

DALBO®

Summary

- Extracoronary precision attachment.
- Directed hinge featuring lateral stability, vertical resiliency with return spring (standard size only), and hinging movement.
- Gold alloy (Ceramicor) male.
- Gold alloy female, Elitor.
- Two sizes, Mini Dalbo lacks vertical resiliency.
- Vertical stabilizing bar restricts destructive lateral movement.
- Unilateral configuration. The unilateral design can be used in bilateral applications. It is the only version now available as complete attachments because the manufacturer no longer makes the bilateral type.
- Built-in indirect retention prevents posterior lift-off.
- Provides absolute vertical stop.

Fixation: Male - Ceramicor, soldered or cast to with most precious alloys.
Female - polymerize into denture acrylic.

Minimum Space Required:				
Elitor females, Ceramicor males	Height	FC Width	Prep depth	RC width
Standard unilateral	6.0mm	3.4mm	1.6mm	5.5mm
Mini unilateral	4.0mm	3.4mm	1.6mm	5.5mm

Indications

- Partial dentures - free-end or bounded, unilateral or bilateral.

Contraindications

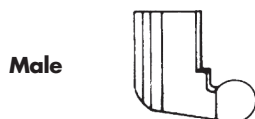
- Should not be used on bilateral cases when the abutment and edentulous ridge relationship forces the attachments to diverge dramatically.



ATTACHMENT DESCRIPTION

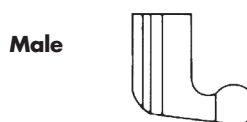
Standard-Unilateral

Hinge with spring-loaded vertical resiliency maximum lateral stability.



Mini-Unilateral

Hinge only with maximum lateral stability.



FOR PRECIOUS ABUTMENTS

Attachment	Order Number	Height Male	Height Female	Width Female	Male in Ceramicor for direct casting to precious metal retainer crowns. Female in Elitor for processing into denture base acrylic.
Standard-Unilateral	051244	7.5mm	5.0mm	3.5mm	
Mini-Unilateral	050701	6.5mm	3.0mm	3.5mm	

Order Number

For precious alloy retainer crowns (Elitor females and Ceramicor males):

Item	Number
Standard unilateral Dalbo	051244
Standard unilateral female with spring	051513
Standard unilateral male	051243
Mini unilateral Dalbo	050701
Mini unilateral female	050697
Mini unilateral male	050447

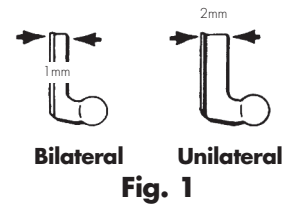
TOOLS LIST

Item	Number
Standard processing jig	070174
Mini processing jig	070176
Paralleling mandrel	070146
Standard fabricating plug	070149
Standard coil springs, 6	051143



SELECTING THE PROPER DALBO ATTACHMENT

1. The unilateral Dalbo features an extended stabilizing bar, and therefore provides maximum lateral stability (Fig. 1). It is now the only Dalbo attachment available for both unilateral and bilateral distal extension cases.
2. Always use the largest Dalbo for which you have room. The standard height requires a vertical height of at least 6mm. The miniature design requires at least 4mm (Fig. 2). This includes only 1 mm for the acrylic denture tooth.



FABRICATION INSTRUCTIONS

Design Considerations

The Dalbo should not be used in bilateral distal extension cases where widely diverging ridges prevent approximate paralleling of the stabilizing bars (Fig. 3). In these cases a non-hinging attachment such as the Stern Latch, or a universal joint, such as the Stern ERA-RV Partial Denture Attachment, is preferred.

Like all partial dentures, an attachment retained partial should feature extended saddles to support the load and a rigid major connector.

Though the Dalbo is often used with single abutments, for the best possible prognosis, sprinted abutments should be used whenever possible.

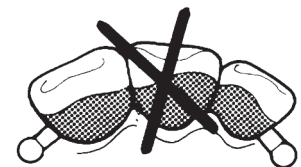
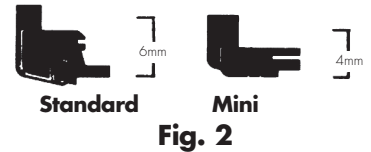


Fig. 3

Positioning the Attachment

1. Make complete impressions of the upper and lower arches. Pour the study models and mount with jaw relation records on the articulator. Select the appropriate size attachment and check on the articulated casts to assure that adequate space is available for the female. Be sure to allow at least 1 mm for the denture tooth.
2. Prepare abutments for conventional crowns, and take accurate full-arch impression.
3. Prepare the working cast and dies.
4. When positioning the male, the base should be in light contact with the model with the ball slightly off the tissue (Fig. 4). This is not always possible depending on the placement of the margin and the contour of the tissue. If there is space between the male and the tissue it will be blocked out later.

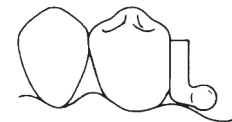


Fig. 4

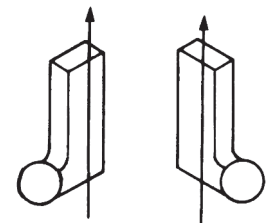


Fig. 5

In bilateral applications the long vertical axes of the male's stabilizing bars must be parallel to establish a single path of insertion (Fig. 5).

For the smoothest possible hinging, the stabilizing bars should be aligned (Fig. 6). However, when the ridge crests diverge the attachments may diverge up to 3° with regard to the sagittal plane (Fig. 7).

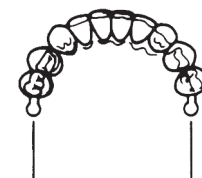


Fig. 6

In unilateral applications the attachment should follow the alveolar crest. Use only the Cross-Arch Roach attachment to cross-arch stabilize the case. The Cross-Arch Roach must be set at the same time as the Dalbo to assure a common path of insertion (Fig. 8).

Casting to the Ceramicor Male

Note: the melting range of Ceramicor alloy is 2550-2715°F, 1400-1490°C.

1. Wax the crown or coping and seat it on the working model.
2. Place the male on the paralleling mandrel, insert in the surveyor and position as described above. Wax the male into position, incorporating the curved retention plate in the wax so the flat stabilizing plate forms the interproximal wall (Fig. 9).
3. Sprue the abutment crowns or copings as usual, but position the sprue so the alloy does not flow directly toward the attachment.
4. Invest, burn out and cast in any hard precious or semi-precious alloy which has a casting temperature of 2450°F (1340°C) or lower. Do not cast non-precious alloys to the metal Dalbo male. For non-precious alloys, use the plastic pattern male only.

Insure a complete burnout and a mold temperature of at least 1350°F (730°C) at the time of casting to achieve a metallurgical bond to the attachment components.

Note: Generally the casting temperature of an alloy is 100-150°F (55-80°C) above the high end of its melting range.

5. Devest and finish the castings, being careful not to sandblast or rubber wheel the male. Abrading the male will destroy the attachment's precision fit. Polish the male using the Sterngold fiberglass polishing brush.

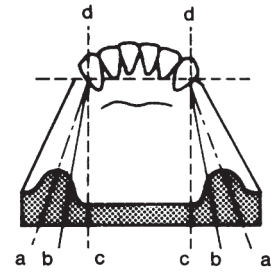


Fig. 7

- a. Direction of ridge
- b. Assembly direction for attachments
- c. Parallel direction
- d. Vertically parallel

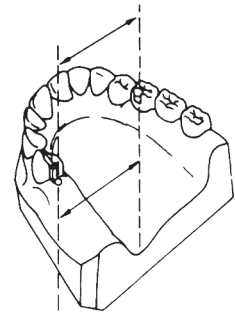


Fig. 8

Seating the Dalbo Female

1. Seat the castings with attachment males on the master cast. Place the females on the males and scribe a line on the cast around the females (Fig. 10). Remove the females. Block out and relieve the cast. Make an impression of the prepared cast and pour a refractory model.
2. Wax the partial denture framework, keeping it at least 0.5mm short of the scribed line (Fig. 11). Cast the partial denture framework in any appropriate alloy and finish.
3. Seat the crowns and the partial denture framework on the master model. Sticky wax the framework in position.
4. The female must be in the passive, or non-loaded, position when connecting it to the partial denture framework. The technician can lock it in the passive position by placing a drop of self-curing acrylic or sticky wax where the female meets the male stabilizing bar. This will prevent the attachment from hinging and, in the standard Dalbo, it will also prevent the spring from compressing (Fig. 12). It is highly recommended that you replace the spring with the fabricating plug to ensure the best vertical position when luting the female to the framework. Use petroleum jelly or Rubber Sep to hold the plug in place.

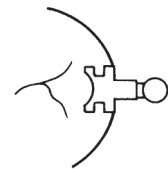


Fig. 9

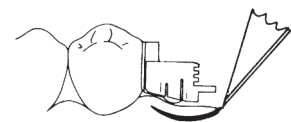


Fig. 10



Fig. 11

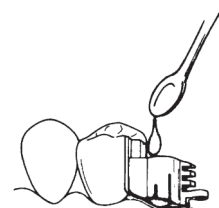


Fig. 12

5. Cover the female's retention flanges and block out underneath the male using Rubber Sep (order no. 812045) or wax (Fig. 13). Later this blockout material will be removed, creating a space in the processed denture acrylic which will allow the flanges to flex as the partial denture is inserted and removed. Lute the female to the framework with self-curing, denture repair acrylic (Fig. 14).

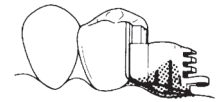


Fig. 13

6. If the dentist wants a try-in, make bite rims and a baseplate.

7. If the dentist has taken a second impression, pour a processing model with the abutment crowns in position. Remount the processing model.

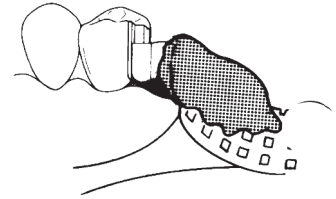


Fig. 14

8. Fill all open areas, voids and undercuts around the attachment with Rubber Sep. If not still covered, paint Rubber Sep over the female's adjustment flanges.

9. Roughly grind a plastic tooth to sit over the mounted female (Fig. 15). Even though the male's stabilizing bar may not extend to the occlusal surface of the denture tooth, an occlusal opening must be created for the bar to allow the attachment to function (Fig. 16). If the denture tooth is very thin, place several drops of tooth colored acrylic in the hollowed out area to opaque it.

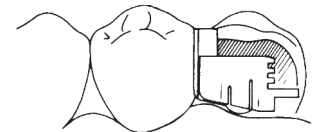
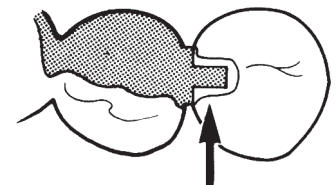


Fig. 15

10. Wax the denture base and set the teeth. Using the pour technique, process on the model with the abutment crowns in place.

11. After curing, recover the case.

12. Remove Rubber Sep from around the retention flanges to allow them to function. If more room is required, place a hot spatula between the retention flanges and acrylic to burn out some of the resin (Fig. 17). If the Fabricating Plug was used during processing of the Standard Dalbo, it is best to send it and the spring to the dentist to use during equilibration.



Grind an occlusal opening in the tooth

Fig. 16

13. Send the partial denture and fixed prosthesis to the dentist.

14. The dentist cements the crowns in place. Many prefer to initially cement the crowns using temporary cement.

Equilibration - The dentist can eliminate vertical resiliency from the standard size Dalbo by replacing the spring with the fabrication plug. After equilibration the plug is removed and the spring reinserted (see Servicing for instructions on spring insertion).

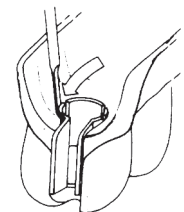


Fig. 17

15. After the patient demonstrates the most convenient release angle for the prosthesis, a notch is made near the tooth containing the female to aid the patient during removal of the partial denture (Fig. 18).



Fig. 18



SERVICING

A Dalbo retained partial denture may be so comfortable that the patient tends to neglect scheduled recalls. Therefore, the dentist must emphasize the need for semi-annual appointments. At the appointment the fit of the prosthesis and the functioning of the attachment are checked:

Attachment Function

1. The coil spring should be checked for resiliency and replaced if necessary.
2. Remove the old spring with the aide of a small screwdriver or pointed instrument (Fig. 19).
3. A new coil spring is placed on the tapered shank of a straight handpiece bur which has had its cutting tip removed. The spring is inserted with its larger diameter end toward the occlusal end of the attachment. Seat the spring until it snaps into place (Fig. 20).
4. If necessary, increase the retention by gently bending the female retention flanges inward (Fig. 21).

Rebasing:

1. If the case is retained by standard size Dalbos, remove the spring and fill female with petroleum jelly. Eliminate vertical resiliency by inserting the fabricating plug during impression taking.
2. Take a wash impression.
3. Remove the fabricating plug and insert a processing jig in the female of the attachment before processing cast is poured. This will maintain the female in proper position during rebasing.
4. Pour the model and rebase using standard laboratory procedures.

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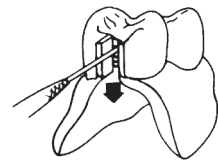


Fig. 19

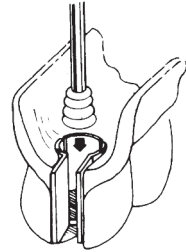


Fig. 20

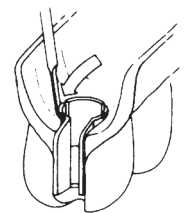


Fig. 21



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