



Terauchi File Removal Kit

# TFRK

Minimally-invasive

Efficient

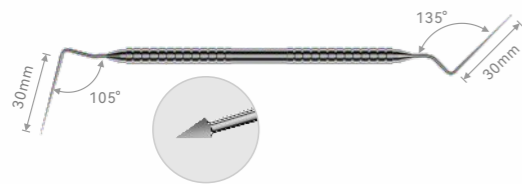
Safe



## TFRK: THE ULTIMATE INSTRUMENT RETRIEVAL SOLUTION

### TFRK-Gutta-Percha Removal Hand Instrument (TFRK-GPR)

Made of stainless steel, 4% taper  
Can be pre-curved to fit the canal curvature  
With delta cones (max. diameter: 0.35mm) on both end  
Used for the removal of filling material remnants and for the removal of necrotic pulp tissues or debris in a narrow space. Smaller size pyramidal tip can make it very easy to scrape gutta-percha root fillings from the canal wall.



### TFRK-Micro-Trephine bur (TFRK-MT)

Inner diameter of the MT is  $\phi 0.5\text{mm}$  whereas the outer diameter of the MT is 0.8 mm.  
TFRK-MT can be used when the canal curvature is  $<15^\circ$  and the coronal diameter of the broken file is 0.45 mm. The inner depth of the MT is 1 mm to expose a 1 mm-portion of the broken file. Spin the MT at 600 rpm counterclockwise in a short in/out motion to expose the coronal 1 mm-portion of the broken file after the canal enlargement with the MGG #3 rotating at 2500 rpm to the broken file. If the canal curvature is  $>15^\circ$ , a size # 60/02 taper flexible NiTi rotary file should be used to enlarge the canal to the broken file.



Given the complexity of root canal situations, TFRK brings together a variety of instrument retrieval tools to ensure effortless and effective retrieval.

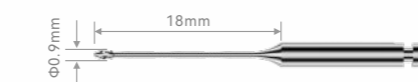
### TFRK-Micro-Explorer (TFRK-ME)

Made of stainless steel, a sharp 0.1mm-tip-diameter explorer, double ended, 6% taper, smooth-surfaced. The TFRK-ME has extremely fine spear-shaped tips with a smooth surface for bypassing ledged canals and exploring the canal for broken files or other impediments. This instrument can be bent to meet the canal curvature so that the TFRK tips can be precurved the same way as it is before use. When there is a ledge formed coronal to the separated file in the canal, the TFRK-ME can be used to locate the original canal and the ledge can be reduced by using it with several push-pull strokes.



### Modified Gates Glidden Drill #3 (MGG #3)

The pilot tip of the Gate Glidden Drill #3 is cut off so that the root canal to the broken file can be enlarged to at least 0.45 mm as the tip diameter of the MGG #3 is 0.45 mm. It is used at 2500 rpm clockwise with a brushing motion against the outer wall to create a funnel shape.



World Renowned Endodontist

## Yoshi Terauchi

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*Yoshi Terauchi*

### Martensitic-phased NiTi Rotary Instrument

#### K-Endo (K6 N60 2% L25)

60%, 2% taper, NiTi file in the martensitic phase at 37°C  
If the coronal diameter of the broken file is  $>0.45\text{ mm}$  or the canal curvature is  $>15^\circ$ , use this rotary instrument to enlarge the canal to the broken file at 500 rpm counterclockwise.

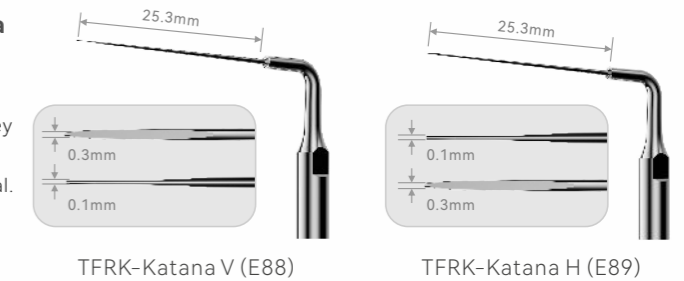


### Broken File Removal Tips (E87, E88, E89)

#### TFRK-Katana Vertical (TFRK-Katana V or E88) TFRK-Katana Horizontal (TFRK-Katana H or E89)

TFRK-Katana V/H is designed with an extremely thin sword-shaped tip to create a 90-degree semicircular ditch on the inner wall of the broken file. They can be pre-curved to be adapted to the canal curvature. Activate ultrasonics with the flat surface directed to the broken file from the inner wall of the canal.

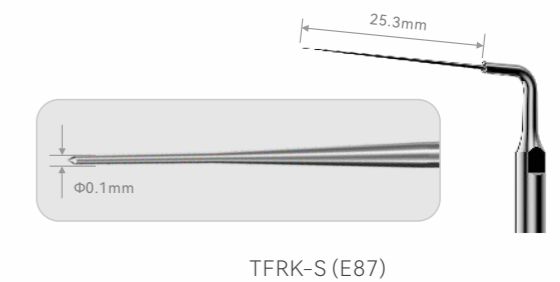
- Feature: Create a 90° semicircular grooved space



#### TFRK-Straight (TFRK-S or E87)

TFRK-S is characterized by an extremely sharp cone-shaped tip: 0.1 mm diameter tip with 1% taper that can be pre-curved to be adapted to the canal curvature.

- Feature 1: Extend the grooved space to a 180° semicircular ditch until the broken file is seen dancing after the 90° semicircular space created on the inner wall with the Katana V/H.
- Feature 2: Remove the broken file
- Feature 3: Create a thin space between the canal wall and gutta-percha root fillings for the introduction of the TFRK-GPR
- Feature 4: Remove necrotic pulp tissues and debris from an isthmus or a thin space



#### TFRK-Loop (TFRK-L: Yoshi Loop)

Used to retrieve the broken file after loosening it in preparation with ultrasonics when the broken file is longer than 4.5 mm or the broken file did not come out with ultrasonics in 10 seconds at removal attempts. The loop size is adjusted to the diameter of the broken file with an endodontic explorer and bent to 45 degrees to facilitate the placement of the loop over the broken file. The loop cannula is replaceable. The damaged loop can be quickly and easily replaced with a new loop. There are two sizes of the loop wire: 0.12 mm and 0.08 mm, suitable for different clinical situations with varying root canal diameters and resistance. The maximum diameter of the microtube holding the loop is 0.5 mm and it has a 23 mm length. The microtube can be pre-curved to facilitate its placement into the root canal.



#### Brownie Polishing Point (TFRK-P)

A silicone rubber-based tool used with a straight handpiece. It is designed for sharpening ultrasonic tips to the desired shape and can also be used for polishing to enhance sharpness.

