

# G-Files—Rotary NiTi instruments for glide path enlargement

Regardless of the endodontic instrumentation system used, initial exploration of the canal system has historically been accomplished by using stainless-steel, pre-curved hand instruments (files or reamers). Along with careful examination of radiographs and/or CBCT scans, this initial phase identifies possible difficulties and obstructions within the canal system that the clinician may encounter in preparation for use of rotary NiTi instruments, which will further shape the canal.

Initial penetration and glide path creation in the canal are usually accomplished by using a sequence of narrow-diameter instruments (sizes 06, 08, 10 and 15, with standard ISO .02 taper), such as MMC files (MICRO-MEGA). The clearing and enlargement of the passageway is critical for the safe introduction into the canal of rotary NiTi instruments that have larger diameters and cross-sections. Characteristic of almost all the instruments currently available, each instrument has a non-working (safety or rounded) tip that minimises canal distortion and reduces the possibility of the instrument ledging into the canal wall, which often precedes either a canal perforation or the separation of an instrument.

In addition, hand instruments used at this stage initially enlarge the canal, facilitating the circulation of irrigating solutions, reducing the risk of impacting dentinal debris, which can lead to the loss of apical patency.

In the majority of endodontic procedures, initial glide path enlargement can be a delicate and time-consuming task. The innovative design of the G-File instruments simplifies this delicate step and increases safety in using canal preparation instruments.

## G-File instrument description

To increase endodontic efficiency in the initial glide path formation by simplifying the procedure, while increasing safety, MICRO-MEGA has introduced two new rotary NiTi instruments, the G-Files (Fig. 1).

The G-File NiTi instruments are machined with a narrow diameter (n°12 and n°17) and a slight



Fig. 1

.03 taper. The superior cross-section of the G-File combines efficiency and safety. Along the length of the instrument, the G-File has cutting edges on three different radiuses, creating a large and efficient area for upward debris removal.

The angular offset of the cutting edges also creates a different pitch along the length of the blade, avoiding any screwing or engaging effect into the walls of the canal. The non-working (safety) tip is asymmetrical, which helps the instrument move forward safely; this is also facilitated by the high degree of flexibility resulting from the small diameter (Fig. 2).

The G-Files are electropolished, which improves their mechanical properties, particularly by releasing internal stresses that develop during machining, thereby increasing the flexibility of the G-File. The electropolished surface increases the efficiency in apical progression of the G-File, while aiding in debris removal. The G-Files are available in 21, 25 and 29 mm.

## Operating protocol

Once access has been attained (direct access to the canal opening and removal of overhangs), initial instrumentation is performed with pre-curved, small diameter, stainless-steel instruments (MMC 08 and 10 files). The working length is determined with the MMC 10 file.

The canal is now ready for the G1 file. The recommended motor setting for the G-File is 400rpm with a torque of 1.2N.cm (ENDOAce). The G1 file is placed into the canal and will advance slowly, without apical pressure, until the working length has been reached. After irrigation, the G2 file is then placed into the canal and used in the same way as the G1 file. The MMC 10 file is then used again to check apical patency. (It may be advantageous to use the ENDOFLARE to allow easy direct access of the G-File to the entrance of the canal).

Root-canal treatment can now be completed with the clinician's endodontic instrumentation system of choice (Revo-S, HERO).

Fig. 1\_G-Files.

Fig. 2\_SEM view of a G2 file.

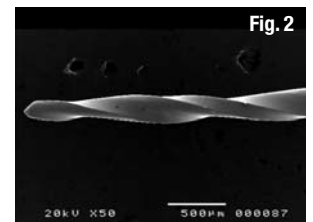


Fig. 2

<b>_contact</b>	<b>roots</b>
<p><b>MICRO-MEGA</b> 5-12, rue du Tunnel 25006 Besançon Cedex France</p> <p><a href="http://www.micro-mega.com">www.micro-mega.com</a></p>	