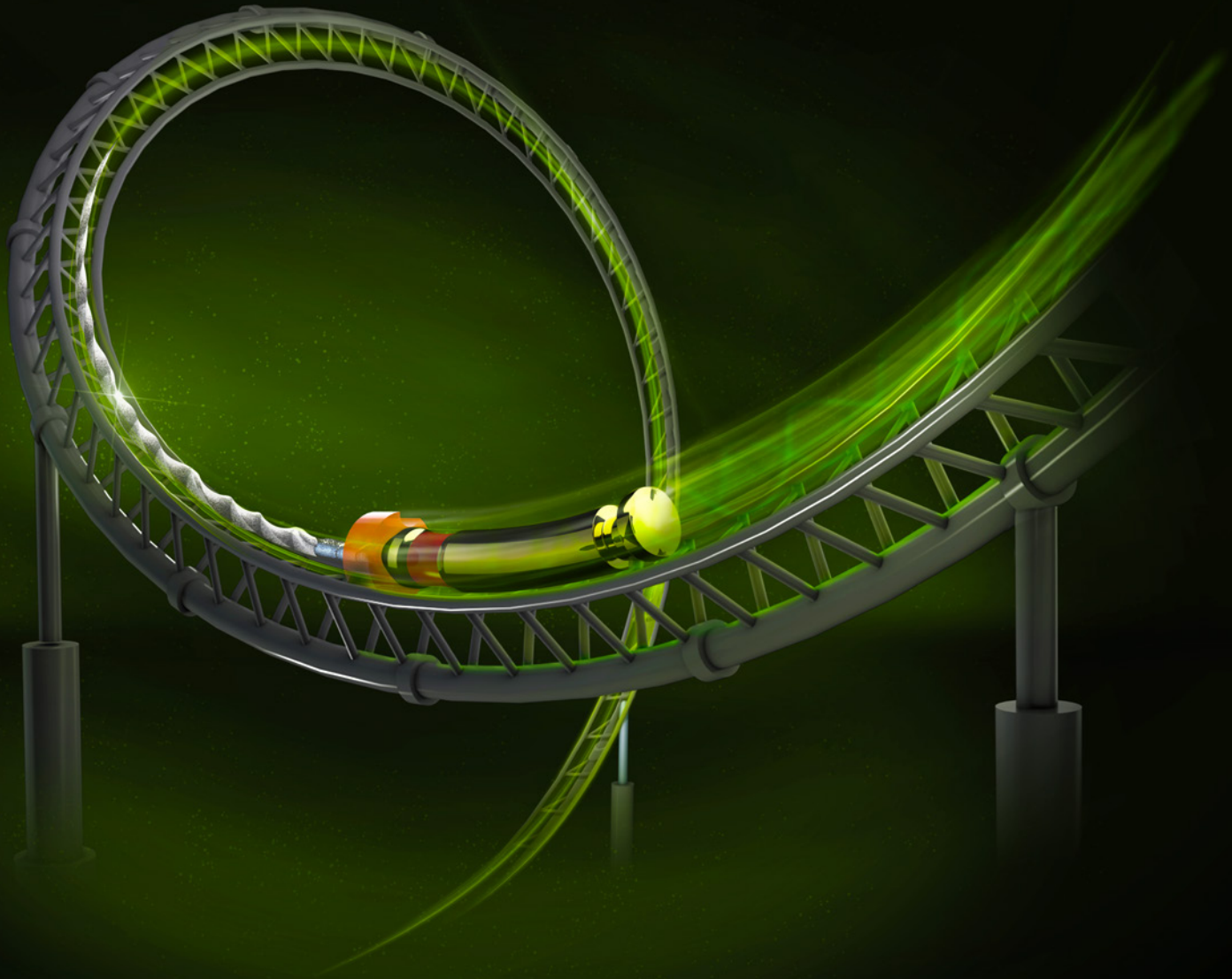


THE INNOVATIVE NITI FILE GENERATION

HyFlex™ EDM



Stays on track

 COLTENE

HyFlex™ EDM

Electrical Discharge Machining

The HyFlex EDM files constitute the 5th generation root canal files. HyFlex EDM NiTi files have completely new properties due to their innovative manufacturing process using electric discharge machining.

This creates the unique surface of the new NiTi files and makes the HyFlex EDM files durable and more fracture resistant. This entirely unique combination of flexibility and fracture resistance makes it possible to reduce the number of files required for cleaning and shaping during root canal treatments without having to compromise preservation of the root canal anatomy.

Just like HyFlex CM files, HyFlex EDM files have the already familiar **Controlled Memory** effect (CM). They are manufactured utilising a unique process in which the crystallographic phase transitions from austenite to martensite at room temperature in contrast to conventional NiTi files, making the files extremely flexible, fracture resistant and able to regenerate multiple times.

- Designed for successful centered canal preparation
- Multiple regeneration and reuse
- Specially hardened for safer application
- High flexibility
- Extreme resistance to fracture



Pre-Sterile
for safer application



High Fracture resistance
Uniquely hardened surface reduces risk of file separation



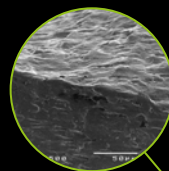
Cutting Efficiency
Hardened surface plus controlled memory improves cutting efficiency



Highly Flexible
Controlled memory allows high flexibility and bendability



Variable Cross Section Design
Contributes to high breakage resistance



Triangular cross section at top



Trapezoidal cross section in middle



Quadratic cross section at tip



Clinical Case by
Dr. Gianluca Fumei

The HyFlex EDM system also convinced the endo specialists in a practice test with its outstanding flexibility and break resistance. They recommend HyFlex EDM files as a file system with which both simple and complex canals – can be prepared quickly and reliably – even with a reduced number of files.

Controlled Memory

Pre-bentable for extremely curved canals

Due to the controlled memory, the files always follow the anatomy of the canal, thus significantly reducing the risk of ledging, transportation or perforation of a canal. Like stainless steel files, the HyFlex EDM files can be pre-bent.

This is a crucial advantage in extremely curved root canals to avoid the creation of steps.

Up to 1.200% higher fracture resistance

Studies have shown that HyFlex EDM files are more than 1.200% more resistant to fatigue than competitor's products.

Visual control after thermal treatment



✓ Ready for safe reuse

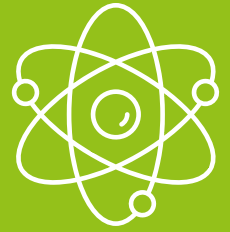


✗ Untwisted (discard)

HyFlex EDM NiTi have a built-in shape memory. They prevent stress during preparation by changing their spiral shape regain after heat treatment. An autoclaving process is enough to return the files to their original shape and to regenerate the crystal structures and resistance to fatigue.

Should the file fail to regain its shape after heat treatment, it is plastically deformed, thus increasing the risk of fracture. It should not be used after visual inspection. The number of reuses, is higher than that of conventional NiTi files.

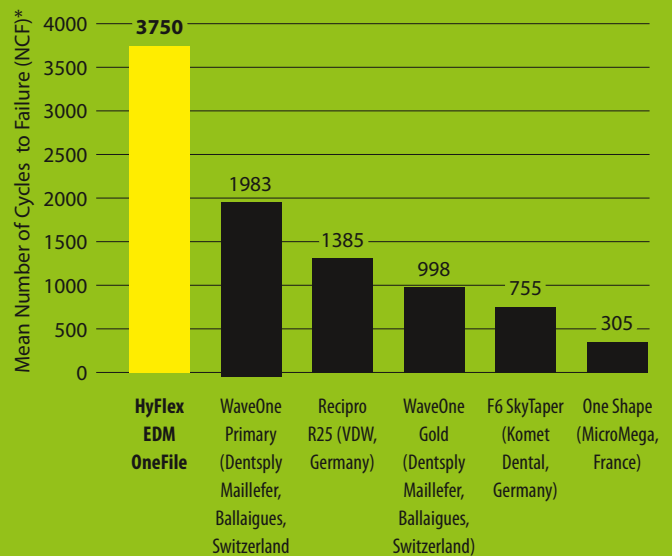
Clinical Studies



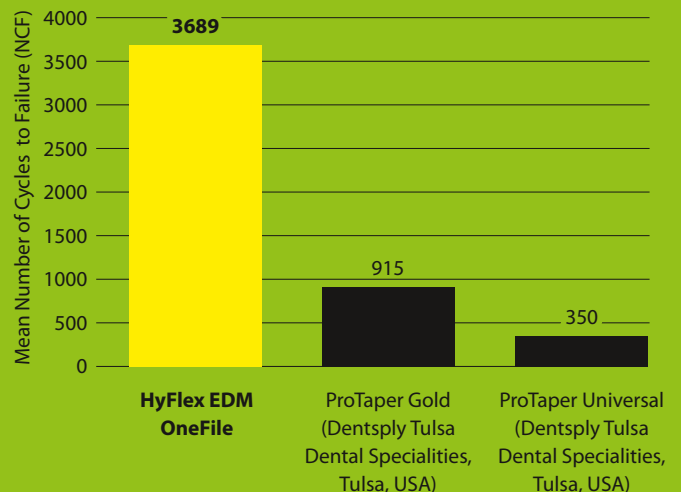
In studies, the HyFlex EDM OneFile demonstrated a significantly higher fatigue resistance than other nickel-titanium rotary files with various alloy properties.

Number of cycles to failure (NCF)

Studies Prof. Eugenio Pedullà, University Catania, Italy^{1, 2}



Study Dr. Mehmet Emin Kaval³



* The Number to Cycles to Failure (NCF) was calculated by multiplying the time to failure and the rpm used.

¹ Pedullà E et al. Influence of proper or reciprocating optimum torque reverse kinematics on cyclic fatigue of four single files. J Investig Clin Dent. 2019 Aug;10(3):e12409.




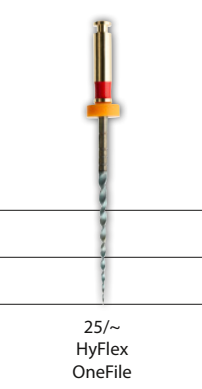





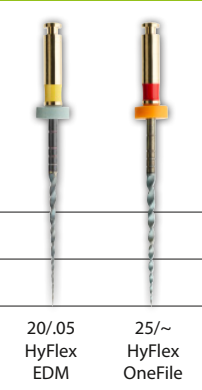





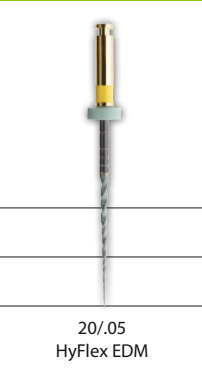
² Pedulla E et al. Influence of Continuous or Reciprocating Optimum Torque Reverse Motion on Cyclic Fatigue Resistance of Two Single-File Nickel-Titanium Rotary Instruments. Eur Endod J. 2017 Aug 22;2(1):1-6.

³ Kaval ME et al. Evaluation of the Cyclic Fatigue and Torsional Resistance of Novel Nickel-Titanium Rotary Files with Various Alloy Properties. J Endod. 2016 Dec;42(12):1840-1843.

Reduced Number of Files

The use of HyFlex EDM files allows the reduction of the number of files. In small, straight canals the usage of the HyFlex OneFile can be enough. Depending on the clinical situation the number of files can be reduced or expanded. All HyFlex EDM NiTi Files should

be used at 400 rpm and at a torque of up to 2.5 Ncm (25 mNm) excepted the Glidepath files which should be used with 300 rpm and at a torque of up to 1.8 Ncm (18 mNm).

| | Optional Access Opening | Glidepath | Shaping | Optional Finishing | Clinical Cases | | |
|--|--|--|---|--|---|--|--|
|  <p>CORONAL</p> <p>MIDDLE</p> <p>APICAL</p> |  25/12 Orifice Opener |  Hand File 10/05 Glidepath File |  25~ HyFlex OneFile |  40/.04 50/.03 60/.02 Finishing Files |  Prof. Eugenio Pedullà | | |
| |  <p>CORONAL</p> <p>MIDDLE</p> <p>APICAL</p> |  25/12 Orifice Opener |  Hand File 10/05 Glidepath File |  20/05 HyFlex EDM 25~ HyFlex OneFile | |  40/.04 50/.03 60/.02 Finishing Files |  Dr. Richard Gray |
| | |  <p>CORONAL</p> <p>MIDDLE</p> <p>APICAL</p> |  25/12 Orifice Opener |  Hand File 15/03 Glidepath File 10/05 Glidepath File | |  20/05 HyFlex EDM | |



HyFlex™ EDM Paper and Gutta-percha Points

- Precise fit
- Colour-coded
- Highest quality

For drying and filling, the successful HyFlex system also offers paper and gutta-percha points ideally matched to the proven nickel-titanium files.

With the aid of the ROEKO GuttaFlow bioseal obturation material, the root canal can finally be reliably sealed and filled.

CanalPro™ Jeni

Digital assistance system for canal preparation

- Jeni mode continuously adapts to the individual root canal anatomy
- Control of the file movement at millisecond intervals
- Irrigation with aplomb
- Apex locator – measuring length without interruption

Autonomous "navigation" in the endo canal owing to revolutionary software. Perfectly matched to our file systems. The HyFlex EDM NiTi file system is specifically programmed for use with the Jeni mode.



Jeni – ready – go!

HyFlex™ EDM

NiTi Files & Accessories



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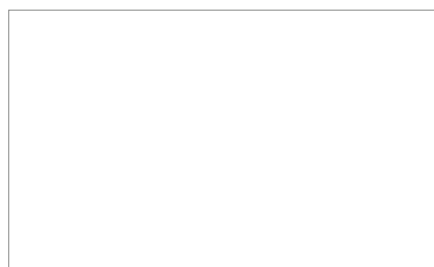


60019561



60023659

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| HyFlex EDM Sets | 21 mm | 25 mm |
|--|----------|----------|
| HyFlex EDM Shaping Set Simple 25/12; 10/05; 25/~ | 60022267 | 60019363 |
| HyFlex EDM Shaping Set Medium 10/05; 20/05; 25/~ | 60022277 | 60022278 |
| HyFlex EDM Shaping Set Max Curve 15/03; 10/05; 20/05 | 60023494 | 60023495 |
| HyFlex EDM Finishing Set 40/04; 50/03; 60/02 | 60022268 | 60019364 |

| HyFlex EDM Refills, 3 pcs | 15 mm | 21 mm | 25 mm |
|-----------------------------------|----------|----------|----------|
| HyFlex EDM 25/12 Orifice Opener | 60019596 | - | - |
| HyFlex EDM 15/03 Glidepath File | - | 60023493 | 60023492 |
| HyFlex EDM 10/05 Glidepath File | - | 60022269 | 60019594 |
| HyFlex EDM 20/05 Preparation File | - | 60022275 | 60022276 |
| HyFlex EDM 25/~ OneFile | - | 60022270 | 60019595 |
| HyFlex EDM 40/04 Finishing File | - | 60022271 | 60019597 |
| HyFlex EDM 50/03 Finishing File | - | 60022272 | 60019598 |
| HyFlex EDM 60/02 Finishing File | - | 60022274 | 60019599 |

| HyFlex Accessories | | |
|---|-------------------------|------------------------|
| 3 × Endo Practice Blocks, Acryl | | 60011085 |
| HyFlex EDM Paper ¹ / Guttapercha ² Points | PP ¹ 100 pcs | GP ² 60 pcs |
| 20/05 | 60022742 | 60022706 |
| OneFile 25/~ | 60022743 | 60022707 |
| 40/04 | 60022676 | 60022708 |
| 50/03 | 60022741 | 60022709 |
| 60/02 | 60022740 | 60022710 |
| Assortment 20/05 - 60/02 | 60022744 | 60022705 |

| ROEKO GuttaFlow | 2 | bioseal |
|---|----------|----------|
| Standard Set 1 × Dual-barrel Syringe, 12 × Mixing Tips, 1 × Mixing Pad | 60013701 | 60019560 |
| Refill Pack 1 × Dual-barrel Syringe | 60013745 | 60019561 |

| CanalPro Jeni | |
|--|----------|
| Complete Set | 60023659 |
| 1 × Control unit, 1 × Motor with apex measuring contact, 1 × Fully insulated angled handpiece 1:1, 1 × Bluetooth foot switch, 1 × Power supply, 1 × Apex cable set, 1 × Holding bracket for apex cable | |
| Set without angled handpiece | 60024188 |
| 1 × Control unit, 1 × Motor with apex measuring contact, 1 × Bluetooth foot switch, 1 × Power supply, 1 × Apex cable set, 1 × Holding bracket for apex cable | |

Coltene/Whaledent Ltd.
The President Suite
Kendal House, Victoria Way
Burgess Hill, West Sussex
RH15 9NF/UK
T +44 1444 235486
info.uk@coltene.com

Coltene/Whaledent AG
Feldwiesenstrasse 20
9450 Altstätten/Switzerland
T +41 71 757 53 00
info.ch@coltene.com

Coltene/Whaledent GmbH + Co. KG
Raiffeisenstraße 30
89129 Langenau/Germany
T +49 7345 805 0
info.de@coltene.com