A close-up photograph of a dental handpiece with a bur bit working on a tooth model. The handpiece is metallic and has water droplets on its surface. The tooth model is white and yellow, showing the root and crown. The background is dark and textured.

Jota

ENDO ACCESS KIT 1330

Picture by Dr. Daniel Rosa

ENDO ACCESS

KIT 1330

Endo Access cavity preparation is the preliminary step of root canal treatment. This cavity in the dental crown permits localization, cleaning, shaping, disinfection, and obturation of the root canal system. It affects all following steps and therefore should not be underestimated.

The access cavity must make the succeeding steps easier and safer. Endo Access cavity should be **free from all the chamber contents**. To accomplish this, it is necessary to completely remove the chamber roof. This allows the removal of all the pulp tissue, any calcifications, and all residue of old filling material. Failure to clean the pulp chamber properly can lead to contamination of the root canals or discoloration of the tooth.



The second requirement is the **direct vision of the canal openings**, and the access cavity must be wide enough **to permit endodontic instruments to enter the canals** easily without encountering any obstacles. But it should also allow **straight-line access** to the apical third of the root canal.

Finally, endo access cavity should be related to the tooth anatomy. New endodontic flexible instruments and work with a microscope allow working not only with the traditional wide endodontic access. It is scientifically proven that a traditionally wide access weakens the residual dental structure.¹

Occasionally it is necessary to perform endodontic treatment on teeth with crowns. In this case, there are two options: The crown will be kept, or it must be replaced.





For the first case, a more conservative access cavity should be chosen. For the second case- a crown removal- aesthetics, function and stability of the rubber dam clamp give preference to the endo approach through the denture. The crown itself can be easily removed and replaced after endodontic therapy.

For such preparations, Jota has developed a special **Endo Access Kit 1330**, which contains the minimum set of instruments for creating endo access cavity through various restorations, as well as the initial instruments for the localization and expansion of the root canal orifices.

Regardless of the tooth, there are three steps in the preparation of the access cavity:

1. Penetration
2. Expanding and finishing
3. Radicular access

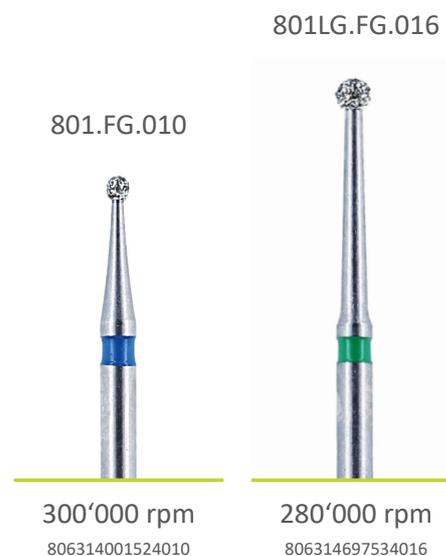


STEP ONE

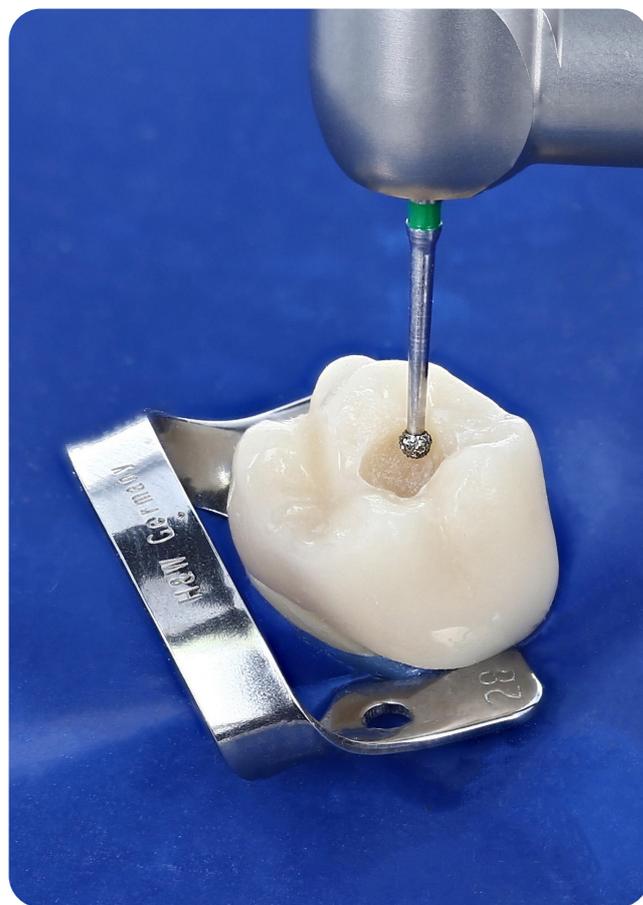
Penetration through enamel or ceramic

The first step is penetration through different materials. It can be natural tooth, ceramic or zirconia restorations, composite crown or composite filling, amalgam filling or metal crown. All these materials have different hardness, therefore for long-term use of instruments as well as for patient comfort, it is necessary to use instruments designed for each specific material.

Instruments **801.FG.010** and **801LG.FG.016**, round diamond burs mounted on a high-speed handpiece, are used to penetrate through natural tooth structure or ceramic crowns- but not zirconia.



ENAMEL



CERAMIC

Z801L.FG.014



300'000 rpm

806314697324014

Penetration through zirconia restorations

Zirconia is one of the hardest materials and a special **Z801L.FG.014** diamond bur with water-cooling must be used to create access through zirconia restorations. Depending on the thickness of the restoration, more than one instrument may be required.



ZIRCONIA

STEP ONE

Penetration through composite or acrylic

A carbide bur **C1.FGXL.010** is used for access through composite crowns or fillings and also through the acrylic temporary crowns. To create access through the composite material, it is better to use carbide burs than diamond burs, which will increase the life of diamond instruments, since the composite is softer than enamel and clogs the spaces between the diamond grains.

C1.FGXL.010



100'000 rpm

500316001001010



COMPOSITE

C18R.FG.010



300'000 rpm

500314196008010

Penetration through amalgam or metal crown

A carbide bur **C18R.FG.010** is used to create access through amalgam fillings or metal crowns. Metal crowns generally need to be replaced after endodontic treatment. It is therefore advisable to remove as much as possible, if not completely, the occlusal surface of the metal crown. In the case of metal-ceramic crowns, a diamond bur 801.FG.010 or 801LG.FG.016 is used to remove the esthetic surface until a large part of the underlying metal has been uncovered. Then, a carbide bur C18R.FG.010 is used to create access through metal.



METAL CROWN

STEP TWO

Expanding and finishing access cavity

The second step is expanding and finishing the access cavity. Enlargement and soft dentin overhanging removal is performed with a round bur **C1S.RAL.014**, mounted on a low-speed handpiece, and with a brushing motion. A long shank supports penetration and visibility.



C1S.RAL.014



50'000 rpm
500205001003014

Finishing and axial wall straightening

Finishing and axial wall straightening of the access cavity requires a safe end diamond bur **857G.FG.014** on a high-speed handpiece. Diamond burs are preferred to tungsten burs. They cut more smoothly, vibrate less, and receive higher acceptance by patients. A "Safe End" diamond instrument 857G.FG.014 allows to process cavity chamber walls with cavity floor contacts without changing anatomy and risk for perforation. After the second step, the transition between the access cavity and the walls of the pulp chamber should no longer be perceptible during probing.



857G.FG.014



300'000 rpm
806314220534014

C152.RAL.014



35'000 rpm
500205210295014

Axial wall straightening the cavity surface

Carbide **C152.RAL.014** is used for axial wall straightening of the cavity surface in the second phase of endodontic treatment and to remove soft, temporary fillings. In this case, the usage of a diamond bur would limit its long-term performance and is not recommended.



Picture by Dr. Daniel Rosa

STEP THREE

Canal entrance with the Müller pulp drill

The third step is radicular access. If the canal entrance is difficult to find, the slow-moving Müller pulp drill **191RF.18MM.120** is used to drill in the direction of the assumed canal entrances to a depth of 2 mm.

191RF.18MM.120



1'200 rpm

330206698001120

IMPORTANT

USE WITHOUT
PRESSURE



180GRF.19MM.090



1'200 rpm

330206679336090

Create a direct and safe radicular access

For the final step, **180GRF.19MM.090** is used to expand the root canal orifice, remove the internal dentin triangle, and create a direct and safe radicular access for following endodontic instruments. It is very important to use a low speed of **1.200 rpm** and not to apply pressure to the instrument to prevent it from bending or breaking.

IMPORTANT

USE WITHOUT
PRESSURE





Summary and Refill Order Information

Picture	Matchcode	ISO	RPM	Page
	801.FG.010	806314001524010	300'000	3
	801LG.FG.016	806314697534016	280'000	3
	Z801L.FG.014	806314697324014	300'000	4
	C1.FGXL.010	500316001001010	100'000	5
	C18R.FG.010	500314196008010	300'000	6
	C1S.RAL.014	500205001003014	50'000	7
	857G.FG.014	806314220534014	300'000	7
	C152.RAL.014	500205210295014	35'000	8
	191RF.18MM.120	330206698001120	1'200	9
	180GR.19MM.090	330206679336090	1'200	10

References

1. Gianluca Plotino, Nicola Maria Grande, Almira Isufi, Pietro Ioppolo, Eugenio Pedullà, Rossella Bedini, Gianluca Gambarini, Luca Testarelli, Fracture Strength of Endodontically Treated Teeth with Different Access Cavity Designs, Journal of Endodontics, Volume 43, Issue 6, 2017, Pages 995-1000, ISSN 0099-2399, <https://doi.org/10.1016/j.joen.2017.01.022>. (<http://www.sciencedirect.com/science/article/pii/S0099239917300717>)

Jota AG Rotary Instruments

Hirschensprungstrasse 2, 9464 Rüthi, Switzerland

Phone +41 (0)71 767 79 99, info@jota.ch, www.jota.ch

01.06.2021