



XP ENDO
finisher

world
revolution

1st
ANATOMIC
FINISHER
endo file



EN

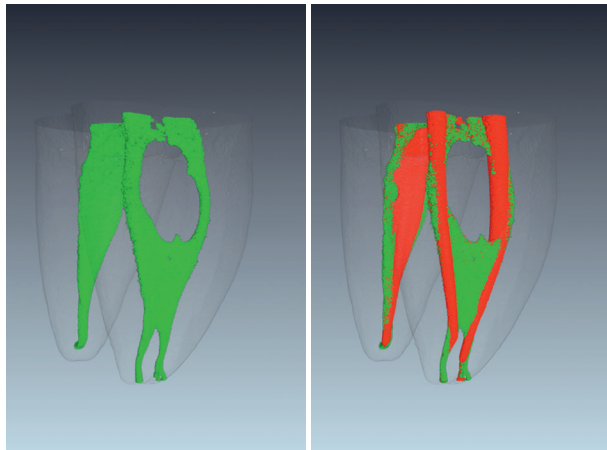
XP-endo Finisher
optimal cleaning while preserving dentine

The problem

The complexity of the root canal

The root canal system is highly complex: it can be oval or C-shaped; the canals sometimes divide; or an isthmus may connect the canals (Dye and Micro CT 3D studies). In the face of such complexity, standard NiTi files are not always up to the task. Despite their flexibility, the files make round shapes only and thus cannot reach certain parts of the canal during treatment. Several studies involving micro CT technologies have shown that, on the whole, when standard NiTi files are used to prepare the root canal, only 45-55 per cent of canal walls are actually touched.

Various complementary techniques, such as the use of a high concentration of NaOCl or EDTA, ultrasounds or lasers, lead to only marginally better results.

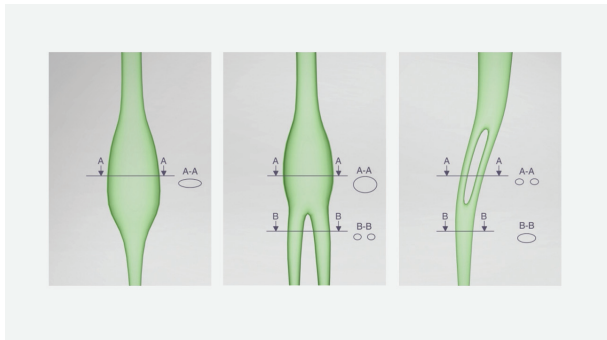
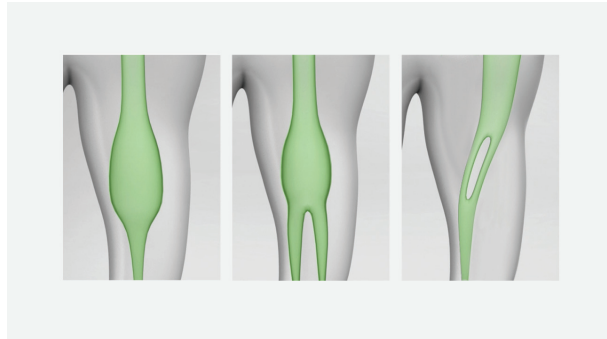


3D Micro CT : Canal morphology before instrumentation (green); canal walls touched using a standard NiTi file (red).

**Courtesy of Dr. Frank Paqué (Switzerland)*

Schematic examples of root canal morphology

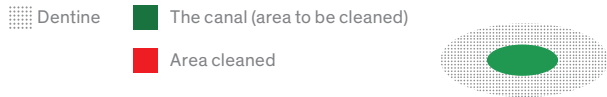
(oval, caverns, double canal, C, 8, isthmus shape)



The solution

XP-endo Finisher

Original canal anatomy



► Root canal preparation with standard NiTi files



Canal partially cleaned. Microbes and dental debris accumulate in the untouched areas.

► Root canal preparation with standard NiTi files + XP-endo Finisher



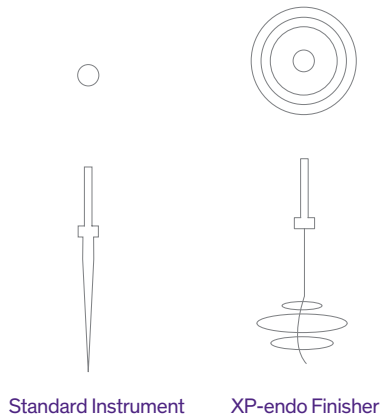
XP-endo Finisher ideally used following any root canal preparation to achieve an improved cleaning of the root canal while preserving dentine.

XP-endo Finisher is incredibly flexible and can expand its reach 6mm in diameter or 100-fold of an equivalent sized file. This is why XP-endo Finisher allows mechanical cleaning of the canal in areas previously impossible to reach.

Specification

Expansion capacity

Its capacity to expand improves its reach 100-fold compared to a standard instrument.



XP-endo Finisher is able to treat root canals with highly complex morphologies, from the narrowest to the largest, and from the straightest to the most severely curved canals. Because of its small core size – ISO 25 in diameter – and its zero taper, the file benefits from incredible flexibility and shows unparalleled resistance to cyclic fatigue. In addition the file will contact and clean the dentine but NOT change the original shape of the canal !

Material



The XP-endo Finisher file is produced using an exclusive FKG alloy, the NiTi MaxWire (Martensite-Austenite Electropolish-FleX). This material reacts at different temperature levels and is highly flexible. FKG has patented this procedure.

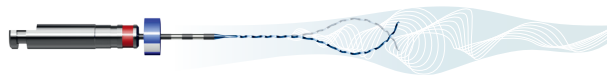
Shape-memory effect

The creation and production of XP-endo Finisher files are based on the shape-memory principles of the NiTi alloy.

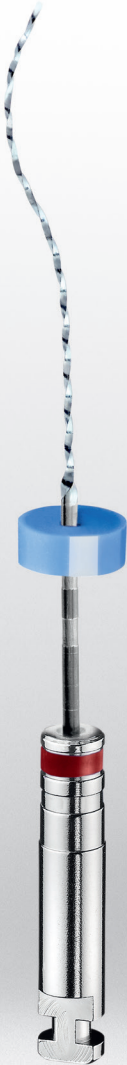
The file is straight in its M- phase which is achieved when it is cooled. When the file is exposed to the body temperature (the canal) it will change its shape due to its molecular memory to the A- phase. The A – phase shape in the rotation mode allows the file to access and clean areas that are otherwise impossible to reach with standard instruments.



The file can be returned to its original straight shape again manually after it has been cooled down (M-phase).



XP ENDO
finisher



Description

- ▶ A universal NiTi-based instrument measuring ISO 25 in diameter and with zero taper (25/.00).

Unique characteristics

- ▶ Mechanical cleaning of the canal in areas previously impossible to reach thanks to its incredible flexibility and capacity to expand its reach 6mm in diameter or 100-fold of an equivalent sized file.
- ▶ Unprecedented resistance to instrument fatigue thanks to its zero taper and the ability of the file to work in mixed M and A phases (exclusive FKG MaxWire alloy).
- ▶ Adaptation to canal morphology and preservation of the dentine.
- ▶ Thorough removal of debris.
- ▶ Removal of medication from inside the canal during treatment over several visits or of residual obturation material during re-treatment.

When to use

- ▶ Universal instrument that can be used following any root canal preparation of diameter ISO 25 or more.

Packaging

- ▶ Three instruments in a sterile blister pack, for single use (each instrument can be used to clean one tooth with up to four canals).
- ▶ The instruments are stored inside a plastic tube so their straight shape can be maintained or restored and the working length can be defined.



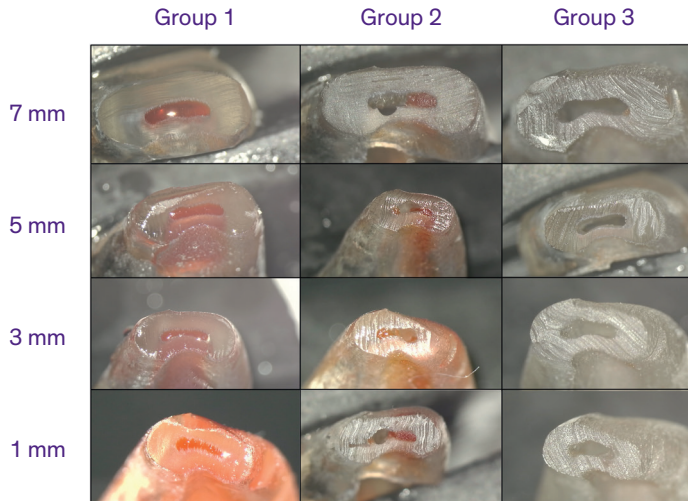
Example canal shape in an artificial tooth

Mesial root of a lower molar, cut to 1, 3, 5 and 7mm

Group 1 Canal before preparation

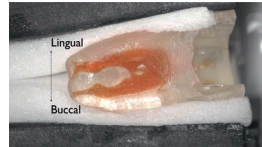
Group 2 Canal prepared to size ISO 35/.04

Group 3 Canal prepared to ISO 35/.04 and XP-endo Finisher

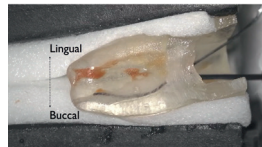


Adaptation capacity: example in artificial lower molar

- 1 Pre-op with pulp.



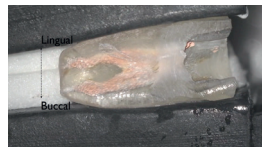
- 2 Under preparation with XP-endo Finisher.



- 3 After preparation with XP-endo Finisher. Looking the root on the L-B direction, the canals are efficiently cleaned thanks to XP-endo Finisher.



- 4 After obturation with TotalFill BC Sealer and TotalFill BC Points.

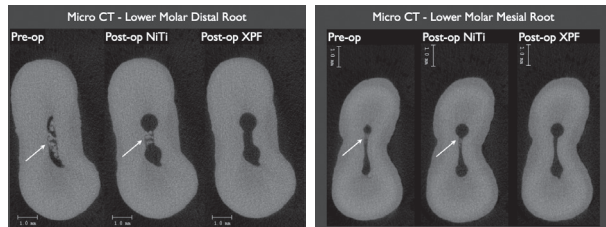


**Courtesy of Dr. Gilberto Debelian (Norway)*

Clinical cases

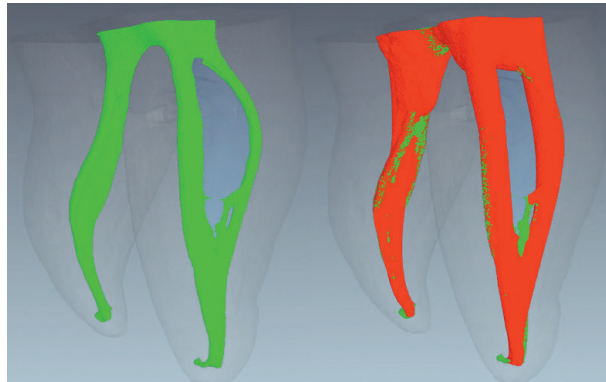
Case 1

Micro CT of the Distal and Mesial roots of a lower molar instrumented to 35/.04 with round NiTi files and then after final cleaning with the XP-endo Finisher.



Pre-op and Post-op NiTi pictures: show debris in the canal and in the isthmus areas.

Post-op XPF pictures: after final cleaning with the XP-endo Finisher, no debris is seen.

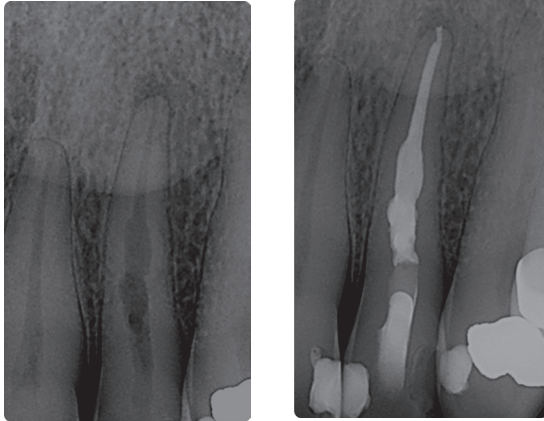


3D Micro CT : Canal morphology before instrumentation (green); canal walls touched using a standard NiTi file + XP-endo Finisher (red).

**Courtesy of Dr. Gilberto Debelian (Norway)
and Dr. Frank Paqué (Switzerland)*

Case 2

Internal resorption case demonstrating the expansive potential of the XP-endo Finisher.



**Courtesy of Dr. Gilberto Debelian (Norway)*

Protocol

P

Golden rules

- ▶ XP-endo Finisher should be used only after canal preparation to at least #25.
- ▶ In multirrooted teeth, start with the largest canal.
- ▶ Work along the entire length of the canal for approximately one (1) minute.
- ▶ The access cavity should be filled with irrigant only after the XP-endo Finisher is in the canal.

Speed 800 rpm (800-1000 rpm) Torque 1 Ncm

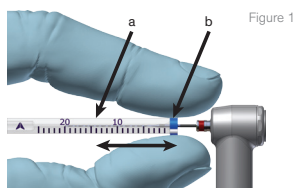


Figure 1

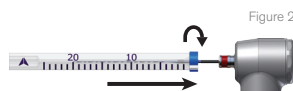


Figure 2



Figure 3



Figure 4



Figure 5

Step by step

- 1 Use XP-endo Finisher only after canal preparation to at least #25.
- 2 For multirooted teeth, start with the largest canal. The canal should always contain irrigant. However, avoid filling the access cavity with irrigant before insertion of the file.
- 3 Remove the XP-endo Finisher from the sterile blister pack and place it in a contra-angle handpiece (use of gloves imperative).
- 4 Fix the canal working length by using the plastic tube (a) to adjust the rubber stop (b) (Figure 1).
- 5 Cool the XP-endo Finisher down inside the tube using a cold spray.
- 6 Put the XP-endo Finisher in rotation mode and remove it from the tube by applying a lateral movement to ensure the XP-endo Finisher remains straight (Figure 2). Turn off the rotation.
6a The surface of the tube may be touched with the fingers only at its end, on FKG logo, to avoid warming of the file.

- 6b** If the file is straightened outside the tube use an alcohol soaked gauze for this purpose to avoid contamination and warming of the file.
- 7** Insert the XP-endo Finisher into the first canal of the tooth while straight (Figure 3). Once the tip is inside, turn on the rotation and insert file (Figure 4). Add irrigant to the access cavity.
- 7a** In case of any difficulty inserting the file inside the canal of multirooted teeth, make sure to direct the tip of the file towards the mesial aspect of the canal entrance for MB, ML and DB canals, towards the palatal aspect for palatal canals and toward the buccal/lingual aspect for D canals.
- 8** Use the XP-endo Finisher for approximately one (1) minute, using slow and gentle 7-8 mm lengthwise movements to contact the full length of the canal (Figure 5). Make parietal movements during the procedure. Be careful to stay in the canal.
- 9** After one minute, remove the XP-endo Finisher from the canal while it's still in rotation.
- 10** Irrigate the canal to remove the suspended debris.

To continue treatment inside a narrower canal of the same tooth

- 11** Clean the XP-endo Finisher and place it back inside its tube.
- 12** Begin again the procedure at step 4.

When the full cleaning of a tooth is completed

- 13** Dispose of the XP-endo Finisher.
- 14** Dry the canals and seal them using a stable core (e.g. Gutta-percha) and sealer (e.g., TotalFill™).



FKG Dentaire SA

Founded in Switzerland in 1931, FKG Dentaire SA gained a new momentum in 1994, the year Jean-Claude Rouiller took over the reins of the company.

He propelled FKG to the forefront in the development, manufacturing and distribution of dental products destined for general practitioners, endodontists and laboratories.

The FKG strategy is centered on innovative high-precision products and the creation of machines designed specifically for the dental field. Its aim is to offer solutions that meet the most demanding needs of end users.

In 2011 the son of Jean-Claude Rouiller, Thierry, succeeded to the head of the company. Through his incentive, the network of distributors has expanded significantly and allowed FKG to make its products available in over 100 countries worldwide.

Equipped with a clean room since 2013, FKG Dentaire is now developing a range of sterile products.

In 2014 the company unveiled state-of-the-art training centers in La Chaux-de-Fonds and Dubai.

FKG Dentaire is certified according to international norms and regulations.



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