

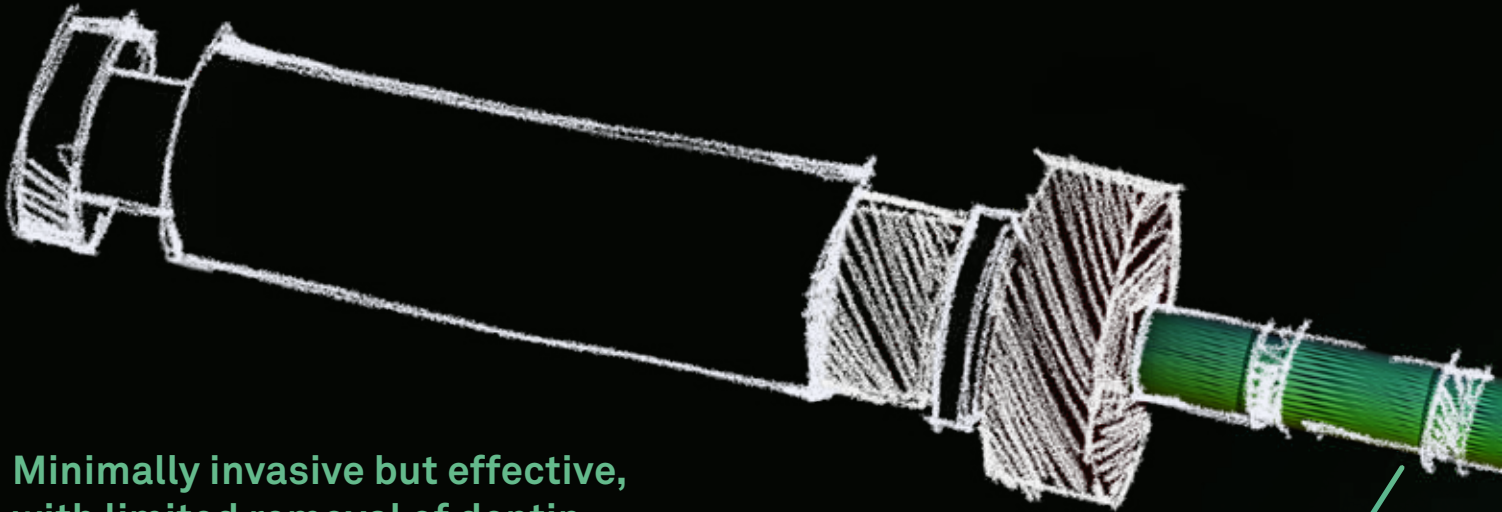


**B-4U**

  
sweden & martina

## B-4U: FROM VIRTUAL DESIGN TO BEST PERFORMANCE

From Italian endodontic research, supported by virtual engineering, comes an instrument specifically designed to offer the best cyclic resistance performance and thus ensure maximum work safety.

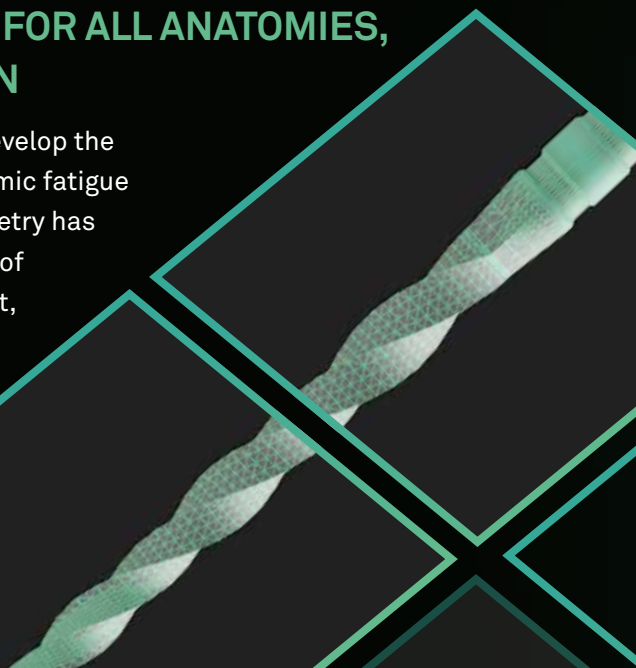


Minimally invasive but effective, with limited removal of dentin, particularly in the pericervical area (danger zone).

5 instruments with a **maximum taper of 5%**, the B-4U perfectly respect the **original anatomy** of the canal, even in the presence of more pronounced curvatures.

### AN INSTRUMENT SUITABLE FOR ALL ANATOMIES, THANKS TO VIRTUAL DESIGN

CAD software design was used both to develop the geometry and to test the cyclic and dynamic fatigue resistance performance. A variable geometry has been studied to generate a dynamic flow of fluids with an optimal tapering movement, both for 3D cleansing and 3D filling.





**B-4U**

More performing,  
resistant and elastic  
**rhomboidal section.**


A more homogeneous  
**vectorial tension**, thanks  
to the shape of the **coil** and  
its **different tapers**, allows  
**maximum elasticity** and  
uniform stress distribution.

**More conservative**  
root canal shapes  
thanks to a **controlled**  
**distribution of forces.**

The optimization of  
the shaping allows an  
**excellent disinfection** of  
the canals.

## THE RANGE

While developing the range, the best combination of materials and treatments has been studied to obtain the best performance from each instrument according to the respective size.

instrument	Tip gauge	Name	25 mm	31 mm
	016	STARTER	B205	B2031
	019	STARTER L	B2005	B20031
	023	FINISHER	B215	B2131
	030	FINISHER M	B225	B2231
	037	FINISHER L	B235	B2331

The codes listed refer to blister packs of 6 pcs per instrument.



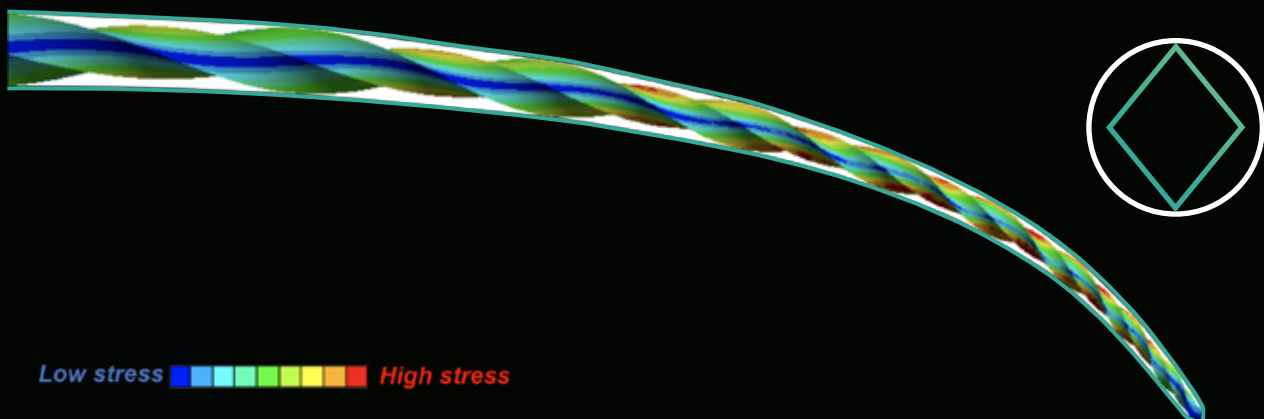
The treatment carried out on the FINISHER L instrument gives it a particular golden effect.

### Guttapercha

code	description
G906 LBF12	BGP-FINISHER, B-4U GUTTA, 60 PZ
G906 LBF12	BGP-FINISHER-M, B-4U GUTTA, 60 PZ
G906 LBF12	BGP-FINISHER-L, B-4U GUTTA, 60 PZ

## TWO POINTS OF CONTACT: GREATER CONTROL IN PROGRESS

Two points of contact with the root canal walls ensure continuous control during the instrument advancement. Thanks to a more distributed point contact along the entire length, the pressure exerted during insertion is distributed homogeneously, without causing areas of localized stress. All of this translates into a longer instrument life with less chance of fracture.

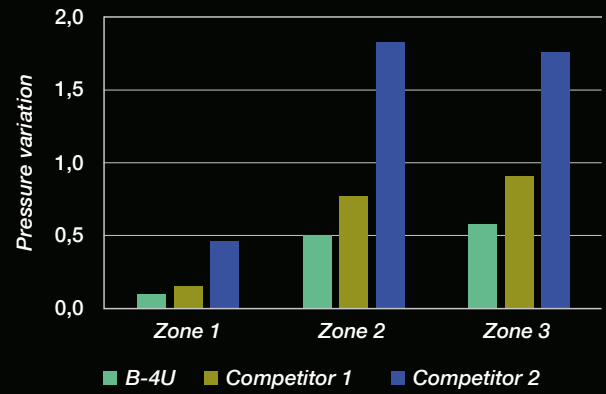
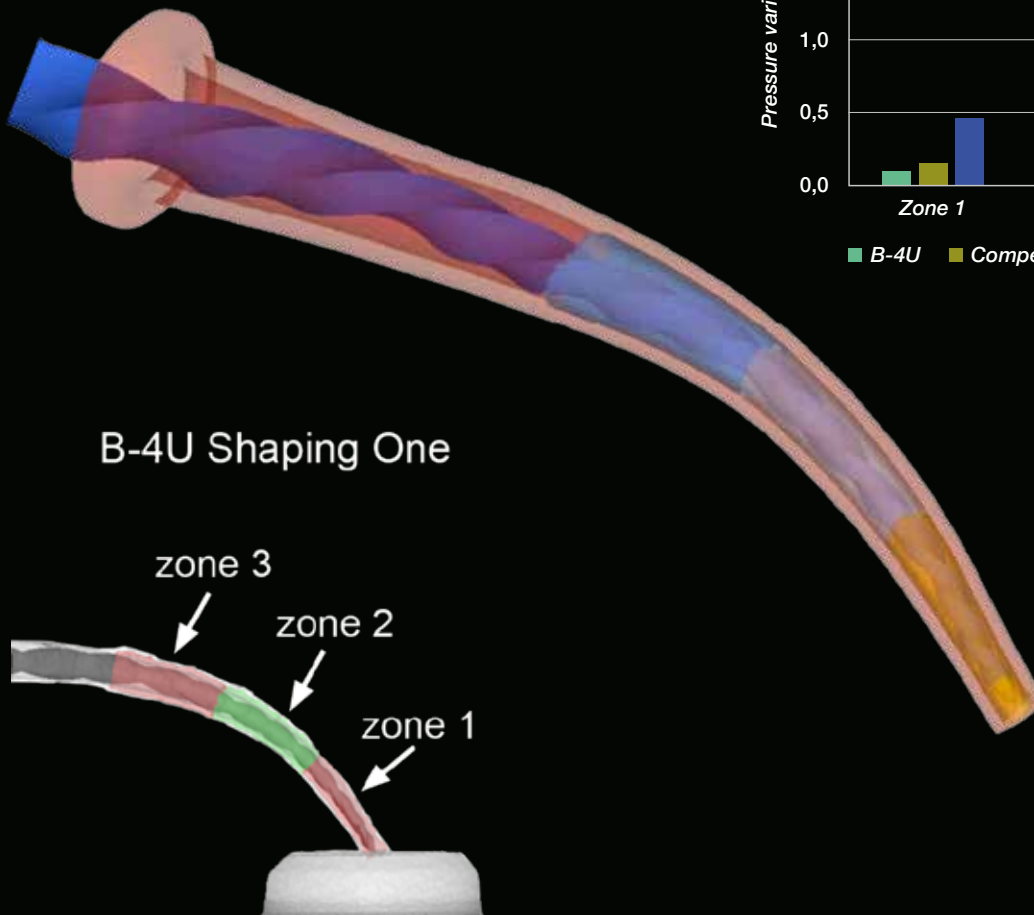


Virtual Modeling: Dynamic virtual analysis of cyclic fatigue for B-4U.

## LESS STRESS, MORE RELIABILITY

A study was carried out in a virtual environment in which the up and down pressures developed during rotation were compared.

Compared to two competitors, the diagram shows that, in all three areas of the instrument, the B-4U shows the best distribution of forces.

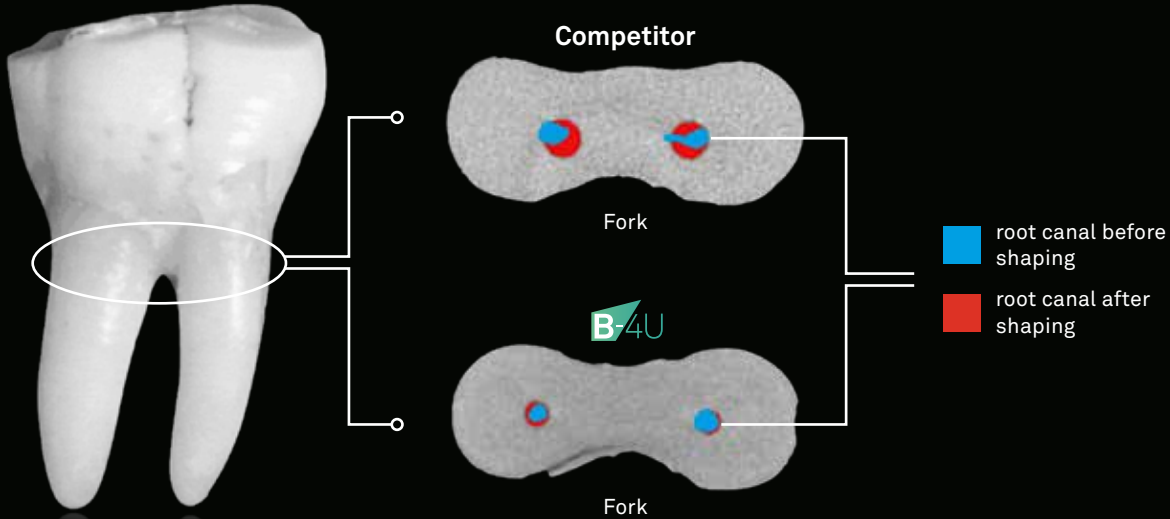


### FINITE ELEMENT ANALYSIS

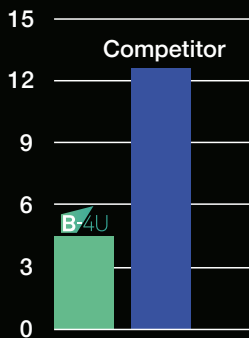
Dynamic analysis of the up and down pressures of the blades on the canal walls.

## OPTIMIZED ROOT CANAL CENTERING

The efficient and extremely conservative design of the B-4U allows perfect control of root canal preparation in the apical area and in the most difficult anatomies. In addition, the reduced taper of the B-4U also saves healthy dentin at the root level. It has been demonstrated, in fact, that increasing the taper of the root canal shape decreases the resistance to fracture of the root, particularly if the increase is in the apical third.



A further study was carried out with Micro CT analysis of the centering in the canal prepared with the B-4U instrument, which shows a lower removal of the root tissue.



The instrument, with its design and its maximum taper of 5%, perfectly respects the original anatomy of the canal without translating it, even in the presence of accentuated curvatures.

The graph shows the percentage difference of dentin removed towards the furcation between B-4U and Competitor. The B-4U is much more conservative.

% reduction of dentin towards furcation

The reported clinical cases demonstrate the important preservation of healthy tissue, the elegant truncated conical preparation and the excellent maintenance of the original root canal anatomy.



Case 1



Case 2



Case 3

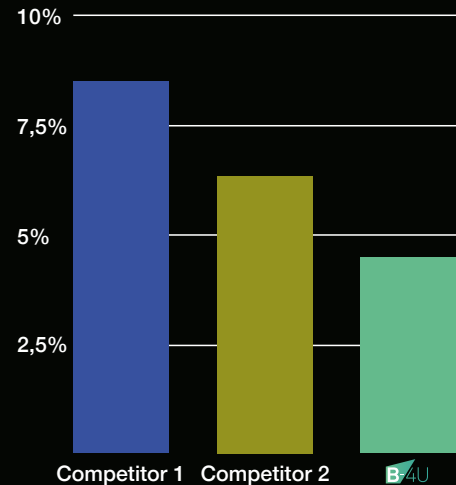
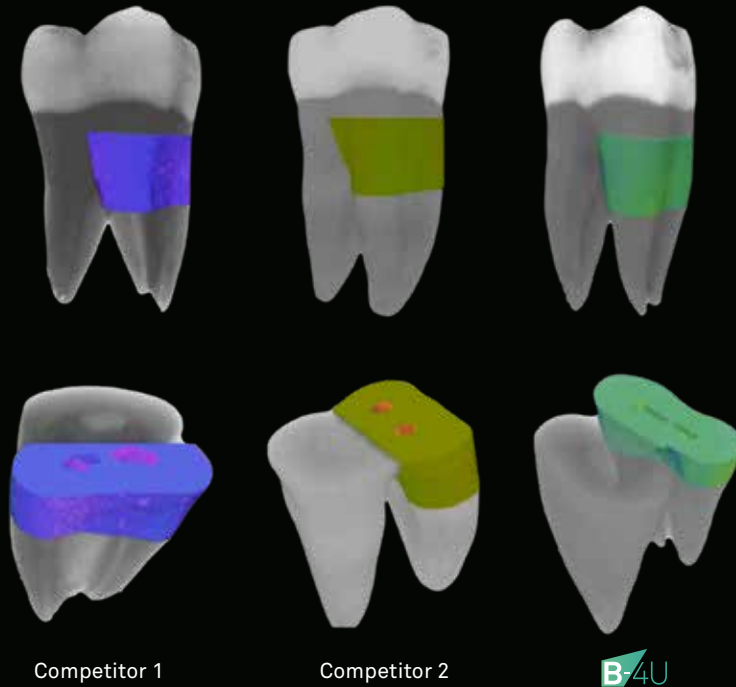


Case 4



## MINIMAL REMOVAL OF PERICERVICAL DENTIN

The Micro CT study showed that the B-4U instrument, with its maximum taper of 5%, shows a significant preservation of healthy tissue compared to other instruments on the market with 6% and 8% taper.

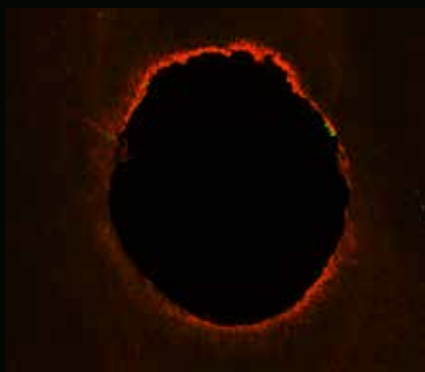
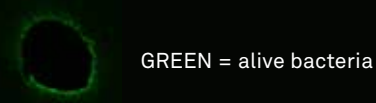


one-way ANOVA with Bonferroni correction ( $\alpha < 0,05$ )

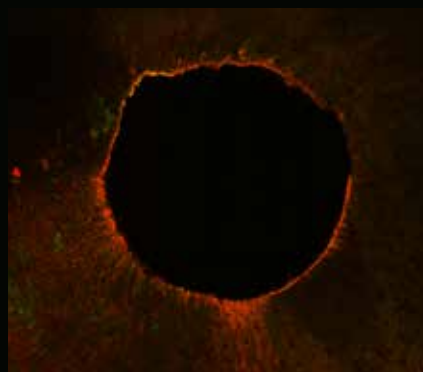
Volume of dentin removed in the pericervical area, important for resistance to masticatory stress.

## CLEANING AND DISINFECTION

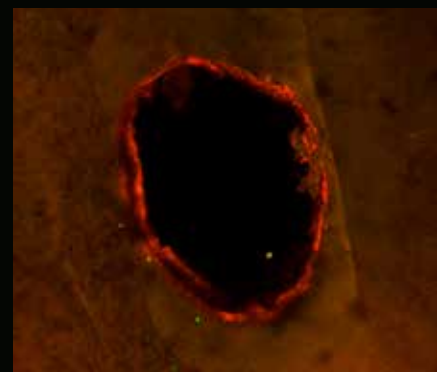
The optimization of the tapers and diameters of the shapes achieved with the B-4U allows excellent cleaning and disinfection of the root canal system.



Coronal third



Medium Third

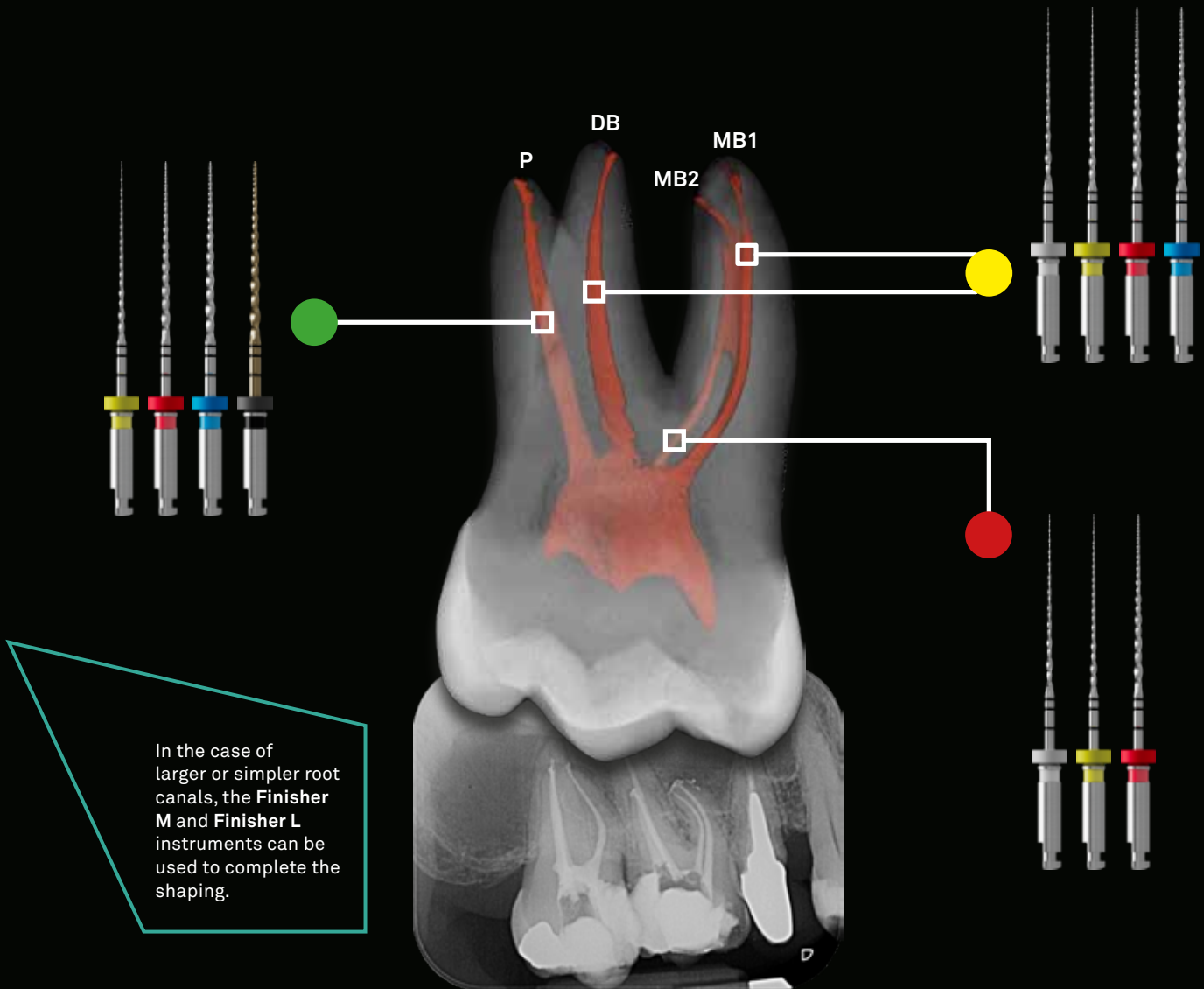


1 mm from the apex

Confocal laser microscopy analysis of disinfection quality.

## OPERATION SEQUENCE

- **LOW DIFFICULTY:** wide, straight, or moderately curved canals
- **MEDIUM DIFFICULTY:** root canals of medium width and not accentuated curvature
- **HIGH DIFFICULTY:** narrow canals with pronounced curvature

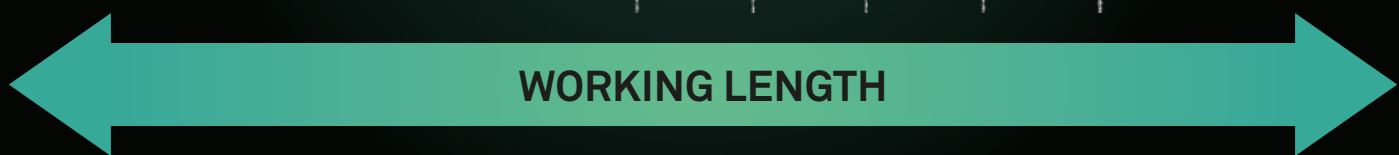


*The image is only an example, with clinical operative indications that can be applicable to the root canals of all dental elements. In any case, the clinical-radiographic evaluation of the individual case by the dentist must be considered compulsory. N.B. It is recommended to use the appropriate instrument for the probing.*

Rotating movement 400 rpm  
Torque 4-5 N



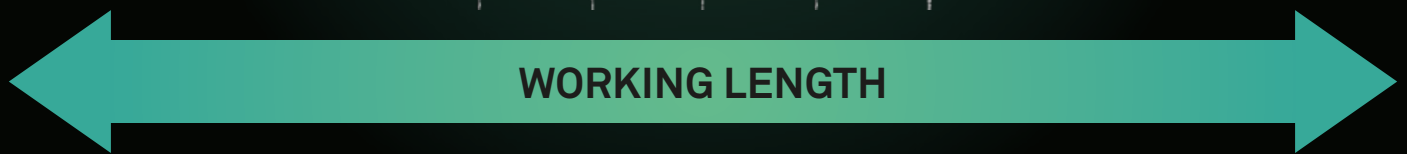
**B-4U** SEQUENCE OF USE IN DIFFICULT ROOT CANALS ●



Rotating movement 400 rpm  
Torque 4-5 N



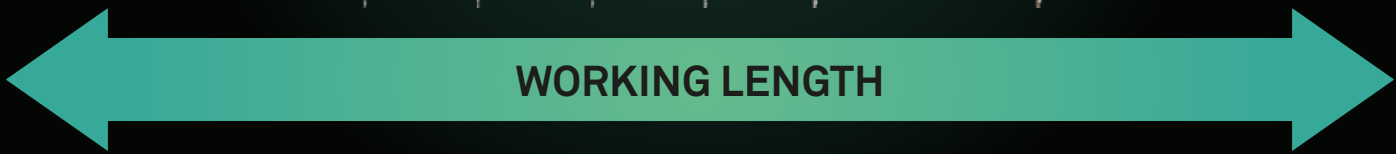
**B-4U** SEQUENCE OF USE IN MODERATELY DIFFICULT ROOT CANALS ●



Rotating movement 400 rpm  
Torque 4-5 N



**B-4U** SEQUENCE OF USE IN EASY ROOT CANALS ●





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B-4U root canal instruments comply with ISO 9001 and ISO 13485 standards and are registered with CE mark according to the Medical Device Regulation (EU) 2017/745. The Sweden & Martina plant manufactures Medical Devices in compliance with the cGMP in force in the USA and other countries worldwide. Guttapercha points are medical devices manufactured by Sure Dent Corporation #809, 52, Sagimakgol-ro, Jungwon-gu, Seongnam-si, Gyeonggi-do, 13210 Republic of Korea (CE 0197).



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