
Diameter of Shaft (With Threads)	1.40mm	1.65mm	1.90mm
Diameter of Primary Reamer	1.20mm	1.45mm	1.70mm
Length of Primary Reamer	11.00mm	12.00mm	14.50mm

Recommended Uses for Flexi-Overdenture

It is recommended that the attachments not be placed for 3 to 4 weeks after the denture insertion, to allow for complete settling of the tissue bearing areas.

#1 (Red)

- normal to large roots of maxillary first premolars
- average roots of lower anteriors
- thin roots of premolars
- thin roots of maxillary laterals

#2 (Blue)

- average roots of all maxillary anteriors
- average roots of premolars
- large roots of mandibular anteriors

#3 (Green)

- large roots of maxillary and mandibular anteriors (usually cuspids)

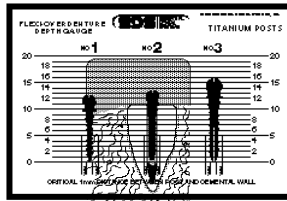
Technique: Use of the Depth Gauge in Post Selection

Research shows that parallel, solid shanked posts should have at least 1 mm of tooth structure lateral to the most apical placement of the post.* To aid in this placement, Flexi-Overdenture uses a transparent plastic depth gauge with silhouettes of the different sizes of the posts. Lateral and parallel to each silhouette are vertical lines spaced 1 mm from the threads. By placing the gauge over an accurate radiograph of a tooth, the dentist may easily determine if the 1 mm of lateral clearance exists. If the lines fall outside the root on the x-ray there is potentially not enough lateral tooth structure for safe placement.

In the latter case, the dentist should either go to a smaller post or remove enough apical post length for the post to fit at least 1 mm within the external borders of the root. Most importantly, the second tier and flange of the post must always be fully seated. If the direct technique is used the dentist should never allow the second tier and flange of the post not to seat. This would allow a loose coronal fit that would increase the chance of the post loosening over time. The flange should either seat within the countersink preparation (direct/non-coping technique), or on the coping (indirect technique.)

If the dentist chooses to remove apical length of the post (either because the full length of the placed post would thin out the lateral tooth structure too much, or because the post-hole is too short for placement of the complete post length) he should follow these steps:

- 1) Trial seat the post, thus creating the internal thread in the root.
- 2) Unthread the post from the root.
- 3) Cut off the necessary apical post length, allowing the second tier and flange to seat fully.
- 4) Cement the post as usual.



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*The split-shank Flexi-Post is inherently safer than any solid shanked post and, therefore, less lateral tooth structure is necessary to prevent fracture.

Post Hole Preparation

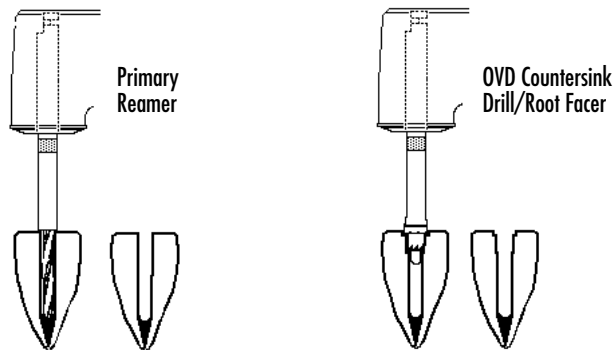
The post-hole preparation begins with the removal of the root filling material using either a Peeso or Gates Glidden reamer. Then, in sequence, a non-end cutting drill (Peeso or Gates Glidden reamer) is used until 100% of the post-hole length and 90% of the post-hole width have been established. The following chart indicates which non-end cutting drill will produce 90% of the post-hole width for the various Flexi-Overdenture sizes.

Peeso	Gates Glidden	EDS Gates Glidden	Flexi-Overdenture Primary Reamer
3	or 4	or red	then 1 (red)
4	or 5	or blue	then 2 (blue)
5	or 6	or green	then 3 (green)

When 100% of the post-hole length and 90% of the width have been achieved, the primary reamer is used. Since the Flexi-Overdenture will fit optimally if a more concentric hole is maintained, the number of entries into the post-hole with the primary reamer should be limited. It is much easier to prepare the post-hole when the canal is lubricated with either water or an anesthetic solution, or with any suitable wetting agent.

Direct/Non-Coping Technique

After using the primary reamer, the countersink drill is used to cut 2 preparations in one operation. It prepares the seat for the second tier, as well as the seat for the flange of the post. The smooth extension on the drill is simply a lead to facilitate parallelism between the primary post-hole, second tier, and flange. The post must always fully seat. You can determine full seating of the post by the flush fit of the flange within its preparation. If the coronal flat surface of the root is slanted to the buccal, the flange may be seated lingually, but not buccally. In this case, deepen the countersink preparation enough to assure the flush seating of the buccal portion of the post. There is no danger in countersinking the post too much. If on the other hand, the dentist does not seat the post completely, he is reducing Flexi-Overdenture's tremendous retention, and increasing the chances of the post loosening or fracturing under function. To achieve a complete seating in post-hole preparations shorter than the length of the shank of the post to be placed, the dentist must remove enough apical post length to allow full seating of the post's second tier and flange.

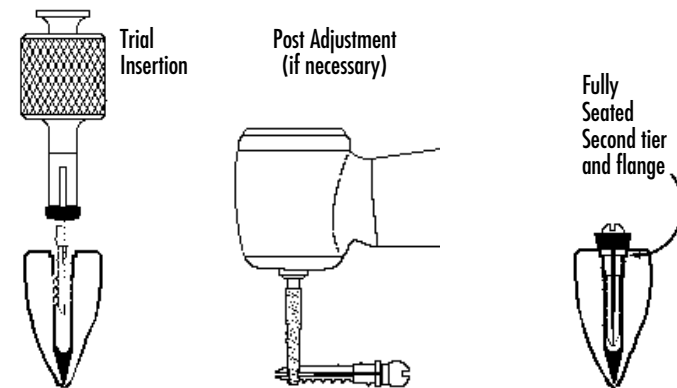


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Post Insertion

The selected Flexi-Overdenture is inserted with the overdenture wrench. It is important to note that the Flexi-Overdenture is designed to be seated on a trial basis in order to ensure accurate fit and position. During the trial-seating, if moderate resistance is felt, the post may be backed off 1/4 to 1/2 turn and then advanced again. Advancing while backing off 1/4 turn when moderate resistance occurs is repeated until the post is fully inserted and the thread is created inside the root canal for the post. This procedure will remove debris from the thread line and facilitate insertion. The trial seating creates the internal threading for the post.

The post is now unthreaded from the root. At this point, alterations to the post may be made. It is extremely



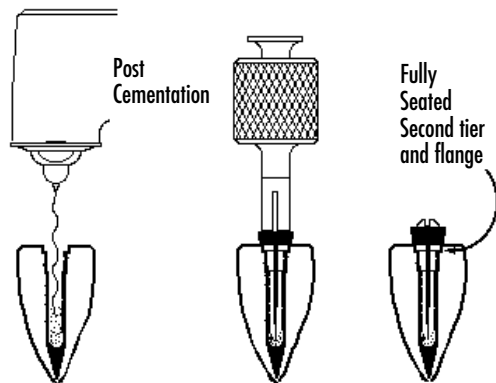
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important to note that *the flange must always fully seat*. Therefore, alterations should be made to the *apical* end of the post. Be sure to remove all dentinal debris from the split with an air syringe at this time. To alleviate any concern about shortening the legs of the post and, thereby, reducing its flexibility, remember that the legs of the post are shortened only *after* the post has been trial seated and the internal threads have been created.

Since the internal threads have now been made, the flexible legs are no longer necessary. The dentist can reinsert the shortened post. The thread of the post will find its way into the already created internal threads of the root with minimal stress being produced.

Note, the countersink drill does *not* have a stop. If you find there is not enough occlusal room, you may countersink deeper into the root to provide more clearance for the overdenture post and nylon cap.

Cement is now placed in the post-hole and on the post. The post is inserted into the post-hole and threaded in with light pressure. The post will seat completely with minimal resistance. Special care must be taken to make sure the flange is completely seated. Excess cement is now removed. The overdenture post has now been fully inserted and cemented with minimal stress being transmitted to the root.



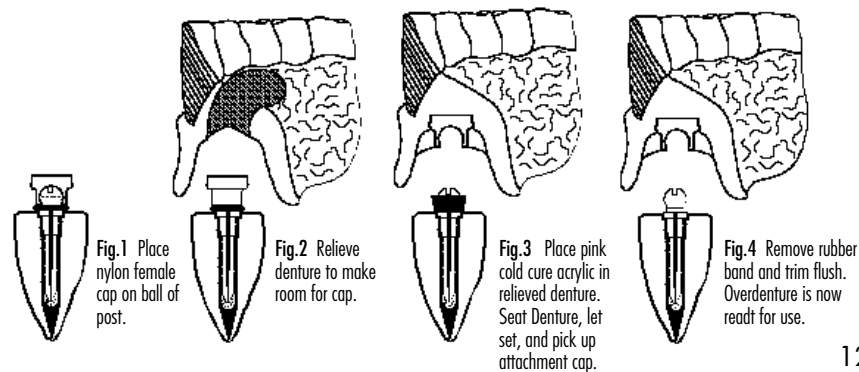
Incorporation of the Attachment Cap

Once the overdenture attachment is placed, the dentist has two choices.

- 1) AT CHAIRSIDE, the dentist can use a direct one-visit technique.
- 2) OR THE LABORATORY can place the attachment cap within the denture.

1. CHAIRSIDE TECHNIQUE - Place the attachment cap on the post and mark the cap with marking paste.

Place the denture over the ridge and remove. The marker tells you where to relieve acrylic in the denture. Repeat this procedure until the denture fits passively over the cap. Now place cold cure acrylic into the relieved portion of the denture and place over the ridge, and let set. Make sure the rubber band is covering the height of contour of the head. If not, there is a risk that the cold cured acrylic could lock in under the head, making removal of the denture difficult.



Use a *natural pink* self curing acrylic in case there is any perforation of the denture. Remove the denture when set. Remove colored rubber band on post and discard. It is no longer needed. (See Figures 1-4 on page 12).



Caution!! Again, do not remove the colored rubber band around the base of the overdenture attachment until *after* the attachment cap is incorporated into the denture. If you do, the acrylic could lock into the undercut of the ball and prevent removal of the denture from the mouth. The rubber band prevents this from occurring (Fig. 5).

The attachment cap should always have a little clearance from the root when seated onto the ball of the post. If not, the attachment cap will not be able to rotate on the ball. If necessary, remove a small amount of nylon on the lip of the cap to create this space (Fig. 6).

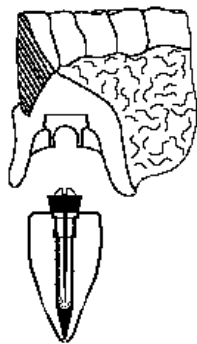


Fig.5 Cap Incorporation

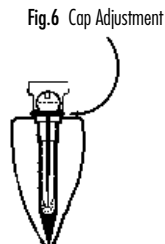


Fig.6 Cap Adjustment

2. LAB TECHNIQUE -

- a) Cement the Flexi-Overdenture attachment, and remove the colored rubber band.
- b) Take a rubber base or silicon impression.
- c) Send the impression, attachment cap and brass transfer stud to the laboratory.
- d) The lab places the transfer stud into the impression and pours a stone model.
- e) The lab can now heat cure the cap into the denture.
- f) The denture is returned to you with the cap already incorporated within it.

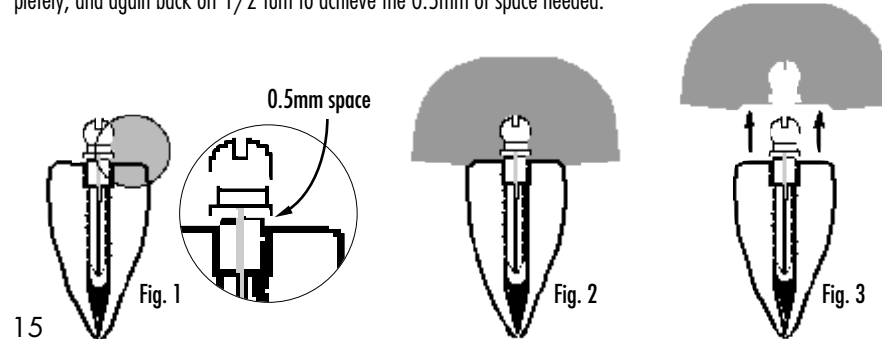
Indirect/Coping Technique

See page 7 for "Post Hole Preparation."

After using the primary reamer, the secondary drill is used to create the second tier preparation in the coronal post-hole preparation. The smooth extension on the drill is simply a lead to facilitate parallelism between the primary post-hole and the second tier.

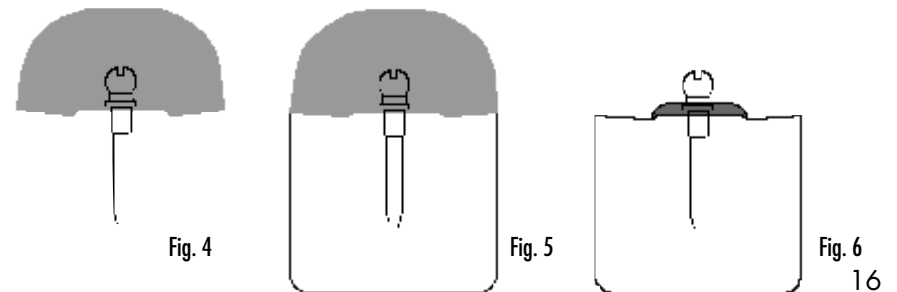
When doing the indirect/coping technique, a 0.5mm of space is needed between the flange of the post and the coronal tooth structure for the coping to be placed. (Fig. 1) To Achieve the 0.5mm of space, seat the post completely and then back off 1/2 turn. Since the threads on the shank are 1mm apart, 1/2 turn backwards will produce 0.5mm of opening.

If the post is longer than the post-hole, remove enough apical post length to allow the post to seat completely, and again back off 1/2 turn to achieve the 0.5mm of space needed.



1. After achieving proper post seating, take an impression of the trial seated post (the post is not cemented in at this point.) (Fig. 2)
2. Remove the impression from the post. (Fig. 3)
3. Remove the post from the canal, and temporarily seal the canal.
4. Send the impression to the laboratory along with the brass transfer stud, which you may or may not have inserted into the impression. (Fig. 4 -shows stud inserted into impression).
5. The laboratory places the transfer stud in the impression and pours it up in stone or plaster. (Fig. 5)
6. The laboratory then waxes up and casts the coping. (Fig. 6)

LABORATORY PROCEDURE:



7. The dentist then cements the coping (Fig. 7). After the coping is cemented (and while the cement is still wet), the Flexi-Overdenture is cemented to place (Fig. 8). The insertion stops when the flange is fully seated within the coping. (Fig. 9)

The dentist is now ready to insert the female cap into the overdenture. (Please see "Incorporation of the Attachment Cap" on page 12 for the details of this procedure.)



Fig. 7



Fig. 8



Fig. 9

Flexi-Overdenture Kits and Their Contents

To order Flexi-Overdenture and Flexi-Overdenture accessories contact your authorized EDS dealer, or call 1-800-22-FLEXI.

	<u>Stainless Steel</u> <small>(Direct/Non-Coping Technique)</small>	<u>Titanium</u> <small>(Indirect/Coping Technique)</small>
Introductory Kits:		
(6 posts each of sizes 1, 2, and accessories).....	Cat. No. 210-00	215-00
(4 posts each of sizes 1, 2, and accessories).....	Cat. No. 211-00	212-00
Refills:		
(6 posts, reamer, drill) #1	Cat. No. 230-01	235-01
#2	Cat. No. 230-02	235-02
#3	Cat. No. 230-03	235-03
		<small>(Direct/Non-Coping Technique)</small>
		236-01
		236-02
		236-03

Flexi-Overdenture Titanium packages (Cat. Nos. 215-00, 212-00, and 235-01 thru 03) are supplied with transfer studs for an indirect/coping technique.

Refills (Cat. Nos. 235-01 thru 03) have a secondary drill for doing an indirect/coping technique.

Refills (Cat. Nos. 236-01 thru 03) have a special countersink drill for doing a direct/non-coping technique.

Important Sterilization Procedures: **Endodontic Instruments, Posts, Drills and** **Wrenches are non-sterile.**

Prior to use, bag materials in an autoclave safe pouch and sterilize with a gravity displacement autoclave for 15 minutes at 132°C with a minimum drying time of 30 minutes. When reprocessing instruments, drills, wrenches, or taps, remove debris and dry before sterilization. Remove debris/soil using the EDS recommended cleaning protocol. Disinfect using a thermal disinfectant unit (washer-disinfectant) at 90°C for 1 minute.

For complete instructions see website.

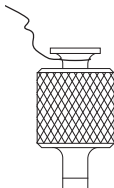


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Non-Sterile

(OVER)

Post Wrench Procedures:



In addition to the placement of a rubber dam, attach/tie a piece of dental floss (24 inch minimum) to the groove on the top of the wrench handle to allow for retrieval of the wrench.