For more than 20 years, the use of nickel-titanium (NiTi) in endodontics has allowed the speed, quality and reproducibility of root canal therapy to be improved. Over the same period, the geometry of the relevant instruments has evolved significantly too. In 2008, the appearance of the asymmetrical cross section with Revo-S1 (MICRO-MEGA) allowed for fewer restrictions and the cleaning capacity of endodontic instruments to be improved. MICRO-MEGA’s mastering of NiTi machining and changes in cross section and surface treatments (electropolishing and thermal treatment) have created a new instrument dedicated to enlarging root canal entrances.

The corono-radicular junction sometimes produces a particular form of mineralisation that partially obstructs root canal entrances. To give an example, sometimes this triangular mineralisation, at the level of the root canal entrance to the molars, is located opposite the furcation (Fig. 1). In order to prevent it from limiting the use of files and to optimise initial preparation for endodontic treatment, it must be removed (Fig. 2). Generic instruments such as Gates-Glidden or Largo drills have been used for this purpose, but they present a risk of effecting major changes to the root canal anatomy, particularly in the case of the endodontic treatment of multirooted teeth. This challenge was the reason for the development of specific instruments such as ENDOFLARE (MICRO-MEGA) and ProTaper Universal SX (DENTSPLY, now Dentsply Sirona). A new generation of these files, whose design has benefited from advanced technologies related to asymmetry, cross section and thermal treatment, is now available in the form of MICRO-MEGA’s One Flare.

At only 17 mm, One Flare is relatively short in order to be able to work at the root canal entrance at the corona-radicular junction. It features a triple-helix cross section, which has been found to be one of the sturdiest among those that are currently used in clinical practice. Like the one of Revo-S or One Shape (MICRO-MEGA), this cross section is asymmetrical, but with a progression from the tip to the shaft for optimised flexibility. One Flare has a constant cone taper of 9% and a tip diameter of 0.25 mm. This tip gives the file extraordinary strength while remaining sufficiently thin to be able to easily penetrate after a scouting file.

The sharpened section of the instrument (13 mm) is made from...
Figs. 3a & b: MEB profile and tip view (Dr Franck Diemer). — Fig. 4: One Flare eliminates the Schilder triangle and the initial millimetres of the pulp parenchyma in order to permit root canal shaping without any coronal interferences to files, which are centred in the canal and allowing it to progress by a few millimetres. After treatment, the file is withdrawn from the canal and cleaned. The canal is irrigated once again and nego-
tiated using the steel file used for the initial root canal exploration. Once the instrument has pre-
treated to a depth of 4 mm (1.1 mm), it can be used with pressure on the walls to selectively collect samples, remove the initial dental irregulari-
ties and reduce the initial restric-
tions to the following shaping in-
strument (Fig. 4). This penetration (maximum of 1 mm) theoretically allows it to create a root canal en-
trance of 0.61 mm (maximum of 0.70 mm), which is less than or equal to the diameter of a No. 2 Gates–Gildoen drill (0.70 mm).

Conclusion
This new flaring instrument of-
ers a new minimally invasive ap-
proach to endodontic treatment by selectively eliminating dentine forma-
tions at the corono–radicular junction. It meets multiple require-
ments of endodontic preparation, such as removing initial interfer-
ences to root canal preparation in-
struments, preliminary removal of the first millimetres of a dense pulp, fibro-calcic or even necrotic parenchyma and re-centring of root canal shaping instruments (Fig. 5), as well as ensuring the precision of the apical limit of endodontic preparation4, 5 and 3-D cleaning or filling of the root canal (Fig. 6).

Editorial note: A list of references is available from the publisher.

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