



Tube and Screw System

The Tube and Screw is used for vertical screw retention of crowns and bridges, dentist-only removable fixed prosthesis, implant suprastructures, and telescopic prostheses.



Advantages

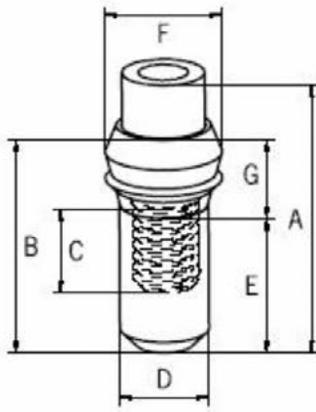
Easy to use. Prethreaded tubes for casting, soldering, or bonding to cast primary units.

Versatile. Multiple sizes of 1.20mm and 1.40mm diameter. Short and long available in each diameter. Same Hex used for Pin Screw and Tube and Screw systems.

Accurate. End cutting bur provides for accurate sizing and finishing of cast collar.

Component Listing

Tube & Screw



The hex screw is fabricated out of white gold, and can be shortened as needed, as long as the hex profile is maintained. The countersunk collar is a non-oxidizing precious alloy. The conical hex screw perfectly fits the countersunk collar, efficiently distributing forces and creating a hygienic seal on the occlusal surface.

The sleeve is also a precious alloy, and the fixation screw holds the sleeve in place during casting, reducing the risk of molten alloy flowing into it.

Always use the largest and longest screw for the space available. The bonding technique for the tube is the most accurate method of incorporation.

		A	B	C	D	E	F	G
	Thread	Total Length screw/tube	Shortened screw length	Thread length	Sleeve Ø	Sleeve length	Countersunk collar	Countersunk collar
		mm	mm	mm	mm	mm	mm	mm
1.2 short	M1.2	5.20	4.20	1.40	1.80	2.80	2.30	1.50
1.2 long	M1.2	7.20	6.20	3.40	1.80	4.80	2.30	1.50
1.4 short	M1.4	6.20	5.20	1.80	2.00	3.40	2.70	1.90
1.4 long	M1.4	8.10	7.10	3.80	2.00	5.40	2.70	1.90

Complete Tube and Screw Attachment.

Includes Tube, countersunk Collar, Fixation screw, and final Hex screw.



Four different options:

- 1.2mm Short
- 1.2mm Long
- 1.4mm Short
- 1.4mm Long

Fixation Screw



Thread the fixation screw into the tube prior to investing and casting to protect the threads from inflow of alloy. Remove the screw after devesting. Available in both 1.2mm and 1.4mm sizes.

The fixation screw can be destroyed at temperatures above 1400 °C and by excessive overheating of the casting alloy.



Hex Screw

For fixing primary and secondary parts in the mouth. Screw can only be reduced by a maximum of 1mm.



Countersunk Collar

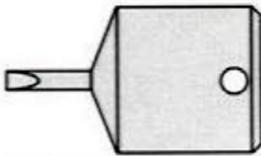
For casting on in the secondary part. Non-oxidizing, copper-free precious alloy. Casting-on recommended. Can also be laser-welded or soldered.



Tube & Screw Thread Cutter

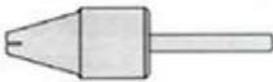
If the screw channel is tight, or has bubbles, use the proper size end cutting bur to calibrate, or refine, the screw rest. Use the socket key.

1.2mm and 1.4mm sizes.



Tube & Screw Hex driver

Used to thread in the original screw and complete any necessary adjustments.

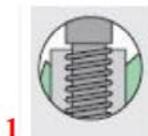


Tube & Screw Socket Key

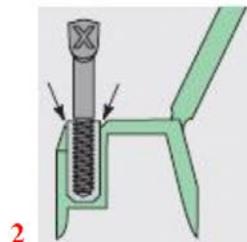
Used to hold the thread cutter during adjustments to the tube's threads.

Laboratory Procedures

Primary Unit: incorporating the Tube



1

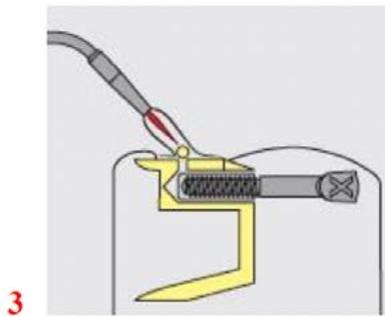


2

Select the proper length and diameter of tube and screw. Wax the primary crown, coping, implant abutment or bar. Position the Tube into the wax pattern of the primary crown/coping/bar in a vertical position according to anatomical, functional and aesthetic principles. The sleeve should be completely surrounded by wax. A small groove can be cut around the junction between the wax and sleeve to prevent an inflow of alloy when casting (**FIG 1-2**). Remove any wax around the opening of the tube

Note: Check the occlusion with the countersunk collar and screw inserted. The head of the screw should not come into contact with the opposing bite. If required, the screw head can be shortened by max. 1 mm.

Casting to / soldering the Tube



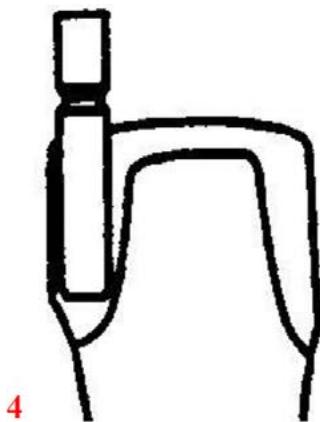
Casting: Select the proper size investment fixation screw to retain the sleeve and protect the threads. Oxidize the fixation screw (400 °C / 10 min.) before use. Coat the threaded portion and part way up the shank with [Liquid Colloidal Graphite](#).

Thread the investment fixation screw into the tube, invest, and cast. The tube melting range is 1400-1490°C. After deinvesting, carefully unscrew the fixation screw from the sleeve without bending it. If the fixation screw is frozen in the casting, warm sulfuric acid (or Strip-It) will dissolve the investment fixation screw after about 1 hour in a heated 30 % hydrochloric acid solution (HCL).

If flash is on threads, put thread cutter into socket key and gently clean the threads.

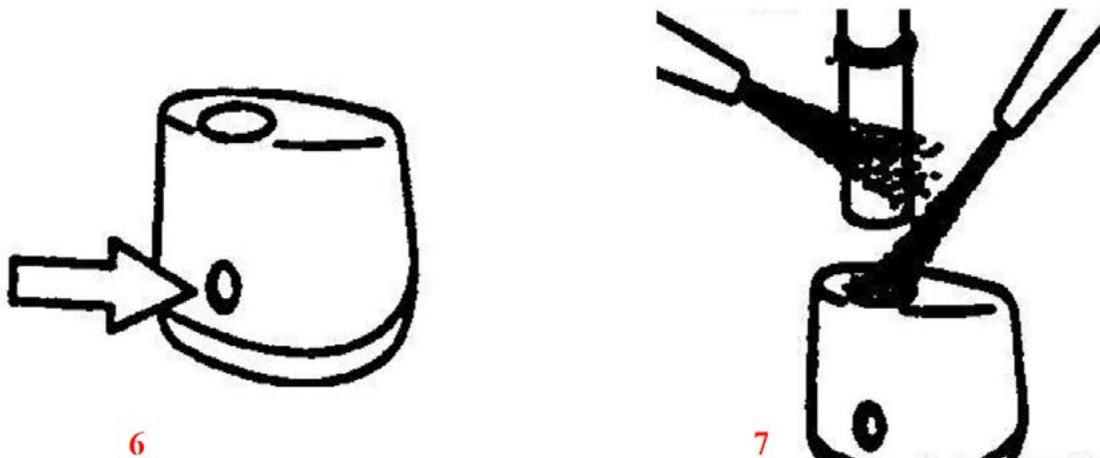
Soldering: The fixation screw is also used for fabricating the solder model. "Vent" the pocket hole to ensure the solder surrounds the tube completely and to prevent the solder flowing into the thread. This can be done by drilling a small hole or making a slit (**Fig. 3**).

Laser welding: The sleeve can also be laser welded. Filler material of the same alloy as the primary crown material should be used to ensure a reliable weld. The laser seam should be completely sealed to prevent corrosion due to pitting.

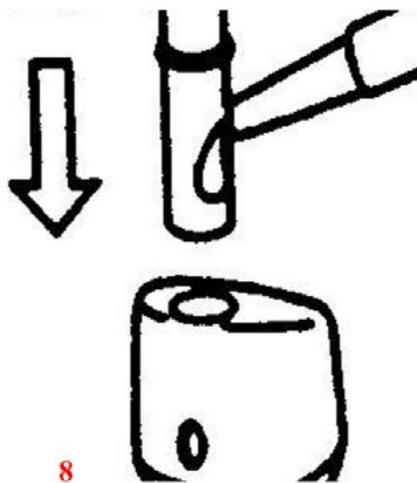


Resin bonding: Allow a minimum of 0.3mm space for wax (metal) between the die and the waxing spacer. Select the proper diameter and length waxing spacer and tube and screw (**FIG 4**). Thread the fixation screw

into the tube. Lubricate the tube with either die lube or silicone. Wax the primary unit around the tube (**FIG 5**). Using the fixation screw as a handle, carefully remove the waxing spacer.



Make a hole to allow investment to fill the space and pass through (**FIG 6**). Invest, cast, and devest. Thread the fixation screw into the tube to act as a handle. Clean the outside of the tube of any body oils. Sandblast the outside of the tube and the space in the casting with clean, small size, aluminum oxide (**FIG 7**). Clean the outside of the tube and the inside of the space in the casting.



Put wax on the fixation screw to keep it free from the composite bonding material. Mix equal parts of [Ceka Site](#) anaerobic bonding composite resin. Place in the space in the casting and on the outside of the tube. Position the tube in the casting. Allow to set for 5 minutes. Wipe away any excess composite and remove the fixation screw (**FIG 8**).

Please make sure to make a fresh mix of Ceka Site for each tube. **Do not** use the excess Ceka Site on the mixing pad, as its working time has expired.

Secondary unit

The secondary unit is fabricated after trimming and polishing the primary unit. This involves inserting the countersunk collar with the screw, which has already been shortened as required. The countersunk collar is integrated in the wax pattern. A small groove should be cut around the junction between the wax and countersunk collar to prevent molten alloy flowing into the ring when casting. Invest, cast and polish the unit. Note: If the countersunk collar has been properly invested without bubbles, it should be adequately retained in the investment.

Finish the secondary structure, and attach to the primary structure with the Hex screw.

Removal of Screw Retained Prosthesis

The hex key is designed to ensure proper retention of the screws and safe handling intraorally. Note, retention of the screw on the hex key can be reduced while unscrewing. When the screw is almost

completely undone, increase pressure to make sure it remains on the hex key. The hex key should also be secured with a cord in the drill hole provided. Cover the working area with a rubber dam to safeguard against aspiration.

Technical Tips

The Tube and Screw are a holding device to maintain separate castings in a locked or fixed position. The Tube and Screw are not designed to correct movement or deficiency between two cast units.

Always keep the screw head out of occlusal contact.