FKG
swiss endo

XP ENDO® shaper

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XP-endo® Shaper

The One to Shape your Success

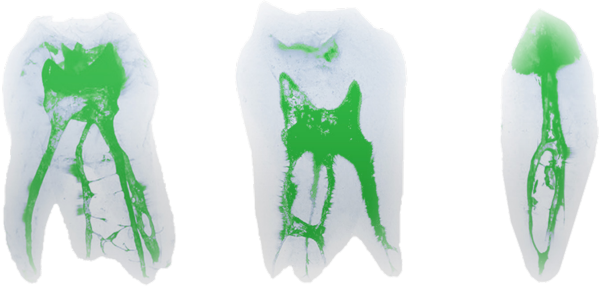
Introduction

Developments /trends

In the last decades, the field of endodontics has seen a large number of developments. Driven by new technologies, the biologic aims of endodontics are more achievable.

Today, greater emphasis is placed on less invasive treatments, and on a better appreciation of the need to clean the canal in a 3D fashion, rather than according to the misleading 2D view seen in the typical periapical radiogaph. However, treatment still too often fails, either because of traditional problems like canal transportation, over-instrumentation, extrusion or compaction of debris, micro-cracks or excessive dentine removal.

The use of Nickel-Titanium rotary instruments — narrower, more flexible and less aggressive — has become a necessity, as they facilitate the handling and reduce treatment time whilst preserving the root structure. Reducing the number of instruments per sequence is another factor in achieving these objectives.



3D representations illustrating the complexity of the root structure.

Technology

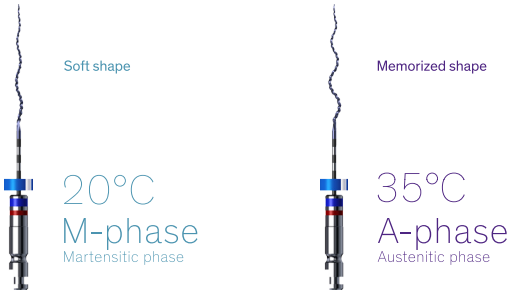
MaxWire®

Through a constant process of innovation and improvements, FKG has been working to ensure it can offer practitioners instruments capable of meeting all these requirements.

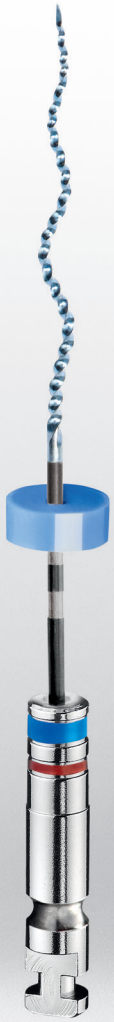
With the creation of the exclusive MaxWire® alloy, FKG is bringing two fundamental properties to the forefront: superelasticity and shape memory, with the aim of creating a completely new generation of instruments.
Unlike other instruments, these are able to react to variations in temperature and to take on a predetermined shape inside the root canal, at body temperature.

Their specific preset shape and their extreme flexibility enables these instruments to contract and expand within the canal itself, and to reach areas which conventional instruments simply cannot access. Furthermore, their small ISO diameter and their narrow taper give them extreme resistance to cyclic fatigue.

These factors enable this new technology to provide treatment for extremely complex root canal morphology, simply and efficiently, whilst being able to preserve the canal structure to a remarkable extent.



XP ENDO® *shaper*



XP-endo® Shaper

Two technologies combined

The XP-endo Shaper is the latest addition to the XP-endo® range. It is a truly innovative broad spectrum shaping instrument which can be used to radically simplify endodontic sequences.

It results from the combination of two cutting-edge technologies:

- Made with MaxWire® alloy, like the XP-endo Finisher, it offers remarkable flexibility and fatigue resistance, and the ability to progress within the canals with ease and agility, expanding or contracting according to the canal morphology.
  With an initial taper of .01, the XP-endo Shaper expands once inside the canal, achieving a taper of at least .04.

- Thanks to the Booster Tip (BT), the XP-endo Shaper benefits from a unique geometry, having six cutting edges at the tip. The BT tip respects the trajectory of the canal, whilst removing more material with each pass. It enables the instrument to start shaping an ISO diameter smaller than the one of the instrument.
  In the case of the XP-endo Shaper, the BT enables it to start shaping after a glide path of at least ISO 15, and to gradually increase its working field to achieve an ISO 30.

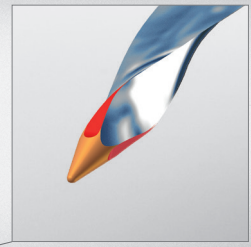
Booster Tip

- Six cutting edges for optimal guidance.
- Starts shaping at minimum ISO diameter 15 to achieve a final diameter of ISO 30 with only one instrument.

MaxWire® Technology

- Superelasticity, extreme flexibility and agility of the instrument.
- Shape memory principles enabling the instrument to take on a predefined shape at 35°C.
- Ability to expand within the root canal.

MaxWire® Technology



Booster Tip

One File Shaper

The MaxWire® and Booster Tip technologies combine to make the XP-endo Shaper a “One File Shaper”.

It has the ability to start shaping at ISO diameter 15 and to achieve ISO diameter 30, but also to increase the taper from .01 to at least .04. It allows to reach a final canal preparation of minimum 30/.04 and this with only one instrument.

The XP-endo Shaper is the instrument of choice for the treatment of the vast majority of canals.

Remarkable benefits

Its “snake” shape, superelasticity and extreme flexibility combined with continuous rotation at high speed (800 rpm) and minimal torque ensure:

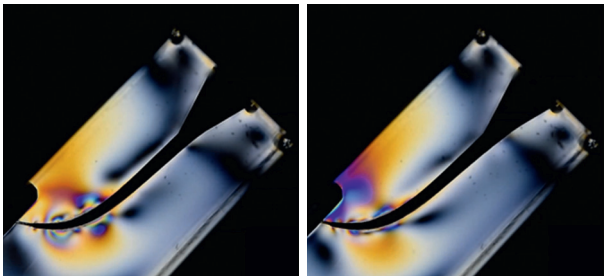
- Minimal stress is applied to the dentine walls and the risk of micro-cracks in the dentine is minimised due to support from the spring action against the walls.
- Micro-debris that are created are easily and efficiently removed, thanks to the turbulence generated by the instrument and the available space compared to instruments with a larger core diameter.
- Adaptation to canals irregularities
- Excellent resistance to cyclic fatigue.
- A gentle, non-aggressive and conservative treatment.

Simplified handling

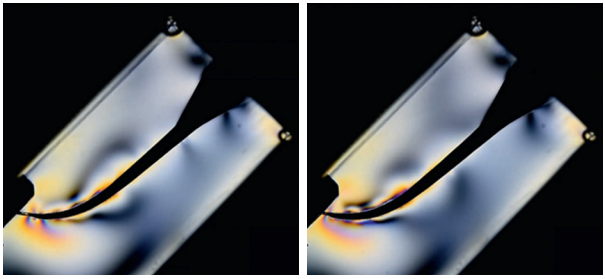
Thanks to this unique instrument, treatment is easier to perform, treatment time is shorter, the risk of errors and incidents are radically reduced and the root structure is preserved.
Shaping becomes a simple, safe and quick process.

Minimal stress applied during treatment

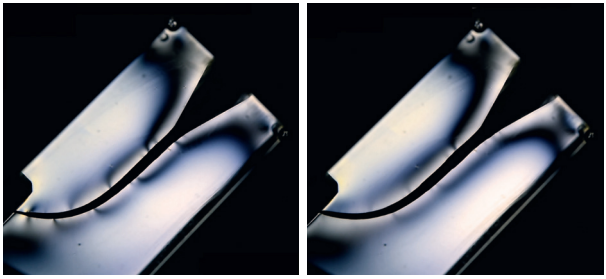
The images below show the result of a photoelasticity test. This process is performed on a plastic block as a way to visualise the stress applied by the instruments during canal treatment. The greater the stress, the higher the risk of micro-cracks.



Competitor instrument, alternating movement - Very high stress in the apical third



Competitor instrument, rotary movement - High stress in the apical third



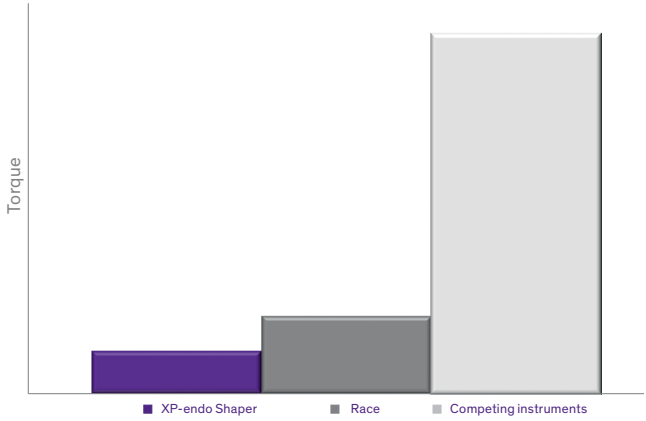
XP-endo Shaper, rotary movement - Low stress in the apical third

Minimal torque

The torque is a highly important parameter to take into consideration. Higher torque means the instrument is subject to greater levels of stress, thereby increasing the risk of fracture.

The graph below shows the result of a test performed on a plastic block demonstrating the average torque generated by three instruments during canal treatment. The test was performed on a length of 14 mm, along the entire canal.

Comparison of the torque generated by the instruments during a test on a plastic block



The XP-endo Shaper generates an average torque 47% lower than the Race instrument, and 88% lower than the competitor instruments.

Due to its characteristics, the XP-endo Shaper enables the stress applied on the instrument and the canal walls to be restricted. This allows it to limit instrument breakage and micro-cracks and to significantly reduce the stress applied on the tooth during treatment.

Excellent debris removal and improved disinfection

The XP-endo Shaper has a smaller core than conventional instruments reaching the same final dimensions. This facilitates debris removal, making it more efficient without occluding the dentinal tubules.
Additionally, the turbulence generated by the XP-endo Shaper, by its continuous rotation at high speed, keeps debris in the solution limiting the appearance of the smear layer and enhances the penetration of irrigants in all dentinal tubules.

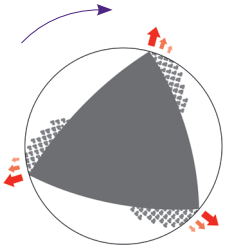
► Comparison of a 16-mm section from the tip of a conventional instrument and of the XP-endo Shaper

Conventional instrument

Compacted debris

Stress applied to the canal wall

Space available within the canal lumina (46%)

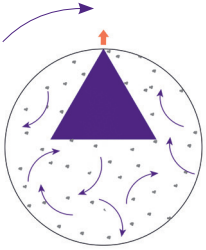


XP-endo Shaper

Debris (no compaction)

Stress applied to the canal wall

Space available within the canal lumina (84%)



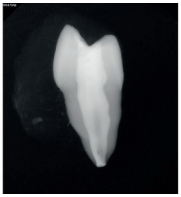
With a conventional instrument of 30/.04, 16 mm from the working length within the canal, just 46% of the space is available within the canal lumina, compared to 84% when the XP-endo Shaper is used.

This gained space enables a large amount of debris to be removed, and prevents it from being compacted into canal irregularities and extruded beyond the apex.

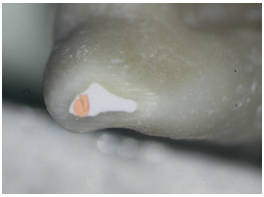
Clinical cases

Case 1

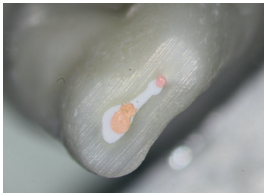
Case of a canal preparation (ex-vivo) for a maxillary right first premolar prepared to 30/.04 with the XP-endo Shaper then filled with TotalFill® BC Sealer™ and TotalFill® BC Points™. We can see that the original shape of the canal has been perfectly preserved.



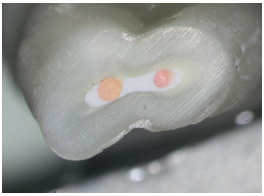
Radiograph showing the bucco-lingual aspect of the maxillary first premolar



Cross-section 1 mm from the apex



Cross-section 4 mm from the apex



Cross-section 7 mm from the apex

Radiograph in bucco-lingual direction and cross-sections of the distal canal.

Case 2

This case concerns a 62 year old woman presenting a symptomatic pulpitis on the first upper right molar.
After preparing a glide path to 15/.02, the canals were instrumented with the XP-endo Shaper to 30/.04 following the instructions for use. The canals were then obturated with TotalFill® BC sealer™ and TotalFill® BC Points™.

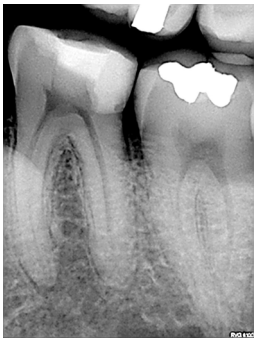
Pre-op

Post-op

Case n°2 - Pulpectomy on an first upper right molar instrumented to 30/.04 with XP-endo Shaper

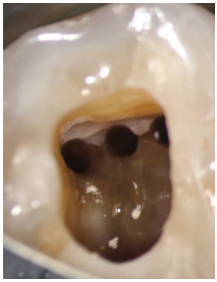
Case 3

Pulpectomy made on a first lower right molar. After preparing a glide path, the five canals were instrumented with the XP-endo Shaper. The canals were then cleaned thanks to the XP-endo® Finisher and obturated with TotalFill® BC Sealer™ and TotalFill® BC Points™.



Pre-op

Post-op : View of mesial canals after instrumentation with the XP-endo Shaper and after obturation.



Microscopic view (x12) of 3 mesial canals after instrumentation with the XP-endo Shaper, and cleaning with the XP-endo Finisher

Microscopic view (x12) of 3 mesial canals after obturation with TotalFill BC Sealer and TotalFill BC Points.

Description

- Universal NiTi instrument reaching a final dimension of at least 30/.04.
- Available in 21 mm, 25 mm and 31 mm.

Exclusive characteristics

- Able to start treatment at ISO diameter 15 to achieve a final diameter of ISO 30 with a single instrument.
- Taper can be increased from .01 to at least .04 using only one instrument.
- Minimal stress applied.
- Creation of turbulence enabling easy, efficient removal of debris.
- Superelasticity, extreme flexibility and agility of the instrument.

When to use

- Universal instrument to be used after glide path of 15/.02 or greater.

Packaging

- Six instruments in sterile blister packs, for single use only (one instrument is used to treat one tooth, up to a maximum of 4 canals).
- Three instruments in sterile blister packs, for single use only (one instrument is used to treat one tooth, up to a maximum of 4 canals).

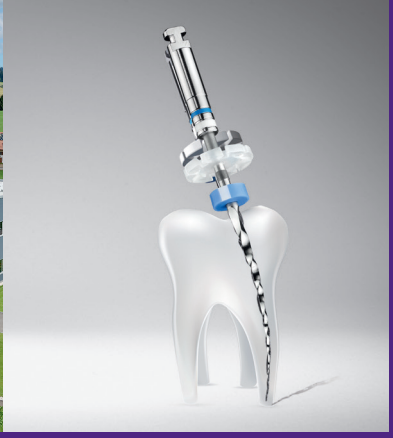
References

Blister packs of 6 instruments

- XP-endo Shaper 21 mm : S1.XB0.00.0AF.FK
- XP-endo Shaper 25 mm : S1.XB0.00.0AG.FK
- XP-endo Shaper 31 mm : S1.XB0.00.0AH.FK

Blister packs of 3 instruments

- XP-endo Shaper 21 mm : S1.XB0.00.0AJ.FK
- XP-endo Shaper 25 mm : S1.XB0.00.0AK.FK
- XP-endo Shaper 31 mm : S1.XB0.00.0AL.FK



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.

In 2012, the Swiss Venture Club rewarded FKG for its dynamism, high product quality, and its continuing innovation.

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

In 2013 and 2014 the company unveiled state-of-the-art training centers in La Chaux-de-Fonds, Dubai, and Oslo.

FKG Dentaire is certified according to international norms and regulations.

FKG
swiss endo

FKG Dentaire SA
Crêt-du-Locle 4
CH-2304 La Chaux-de-Fonds
Switzerland
T +41 32 924 22 44
F +41 32 924 22 55

info@fkg.ch
www.fkg.ch

FKG

0120
FKG Dentaire SA
Crêt-du-Locle 4
CH-2304 La Chaux-de-Fonds
Switzerland
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