



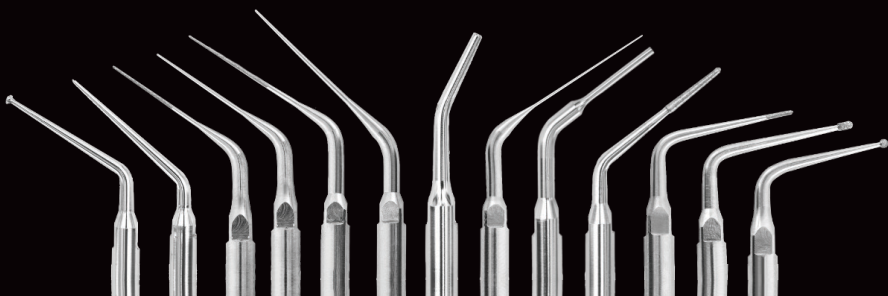
Helsē Ultrasonic

2019 EDITION

# Field Guide

to the Ultrasonic Revolution

20 Endo Tasks... Simplified.





## Sparking an Ultrasonic Revolution

At Helse Ultrasonic, our unwavering mission is to turn your ultrasonic unit into the most powerful tool in your practice.

We are dedicated to designing, manufacturing and testing the most innovative and leading-edge ultrasonic tips to help endodontists perform even the most challenging procedures and deliver the highest quality of care to their patients.

## Education & Knowledge Sharing is Our Passion

We believe breakthrough discoveries and knowledge should be shared openly. Thus, we are committed to researching, documenting and sharing our experience and innovations so that you may apply them in your practice. In our website you will find a comprehensive and growing library of procedures and leading edge techniques based on best practices and world class publications.

At Helse Ultrasonic... we have the answer.

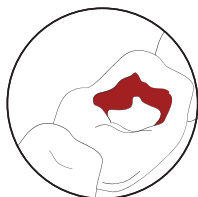
**Helsē**Ultrasonic.com



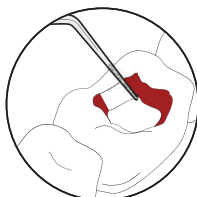


## Refining the Access

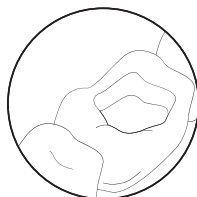
The access is the first phase of endodontic treatment. It permits entry to the pulp chamber through the removal of its roof as well as dentin, facilitating the access to the canal orifices. A well designed and well executed access is paramount to achieving proper cleaning, shaping, and obturation of the root canal system.



1. Access with pulp chamber roof remaining.



2. Place tip inside the pulp chamber, contact the dentin, and then activate ultrasonic action.



3. Remove all interferences obstructing access to canals.



E6D - Pear Diamond  
E7D - Access Diamond

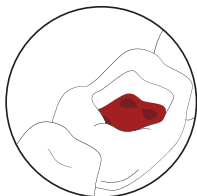
*Tips are listed from left to right*



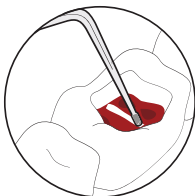
# Pulp Chamber Procedures

## Locating Calcified Canals

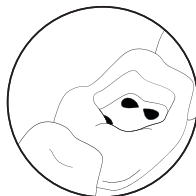
One of the challenges in endodontics is the removal of calcifications that block the access to the root canals. The best treatment for this condition is the combination of magnification and ultrasonics. The improved visualization and the conservative removal of tooth structure with the ultrasonic tip result in fewer iatrogenic errors.



1. Pulp chamber with calcifications obstructing the access to the canals.



2. Ultrasonic tip in contact with calcification and activated to remove obstructions.



3. Accessible canals after instrumentation with ultrasonic tip.

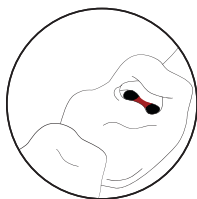


E6D - Pear Diamond  
E15 - The Finder™  
E7D - Access Diamond  
E3D - Ball Diamond

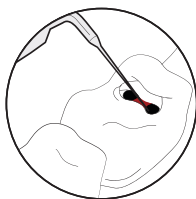


## Locating Isthmus Areas

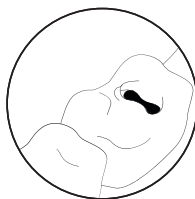
Failing to locate and treat canal anatomy can contribute to persistent infection and postoperative sequelae. Isthmuses are narrow anatomic areas that connect two root canals. Vital or necrotic pulp can remain in an isthmus if left untreated. Instrumentation of an isthmus with burs can result in excessive removal of tooth structure and iatrogenic ramifications. The concomitant use of ultrasonics and magnification facilitates precise and selective cleaning of isthmus areas.



1. Canals after instrumentation with files.



2. The ultrasonic tip must touch all isthmus walls.



3. Clean isthmus area.



E2D - Conical Diamond  
E15 - The Finder™  
E6D - Pear Diamond

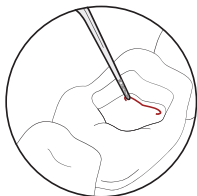
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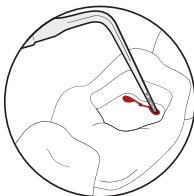
# Pulp Chamber Procedures

## Locating Middle Mesial Canals

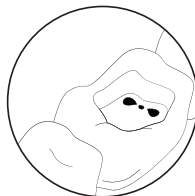
The mandibular molar is traditionally described as a tooth with two canals in the mesial root. However, studies have shown that its anatomy can vary significantly, and a third canal is found in 15-25% of all cases. When working without magnification, it is likely that the middle mesial canal will be missed. However, the application of magnification and ultrasonics to trough between the mesiobuccal and mesiolingual canals with a diamond coated tip (E2D or E6D) can increase the probability of finding the middle mesial canal by up to 50%.



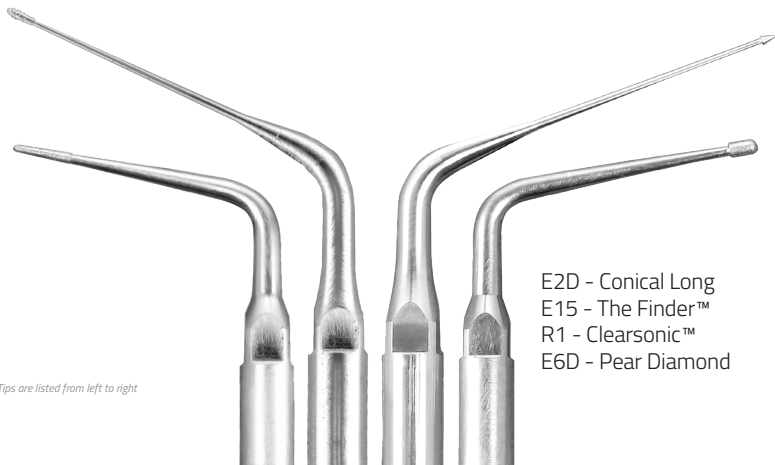
1. Create a groove connecting the mesiobuccal and mesiolingual canals.



2. Locate the middle mesial canal orifice along the groove.



3. Use an appropriate file to negotiate and prepare the canal.

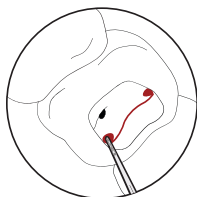


E2D - Conical Long  
E15 - The Finder™  
R1 - Clearsonic™  
E6D - Pear Diamond



## Locating MB2 Canals

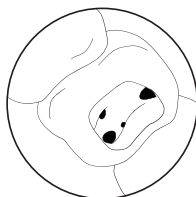
Studies on maxillary first molar anatomy show that the second mesiobuccal canal (MB2) is present in 65-90% of the cases. Ultrasonic instrumentation with a diamond coated tip (E2D or E6D) along the line connecting the primary mesiobuccal and the palatal canals will often reveal the MB2 orifice location. Clinically, the use of magnification and ultrasonics is the most effective technique to locate the MB2 canal.



1. Create a groove to connect the MB1 and the palatal canal.



2. Locate the MB2 orifice along the groove.



3. Use an appropriate file to negotiate and prepare the canal.



E6D - Pear Diamond  
E2D - Conical Diamond  
E15 - The Finder™  
R2 - Flatsonic™  
E3D - Ball Diamond

*Tips are listed from left to right*



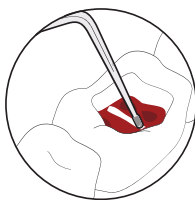
# Pulp Chamber Procedures

## Removing Pulp Stones

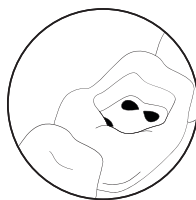
Another challenge in Endodontics is the removal of pulp stones, as they block the access to the root canals. The best treatment for this condition is the combination of magnification and ultrasonics. The improved visualization and the conservative wear of the ultrasonic tip result in fewer iatrogenic errors.



1. Pulp chamber with pulp stones obstructing the access to the canals.



2. Activate the ultrasonic tip in contact with pulp stones.



3. Unblocked access to canals after removal procedure.



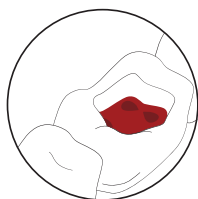
E7D - Access Diamond  
E6D - Pear Diamond  
E3D - Ball Diamond



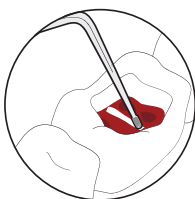


## Removing Restorative Material

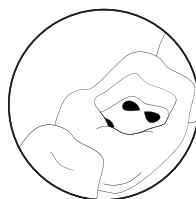
The removal of restorative material such as amalgam, composite resin, and glass ionomer can be necessary to gain access to the root canal system. Removal of restorative materials with ultrasonic instrumentation under magnification can preserve tooth structure and avoid iatrogenic errors. The recommended ultrasonic tips for this purpose are the diamond coated ball and pear shaped ones - the round end of these instruments helps to avoid perforations. Ultrasonic tips provide a higher level of control, allowing a much less invasive approach when compared to burs.



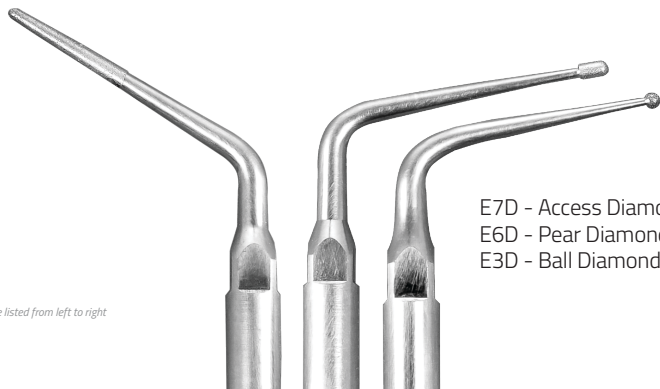
1. Pulp chamber with restorative materials blocking the access to the canals.



2. Remove remnants of amalgam, resin and ionomer with the ultrasonic tip.



3. Unblocked access to canals after the procedure.



E7D - Access Diamond  
E6D - Pear Diamond  
E3D - Ball Diamond

*Tips are listed from left to right*



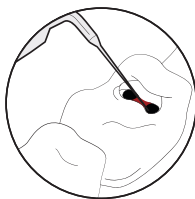
## Middle Third Procedures

### Cleaning Isthmus Areas

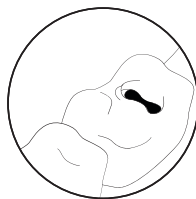
Isthmuses are narrow anatomic areas containing pulp and/or necrotic tissue. The isthmus should be disinfected and cleaned as thoroughly as possible. When instrumenting canals with traditional files, a large portion of wall areas remains untouched. Ultrasonic tips can help to considerably raise the percentage of cleaned intracanal surface.



1. Canals after instrumentation with files.



2. The ultrasonic tip must touch all isthmus walls.



3. Clean isthmus area.



E18 - Isthmus  
E18D - Isthmus D  
E4D - Long Diamond  
R2 - Flatsonic™  
E2D - Conical Diamond

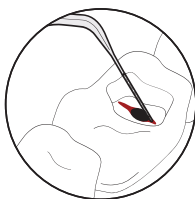


## Cleaning Flattened Canals

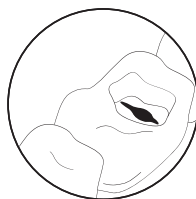
Most root canals have a ribbon shape to some degree, presenting narrow anatomic areas with pulp and/or necrotic tissue. This happens in 89% of lower molars, 75% of lower incisors and 54% of upper premolars. When instrumenting canals with traditional files, a large portion of wall areas remains untouched. Ultrasonic tips can considerably raise the percentage of cleaned intracanal surface.



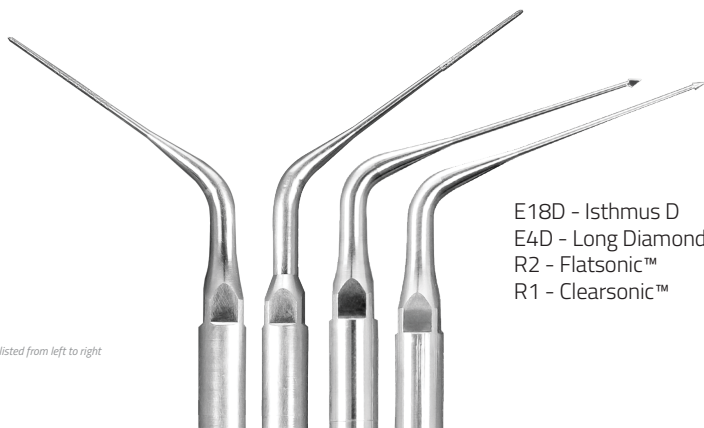
1. Canals after instrumentation with files.



2. The ultrasonic tip must touch all flattened areas including the buccal and lingual walls.



3. Clean walls after the procedure.



E18D - Isthmus D  
E4D - Long Diamond  
R2 - Flatsonic™  
R1 - Clearsonic™

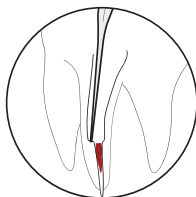
*Tips are listed from left to right*



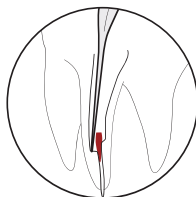
## Middle Third Procedures

### Removing Separated Files

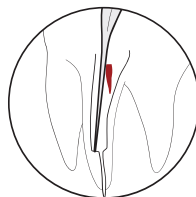
A separated file will immediately change the level of complexity and involvement of an endodontic case by altering the outcome of cleaning, shaping, and filling of the canal. The use of magnification and ultrasonic instrumentation is an excellent alternative to removing a separated file. The procedure starts with a circumferential reduction of the dentin wall using a diamond coated ultrasonic tip (E4D or E18D). Subsequently, a plain tip (E5 or E18) must be placed in contact with the separated file and then activated. The vibration will loosen and dislodge the file.



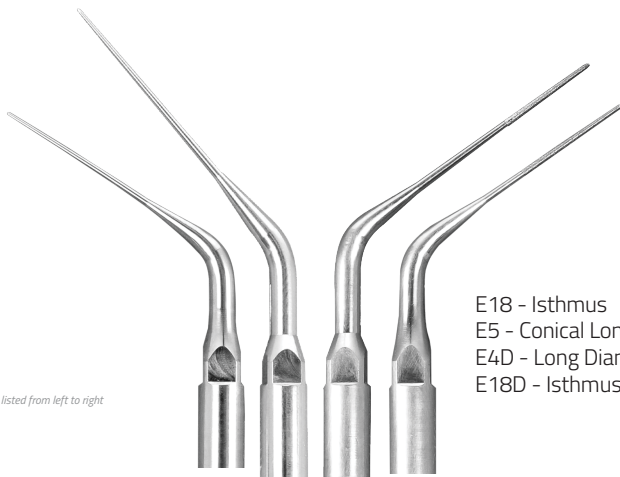
1. Reduce the dentin wall around the separated file.



2. Vibrate the separated file until it moves.



3. Repeat step 2 until the separate file is removed.

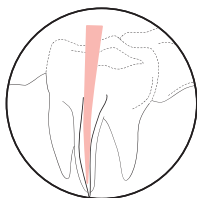


E18 - Isthmus  
E5 - Conical Long  
E4D - Long Diamond  
E18D - Isthmus D

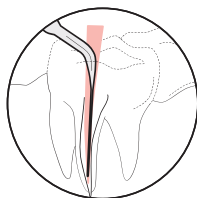


## Obturing with Gutta-Percha

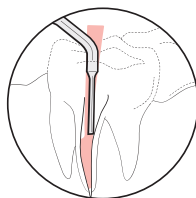
Ultrasonics are an effective alternative for thermoplasticising Gutta-Percha. Initially, the master cone is placed to the desired length. A thin ultrasonic tip is then placed to an apical extent within the canal. With activation, the tip will generate heat and thermoplasticize the Gutta-Percha. Subsequently, bulkier tips may be used in the middle and coronal portions of the canal. At the level of the orifice, the cones can be cut using the same tips. This method can be more economical than purchasing specialized heating units with corresponding pluggers.



1. Insert the Gutta-Percha cone into the canal.



2. Use an E11 Heatsonic™ tip to thermoplasticize the cone in the most apical portion of the canal.



3. Use an E10 tip to thermoplasticize the cone in the middle and coronal portions of the canal.



E11 - Heatsonic™  
E10 - Cut & Condense

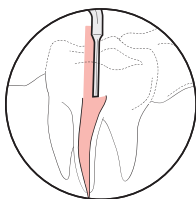
*Tips are listed from left to right*



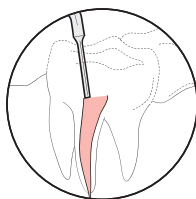
## Middle Third Procedures

### Cutting and Condensing Gutta-Percha

The most common technique to cut and condense Gutta-Percha requires the use of expensive heating instruments. These may cost thousands of dollars and have no use in other daily procedures. A simple, fast and inexpensive way to do it is using ultrasonics - the heat produced by the ultrasonic tip is enough to cut and condense the material. The final results are very similar and the procedure can be done with the same ultrasonic unit already in use in other steps of the treatment.



1. Insert the Gutta-Percha cone into the canal.



2. Use an E10 tip to cut the cone. Release the footswitch and immediately condense the cone.



E11 - Heatsonic™  
E10 - Cut & Condense

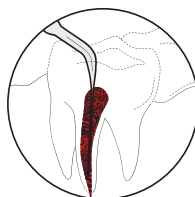


## Activating Irrigation Solution

Ultrasonic activation is more efficient than traditional irrigation methods because it potentiates biofilm removal with the action of the irrigation fluid. It significantly eliminates more remnants of pulp and necrotic tissue from lateral canals and isthmus areas because it allows a deeper penetration of irrigants into complex anatomic regions of the root canal.



1. Root canals previously cleaned.



2. Activate EDTA for 15s, NaOCl for 15s. Repeat this step.



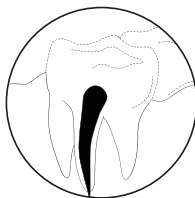
E1 - Irrisonic™



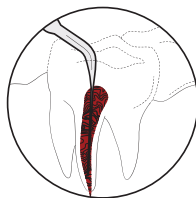
# Activation Procedures

## Activating Calcium Hydroxide

One of the most widely used intracanal medicaments is calcium hydroxide paste. Due to its high viscosity and surface tension, penetration into the root canal system takes at least 15 days. The ultrasonic agitation of calcium hydroxide paste fills the canal system more effectively, with greater exposure to dentinal tubules and isthmus areas.



1. Root canals previously cleaned.



2. Fill the canal with calcium hydroxide. Activate for 30s. Repeat this step.



E1 - Irrisonic™



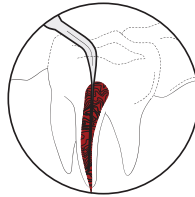


## Activating Cement

A good obturation completely fills the root canal system, avoiding the formation of bacterial colonies. The cement fills the space between the canal and the Gutta-Percha cone. The use of ultrasonics to activate the cement facilitates its penetration into small empty spaces of the root anatomy. The activation makes a huge difference in the treatment outcome because it eliminates air bubbles and pushes cement into the secondary root canal anatomy.



1. Root canal ready to obturate.



2. Place the cement inside the canal.  
Activate for 30s.



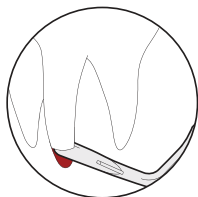
E1 - Irrisonic™



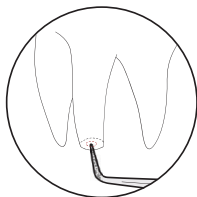
# Apical Surgery Procedures

## Apical Surgery

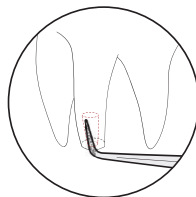
Root end preparation may be challenging depending on tooth location, inclination and accessibility. The P1 line of ultrasonic tips was developed to facilitate access for different working angles and mitigate these challenges - featuring the exclusive P1B Bladesonic™, that can be used both for opening the access through the bone and for root end resection.



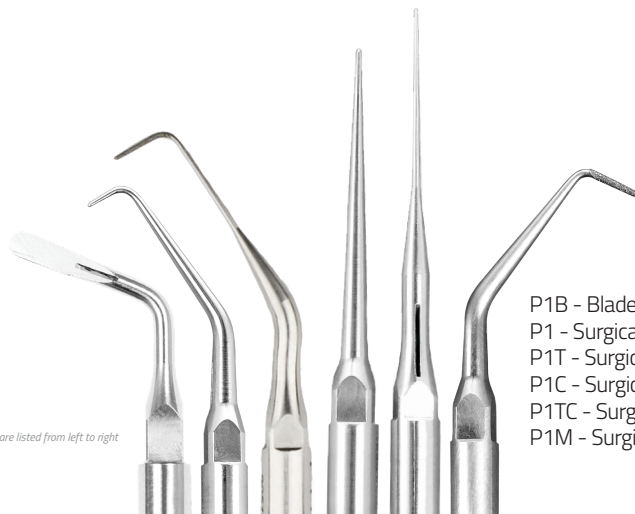
1. After removing infected or inflamed tissue, resect the root end using a P1B Bladesonic™ tip.



2. Choose one of the retro prep tips (P1, P1M, P1T, P1C or P1TC) according to size and angle of the canal.



3. Perform retropreparation and obturate.

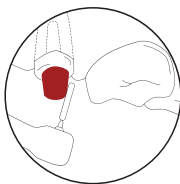


P1B - Bladesonic™  
P1 - Surgical Std  
P1T - Surgical Thin  
P1C - Surgical Custom  
P1TC - Surgical Thin Custom  
P1M - Surgical Long

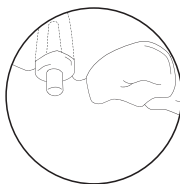


## Removing Cast Posts

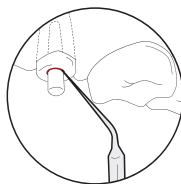
During endodontic retreatment, the removal of a cast metal post can be a difficult procedure which carries risk of perforation and fracture of the tooth. Ultrasonic vibration breaks the bond between the post and the canal walls, facilitating its removal. There are many advantages of using ultrasonics for this procedure, including speed, conservation of tooth structure, and minimizing risk of tooth fracture.



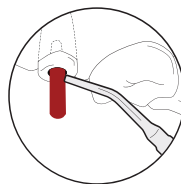
1. Reduce the coronal portion.



2. Expose the cement line.



3. Break/remove the cement line using the E8 tip.



4. Vibrate the E12 tip at the base of the post.



E8 - Scouter  
E12 - Post Removal HP

*Tips are listed from left to right*



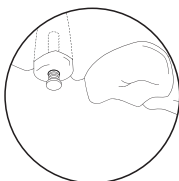
# Post Removal Procedures

## Removing Threaded Posts

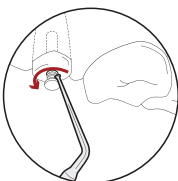
During endodontic retreatment, the removal of a threaded metal post can be a difficult procedure which carries the risk of perforation and fracture of the tooth. Ultrasonic vibration breaks the bond between the post and the canal walls, facilitating its removal. There are many advantages of using ultrasonics for this procedure, including speed, conservation of tooth structure, and minimizing risk of tooth fracture.



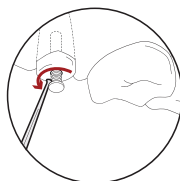
1. Reduce the coronal portion.



2. Exposed threaded post.



3. Counterclockwise vibration with sidewardly placed E9 tip.



4. Repeat step 3 until the post is removed.

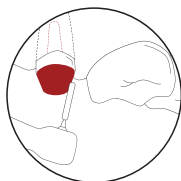


E8 - Scouter  
E9 - Post Removal

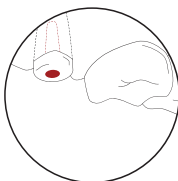


## Removing Fiber Posts

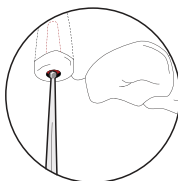
Due to the growing demand of cosmetic interventions in the dental practice, new metal free retention systems have been developed. These fiber posts are similar to natural teeth in color. However, when retreatment is inevitable, removing non metal posts can be an obstacle to performing a new endodontic intervention. The use of ultrasonic tips to remove fiber posts can considerably reduce the treatment duration and avoid common mistakes related to this procedure.



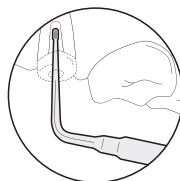
1. Reduce the coronal portion.



2. Fiber post inside the resin cement.



3. Reduce the post inside the canal using a round bur.



4. Reduce the remaining of the fiber post using a diamond coated ultrasonic tip.



E18D - Isthmus D  
E4D - Conical Diamond  
E6D - Pear Diamond  
E3D - Ball Diamond

*Tips are listed from left to right*

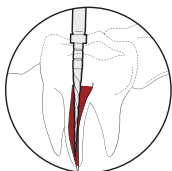


# Retreatment Procedures

## Cleaning Canals in Retreatments

Using chemical solvents to dissolve Gutta-Percha and cement may not be an ideal option. The use of solvents results in filling the whole secondary anatomy, canal walls and dentin tubules with remnants of Gutta-Percha and cement, making it much more difficult to execute a thorough cleaning.

A good available alternative is the combination of ultrasonics and mechanized instruments. Ultrasonic tips should be used to remove Gutta-Percha from the cervical and medium portions of the canal. This method is faster than using manual files and also helps to remove the canal anatomy because the filling materials are removed with a minimal dentin loss.



1. Using a retreatment rotary file, remove any previous filling material from the canal.



2. The file is not physically able to remove everything.



3. Using a Clearsonic™ or Flatsonic™ tip, touch all canal walls to remove residues.



4. Activate the irrigation solution as a final cleaning step.



R1 - Clearsonic™  
R2 - Flatsonic™  
E1 - Irrisonic™

# 20 Endo Tasks... Simplified.



## See the expanded Field Guides Online... with Video, Additional Explanation & Research.

HelseUltrasonic.com is where you can purchase tips and also learn more about these procedures in detail. We have created step-by-step endo procedure guides, illustrations and videos so that you will be able to utilize Ultrasonics in your practice immediately.

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