EDGEENDO®

EdgeEvolve™ Heat Treated Fire-Wire™ NiTi Rotary Files for *Moderate Shaped Endodontics*

DIRECTIONS FOR USE

Overview
Endodontic success has always included proper Access Prep, Canal Shaping, Canal Disinfecting, and Canal Obturation. But there has been an evolving change for more Moderate Shaped Endodontics by having a more Moderate Access Prep & Coronal ½ shape, while still producing a Deep Apical ½ shape to properly disinfect the canal.

- Moderate Access Prep and Coronal ½ canal shape reduces fractures in the Access Prep and the Coronal ½ of the root to reduce tooth loss.

- Deep Apical ½ canal shape disinfects the canal where the bacteria that can cause endodontic failure occur.
  - Physically removes infected tissue and dentin.
  - Allows irrigants better access to physically flush infected tissue and chemically disinfect infected dentin.

The EdgeEvolve™ Heat Treated is perfect for this by having Tip sizes of 17, 20, 25, 30, 35, 40 and Taper sizes of 04, 06, 08, 10 Taper for each tip size with a maximum flute diameter of 1.0 mm for each file. The 1.0 mm maximum flute diameter for all EdgeEvolve™ files is produced by having a constant taper from the tip until the flute diameter reaches 1.0 mm. Then the taper varies (changes) to a Zero or Straight taper while the flutes continue to 15mm (Figure Y). By having a 1.0 mm maximum flute diameter, the EdgeEvolve™ can more easily negotiate the Access Prep, conserve the coronal portion of the canal and provide a deep apical shape. Recommended motor setting are 300 to 600 RPMS.

Canal Shaping
Canal Shaping entails preparing the Apical ½ and Coronal ½ of the canal but it also extends into the Access Prep. Conserving tooth structure in the Access Prep and Coronal ½ has been shown to prevent fractures and thus prevent premature tooth loss. Therefore, a Moderate Access Prep and Coronal ½ is advised. To show how the EdgeEvolve™ Heat Treated is used for Moderate Shaped Endodontics, let's divide the tooth into three areas: Access Prep, Coronal ½ and Apical ½ and show how the EdgeEvolve™ Heat Treated NiTi rotary files work best in these areas.

Access Prep: With all Access Preps, but especially Moderate ones, you need a file that is very flexible high up the shaft. This is the part of the file that may never go into the canal. Like in molars with an average canal/root length of 12mm (Figure X), 12mm to 25mm of a 25mm file never goes into the canal. But that part of the file still needs to be very flexible to go around the Access Prep (Figure Y). This is even more important for a Moderate Access Prep. You need a file like EdgeEvolve™ that is very flexible in the shaft to negotiate the Access Prep without stress on the file when in contact with the walls of the Access Prep. This will prevent file breakage towards the middle or end of the file. EdgeEvolve™ is the most flexible file from 12mm up to the handle (Table flexibility at 18mm) as well as down to the tip.

Coronal ½: To conserve tooth structure and prevent strip perforations and root fractures in the Coronal ½ of the canal, the maximum flute diameter should not exceed 1.0 mm. This part of the file 6-12mm from the tip also needs to be extremely flexible to negotiate the Dentinal Triangle (Fig. X) and High Curved canals. High Curved canals are canals that curve in the Coronal ½ of the canal (Fig. X). Other files that cannot flex well in the Coronal ½ are more likely to fracture going around High Curves. This would force you to use smaller finishing files that give an insufficiently small final shape and which may compromise endodontic success. The EdgeEvolve™ is the most flexible file in the Coronal ½ (Show Table of flexibility at 9mm). With EdgeEvolve™ you don't have to compromise and can use the larger finishing files you want.

Apical ½: This is where having a deep shape is important to physically remove tissue and infected dentin, allow irrigation to rinse out soft tissue and to disinfect the dentinal walls and to obturate effectively. Removing the bacteria in the Apical ½ is crucial for endodontic success. Whichever technique you use below to create a Deep Apical ½ shape, the EdgeEvolve™ Heat Treated NiTi Rotary files have the best Cyclic Fatigue rates and extreme flexibility to best negotiate sharp curves in the apical 0 to 6mm of the canal. Cyclic Fatigue Tests have shown EdgeEvolve™ is 2-8 times better at handling severe curves than other files on the market. (3mm Flex Test and Cyclic Fatigue)

EdgeEvolve™ Instrumentation
Here are some different techniques the EdgeEvolve™ can be used to create a Deep Apical ½ Shape while negotiating Moderate Access Preps and keeping a Moderate Coronal ½ shape of 1.0 mm in diameter:

1. Small Tip/Large Taper (Tip 20 or 25/Taper 08 or 10) 20/08 20/10 25/08 25/10
2. Large Tip/Small Taper (Tip 30 35 40/Taper 04 or 06) 30/04 30/06 35/04 35/06 40/04 40/06
3. Large Tip/Large Taper (Tip 30 35 40/Taper 08 or 10) 30/08 30/10 35/08 35/10 40/08 40/10

1) Small Tip/Large Taper
This emphasizes a smaller tip size (20 or 25) with a large apical taper (08 or 10) to give a Schilder Apical Shape1 (Figure 1) but with a more Moderate Coronal ½ shape of the canal. Typically, the tip size would be a size 20 or 25 file with an Apical ½ taper of 8% or 10%.1, 2

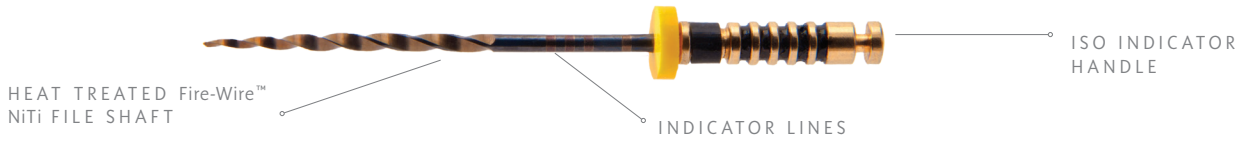
Glide Path
Fill chamber with 17% EDTA liquid (EdgeLube™)
Coat files with 17% EDTA gel (EdgeGel™)
Take #10 hand file to estimated Working Length.
Establish working length (Apex Locator/X-ray)
Optional Steps:
- Established canal patency: Take #10 hand file 1mm past WL
- Take a #15 hand file to working length.
- Use 17/04 as a Glide Path file.

Shape Canal
Fill chamber with EdgeLube™
Coat file with EdgeGel™
Take each file to Working Length: 20/04 to 20/06 to 20/08 to 20/10 (optional)
(Or Crown-Down: 20/10 to 20/08 to 20/06 to 20/04 repeat)
Rinse with EdgeLube™
Recapitulate with a #10 hand file to the Working Length after each rotary file.

Finish Canal
If a 20/08 or 20/10 is your Final Shape, you're done. If not, finish with a 25/08 or 25/10.
Disinfect and Obturate Canals

2) Large Tip/Small Taper
This classic preparation enlarges the tip size to a size 30, 35 or 40 with an Apical ½ taper of 4% or 6%.3 The EdgeEvolve™ Heat Treated has a constant taper from the tip until the flute diameter reaches 1.0 mm then the taper varies to a zero or straight taper while the flutes extend to 15mm. The EdgeEvolve™ Heat Treated gives a Moderate Coronal ½ shape with a Deep Apical ½ shape while having astonishing Cyclic Fatigue and Flexibility.

Glide Path
Fill chamber with 17% EDTA liquid (EdgeLube™)
Coat files with 17% EDTA gel (EdgeGel™)
Take #10 hand file to estimated Working Length.
Establish working length (Apex Locator/X-ray)
Optional Steps:
- Established canal patency: Take #10 hand file 1mm past WL
- Take a #15 hand file to working length.
- Use 17/04 as a Glide Path file.



Shape Canal
Fill chamber with EdgeLube™
Coat file with EdgeGel™
Take each file to Working Length: 20/04 to 25/04 to 30/04
(Or Crown-Down: 30/04 to 25/04 to 20/04 repeat)
Rinse with EdgeLube™
Recapitulate with a #10 hand file to the Working Length after each rotary file.

Finish Canal
04 Taper: Either stop at the 30/04 or increase to the tip size you want: 35/04(optional) to 40/04 (optional)
06 Taper: After the 30/04, take the 30/06 then stop at the 06 taper tip size you want: 30/06 to 35/06(optional) to 40/06 (optional)
Disinfect and Obturate Canals

3) Large Tip/Large Taper

This preparation was not realistic until the advent of the EdgeEvolve™ Heat Treated. The Large Tip/Large Taper preparation has a large tip size with a large apical taper to provide a Deeper Apical ½ shape than the other two techniques while still maintaining a Moderate Coronal ½ of the canal. Typically, the tip size would be a size 30, 35 or 40 file with an Apical ½ taper of 8% or 10%. The EdgeEvolve™ Heat Treated has a constant taper until the flute diameter reaches 1.0mm than it varies to a zero or straight taper while the flutes continue to 15mm in length (Table X). The final shaping files would be a 30/08, 30/10, 35/08, 35/10, 40/08, or 40/10 NiTi rotary file. The only file on the market that have these sizes and is flexible enough to go around even 90 degree curves is the EdgeEvolve™ Heat Treated. The Cyclic Fatigue and Flexibility of the EdgeEvolve™ 08 and 10 tapers is even better than many 04 taper files.

Glide Path
Fill chamber with 17% EDTA liquid (EdgeLube™)
Coat files with 17% EDTA gel (EdgeGel™)
Take #10 hand file to estimated Working Length.
Establish working length (Apex Locator/X-ray)
Optional Steps:
- Established canal patency: Take #10 hand file 1mm past WL
- Take a #15 hand file to working length.
- Use 17/04 as a Glide Path file.

Shape Canal
Fill chamber with EdgeLube™
Coat file with EdgeGel™
Take each file to Working Length: 20/04 to 20/06 to 20/08 to 20/10
(Or Crown-Down: 20/10 to 20/08 to 20/06 to 20/04 repeat)
Rinse with EdgeLube™
Recapitulate with a #10 hand file to the Working Length after each rotary file.

Finish Canal
08 Taper: Take 25/08 then stop at tip size you want: 25/08 to 30/08 to 35/08(optional) to 40/08(optional)
10 Taper: Take 25/10 then stop at tip size you want: 25/10 to 30/10 to 35/10(optional) to 40/10(optional)
Disinfect and Obturate Canal

4) Crown-Down

Always start with 20/10 to 20/08 to 20/06 to 20/04 and repeat until the taper size you want goes to length. If you use the GT or GTX series by Tulsa Dental you can use the same way.

Glide Path
Fill chamber with 17% EDTA liquid (EdgeLube™)
Coat files with 17% EDTA gel (EdgeGel™)
Take #10 hand file to estimated Working Length.
Establish working length (Apex Locator/X-ray)
Optional Steps:
- Established canal patency: Take #10 hand file 1mm past WL
- Take a #15 hand file to working length.
- Use 17/04 as a Glide Path file

Shape Canal
Fill chamber with EdgeLube™
Coat file with EdgeGel™
Take each file to apical resistance, 20/10 to 20/08 to 20/06 to 20/04
Repeat until taper size you want goes to length
Rinse with EdgeLube™
Recapitulate with a #10 hand file to the Working Length after each rotary file.

Finish Canal
04 Taper: After 20/04 is to length. Increase in 04 taper tip sizes and stop at the tip size you want: 25/04 to 30/04 to 35/04 to 40/04
06 Taper: After 20/06 is to length. Increase in 06 taper tip sizes and stop at the tip size you want: 25/06 to 30/06 to 35/06 to 40/06
08 Taper: After 20/08 is to length. Increase in 08 taper tip sizes and stop at the tip size you want: 25/08 to 30/08 to 35/08 to 40/08
10 Taper: After 20/10 is to length. Increase in 10 taper tip sizes and stop at the tip size you want: 25/10 to 30/10 to 35/10 to 40/10
Disinfect and Obturate Canal

5) Your Way

Use the EdgeEvolve™ whichever way you think is best. Either in a completely different sequence or take a few select files and use in a hybrid manner with other systems.

Figure 1.
Each tip size is 0.5mm back
For a 10 taper

1. *Schilder H. Cleaning and shaping the root canal.* Dent Clin *North Am. 1974;18:269-296.*

2. *Caron G, Nham K, Bronnec F, et al. Effectiveness of different final irrigant activation protocols on smear layer removal in curved canals.* J Endod. *2010; 36:1361-1366.*

3. *Baugh D, Wallace J. The role of apical instrumentation in root canal treatment: a review of the literature.* J Endod. *2005; 31:333-340.*