

Case report for the new HyFlex™ CM NiTi File system of Coltene Endo

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The goal for the development of the new HyFlex™ CM files had primary been the effective cleaning and shaping of root canals with a manageable number of files and further new properties of NiTi material with an extreme flexibility. This was reached with the development of a unique plastically NiTi alloy and a particular file design. Rectangle and squared diameters are known from manual instruments and enhance a comparable high flexibility. The combination of these new properties of the HyFlex™ CM create comparable low rebound forces and allow the instruments to follow highly curved root canals, while staying ideally centered and keeping the natural anatomy of the root canal.

First clinical experiences will be briefly introduced here. The first positive impression is that the set is packaged in a blister for easy removal and use of a standard sequence (pictures 1+2)

The HyFlex™ CM set with 6 Instruments of the following sizes:

File	Size	Taper
1	25	.08
2	20	.04
3	25	.04
4	20	.06
5	30	.04
6	40	.04

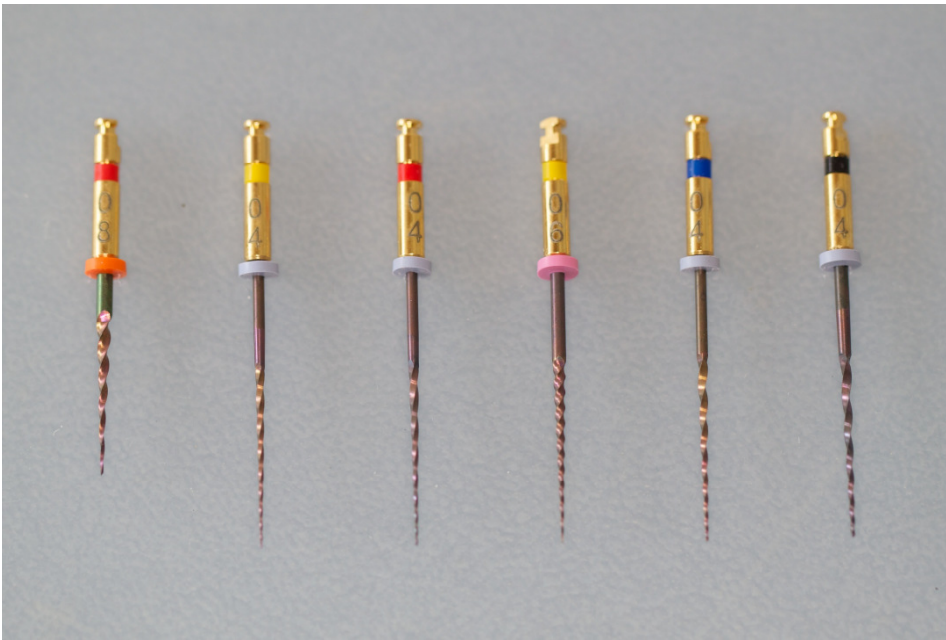
Table 1: Sizes and tapers of the HyFlex™ CM set



Picture 1: HyFlex™ CM standard set of files in the original packaging



Picture 2: HyFlex™ CM standard set in its blister packaging



Picture 3: HyFlex™ CM standard file set

Additional sizes available next to the standard set:

File	Size	Taper
A	15	.04
B	35	.04
C	45	.04
D	50	.04
E	60	.04
F	25	.06
G	30	.06
H	35	.06
I	40	.06

table 2: additional available HyFlex™ CM files

All HyFlex™ CM instruments are available in 21 mm and 25 mm length (exception: the initial file .08/#25 taper has only a length of 19 mm). The files can further be use in any other known technique such as step-back or crown-down.

Possible sizes for crown-down technique

Files	Size	Taper
A	25	.08
B	30	.04/.06
C	25	.04/.06

Table 3: HyFlex™ CM files for a Crown-Down technique

First clinical usage was the root canal treatment of an upper molar (16 and 27). After creating access in both cases the determination of the length took place electronically and with the use a radiograph.

The author favours the creation of a glide path for the initial preparation phase. This allows a first learning of the anatomy and detection of possible constructions or deviation from the normal canal form, which will not be assessed by rotary instrumentation.

In the next step the rotary preparation was conducted with the use of the standard HyFlex™ CM set (Picture 3).

For this case report the instruments were used in the suggested way of the manufacturer. This results in a single length technique, which allows particularly in curved canals a homogenous and ledge free preparation of the root canal. Following the length determination the buccal root canals of both teeth were step by step prepared to a size of .04/#30, while the palatinal root canal was instrumented to a size of .04/#40.

The HyFlex™ CM files had been used in the new Coltene Endo Handpiece CanalPro CL (picture 4). This handpiece allows the control of the torque and its auto-reverse function ensures a safe use of files in general. Its speed can be set from 140 to 550 rotations per minute and the torque control chosen between 0.3 and 3 Ncm. The recommended speed for the HyFlex™ CM instruments is 500 rpm with a torque control of 2.5. The manufacturer states that the handpiece can be used for about 80 minutes. The handpiece has a smooth surface and can therefore efficiently be disinfected. Further, the head can be removed and autoclaved (picture 5). The handling of the CanalPro CL handpiece gives a good and reliable impression. The informative display shows all relevant set-ups at one glance (picture 6). The cordless operation of the handpiece is very handy and the larger dimension due to the rechargeable batteries compared to other handpieces has no negative effect. In the opposite, the cordless operation as well as the subjective adequate

weight of the CanalPro CL handpiece allow a comfortable and safe operation and show a well levelled balance (Picture 7).

After the preparation and chemo-mechanical irrigation the root canals were obturated (picture 8).



Picture 4: cordless Coltene Endo CanalPro CL handpiece



picture 5: separated head of the CanalPro CL handpiece



Picture 6: Display and control panel of the new CanalPro CL handpiece



Picture 7:

clinical use of a HyFlex™ CM instrument (.04/#30) with a CanalPro CL handpiece while preparing the mb1 of the root canal.



picture 8: postoperative radiograph of the obturated root canal of 27

Concluding all major characteristics of the new HyFlex™ CM file system can be summarized:

- Safe use due to very high flexibility of the instruments
- Novel instruments properties increase their fracture resistance exceptionally

- Regenerating of deformed instruments following the sterilization process makes additional utilization possible.
- well-thought-out step by step of the standard frequency as well as a higher speed lead to lower torque.
- Reduction of a standard sequence to six or less instruments as well as crown-down technique with fewer instruments, reduces chair time
- instruments are available in larger tapers of .04 and .06
- Blister packaging
- Cordless CanalPro CL handpiece permits a liberated application leading to a higher flexibility of root canal treatment