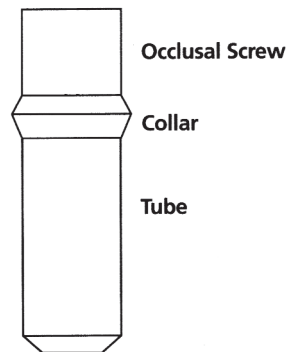


# CAP SCREW (Tube & Screw)

## Summary

- Precision screw, collar and threaded tube
- Rigidly connects primary and secondary telescoping castings
- Gold alloy tube (Ceramicor), collar (Ceramicor), and screw (OSV)
- Screw connections are used in dentist removable fixed partial dentures, case designs which accommodate non-parallel abutments, and implant restoration.
- The threaded tube is in the cemented primary casting. The collar is in the removable secondary casting and provides a precision seat for the head of the screw. The screw holds the primary and secondary castings together.



Fixation: Tube - fixed component, cast to with most precious alloys  
 Collar - removable component, cast to with most precious alloys

Minimum Space Required:				
	Height	Prep depth	FC width	RC width
<b>1.2mm diam. screw</b>				
short	4.2mm	2.8mm	2.8mm	3.3mm
long	6.2mm	4.8mm	2.8mm	3.3mm
<b>1.4mm diam. screw</b>				
short	5.2mm	3.4mm	3.0mm	3.7mm
long	7.1mm	5.4mm	3.0mm	3.7mm

## Indications

- Operator removable fixed restorations

## Contraindications

- Insufficient space for the attachment. The Cap Screw requires both a primary and a covering secondary casting. The tube cannot be shortened.

## ATTACHMENT DESCRIPTION

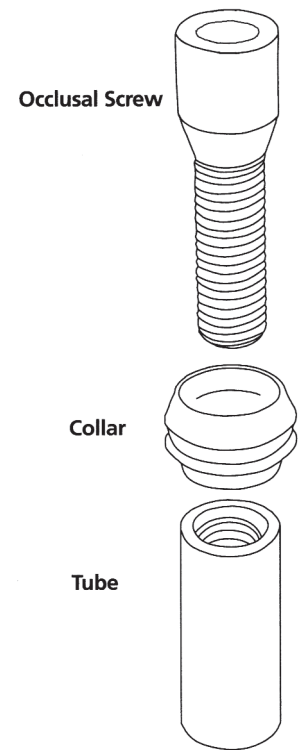
	Tube Height	Collar Height	Total
<b>1.2mm diam. screw</b>			
short	2.8mm	1.5mm	4.2mm
long	4.8mm	1.5mm	6.2mm
<b>1.4mm diam. screw</b>			
short	3.4mm	1.9mm	5.2mm
long	5.4mm	1.9mm	7.1mm

The Cap Screw attachment allows a bridge to be segmented into two or more sections, each with its own line of draw, yet to be a single rigid structure in the mouth. It can often provide a neat solution to non-parallel abutments and can even create a dentist removable pontic for easier periodontal maintenance of the case. It can also be used in conjunction with a UCLA abutment on implants to create a custom, screw retained, abutment when the implant diverges far from the case's path of insertion.

The Cap Screw attachment consists of three parts and one additional piece used to aid in fabrication. The three attachment parts are the tube with its internal threads, the screw and the collar. The tube is incorporated into a metal coping, crown, or implant abutment by soldering or casting the alloy directly against it. The collar is also cast against and becomes a part of a secondary casting which fits over the first casting containing the tube. The screw then threads into the tube, countersinks down into the collar, which is precisely machined to fit, and binds the two castings together.

The fabrication aid is the mounting screw. The mounting screw screws into the tube and holds it in position in the casting investment during the wax pattern burnout and while the molten alloy is flowing into the mold space.

One advantage of the Cap Screw is it allows production of screw retained prostheses without the expense of buying a milling machine. The reason is the preformed collar's precise fit to the bearing surface of the screw head. This fit firmly clamps the two castings together and greatly increases the stability of the restoration. However, the castings, not the screw, must bear all occlusal forces.



## Order Numbers

Item	Number
<b>Cap Screw complete attachment:</b>	
1.2mm diam. long	05000121
1.2mm diam. short	05000120
1.4mm diam. long	05000123
1.4mm diam. short	05000122
<b>Screw, long:</b>	
1.2mm diam.	05000164
1.4mm diam.	05000166
<b>Screw, short:</b>	
1.2mm diam.	05000163
1.4mm diam.	05000165
<b>Tube, long:</b>	
1.2mm diam.	055313
1.4mm diam.	055315
<b>Tube, short:</b>	
1.2mm diam.	055312
1.4mm diam.	055314
<b>Collar:</b>	
1.2mm diam.	051882
1.4mm diam.	051885



## TOOLS LIST

Item	Number
<b>Mounting Screw:</b>	
1.2mm diam.	072439
1.4mm diam.	072440
<b>Tap:</b>	
1.2mm diam.	070210
1.4mm diam.	070211
Tap holder	070213
<b>Hex Key</b>	07000008
<b>Small External Hex-MaLatch</b>	905004

## FABRICATION INSTRUCTIONS

1. Wax the underlying pattern with a sufficient thickness of wax to surround the tube. The metal supporting the tube should be at least 0.5mm thick.
2. Using a wax bur or a hot instrument prepare a recess in the pattern to receive the tube. The length of the tube cannot be changed, therefore, its position must be adjusted so that the secondary casting can be made at least as thick as the attachment collar at the screw site.
3. Screw the tube and collar loosely together using the hex key.
4. Using the screw as a handle, and holding it lightly with a forceps, slip the tube into the recess on the pattern and lute it in place. Once it is positioned, extend the wax pattern to the top of the tube.
5. Carefully remove the screw and collar from the tube.
6. Screw the mounting screw into the tube. A quick pretreatment of this pin will make it much easier to remove after casting. First, hold the pin in a Bunsen burner flame to oxidize it. Rub a graphite pencil over the treads to add additional graphite to the threads.
7. Sprue, invest, burnout and cast the primary casting. 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.

Use a high noble or noble alloy with a casting temperature of 2450°F (1340°C) or lower.

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

8. Devest the casting very carefully. Avoid breaking off the portion of the fixing pin extending from the tube.
9. Grasp the fixing pin with pliers as close to the casting as possible and turn it counter-clockwise. If the fixing pin (stainless steel) does break off in the tube it can be dissolved with HCl acid in an ultrasonic cleaner. This is a slow process because only the exposed cross section of the pin is attacked by the acid. The appropriate diameter tap may be used to clean the threads inside the tube, using the tap holder.
10. Finish the primary casting.
11. Place the collar on the screw and screw it into the tube. Seat the primary casting on its die and return the model to the articulator.
12. Coat the primary casting with die lubricant. Wax the secondary casting over the primary one and against the collar and screw. You will have to estimate the proper occlusal height.
13. Unscrew the screw from the tube and carefully slide it out of the wax pattern. The waxing screw is very smooth and should easily disengage from the wax.
14. Sprue, invest, burnout and cast the secondary casting. Remember that the alloy casting temperature must be below 2450°F (1340°C) to avoid damaging the Ceramicor collar. See Step 7.
15. Finish the secondary casting.
16. Fit all the restoration components together with the screw tightened as it will be in the mouth. Adjust the height and contour of the screw to the occlusal surfaces of the secondary casting.



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