



# EndoPilot.

Endo motor and  
apex locator all-in-one.

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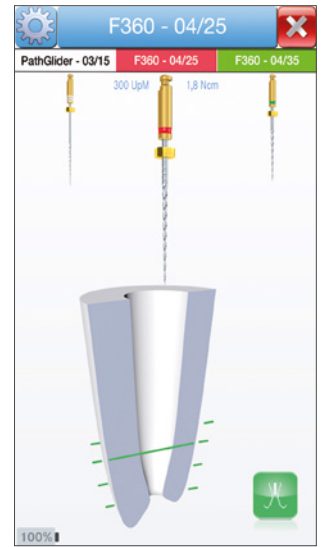
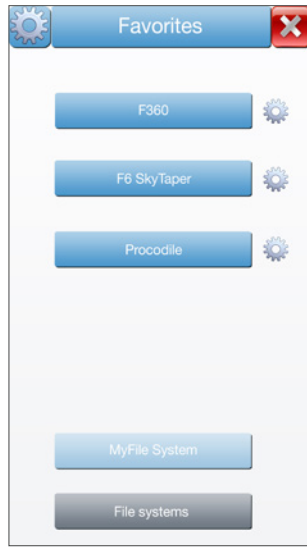
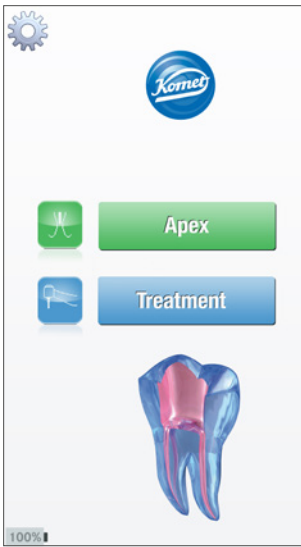
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# EndoPilot

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For an efficient and safe preparation of the root canal.

**User-friendly complete solution: the perfect union between Endo motor and apex locator.**

This torque and speed controlled endodontic motor ensures an efficient preparation of the root canal. It is provided with an ultra-modern integrated apex locator which allows an exact, real-time determination of the length, thus ensuring complete safety and full control of the actual position of the file at all times.

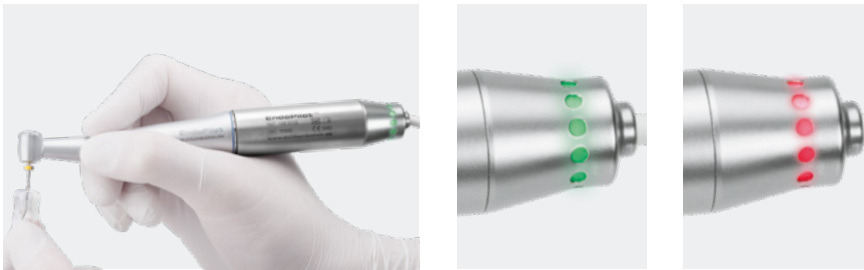
The EndoPilot contains a preprogrammed file library containing the parameters of the F360, F6 SkyTaper, Procodile files and other commonly used file systems. The operator has the option to develop individually adapted sequences and to save them based on their own preferences.

The EndoPilot features a large, 7-inch easy-to-read touch screen which guides the operator through the menu thereby allowing all functions to be found quickly and easily.

Thanks to its slim stand, the wireless remote foot switch and the battery-powered operation, the EndoPilot is particularly practical in small work spaces and is very user-friendly.

- 7-inch colored touch display
- Easily updated to allow for future developments with a micro SD card
- Modern, attractive design
- High-grade metal support and concealed cable routing





### The endodontic motor

#### Safety and efficiency thanks to state-of-the-art technology

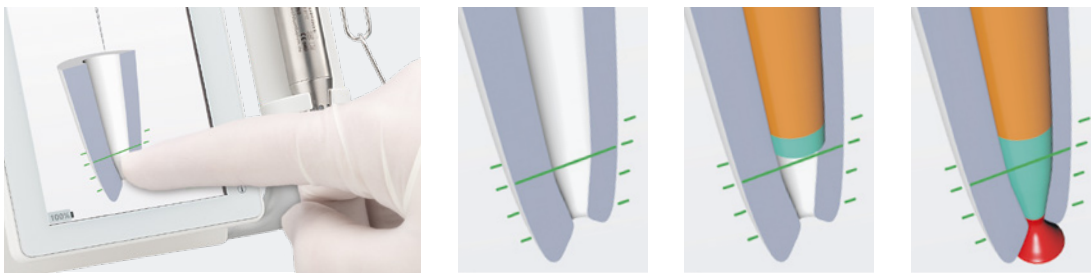
This powerful, torque and speed controlled endodontic motor ensures a comfortable, efficient and safe preparation of the root canal. It is provided with colored LED lights which indicate the direction of rotation, the torque limit and the position of the apex.

Once the preset torque has been reached, the twist-function prevents jamming of the file by performing alternating movements to the left and right. This torque limiting function is equally effective when the motor rotates in an anti-clockwise direction. Thus when rotating in a clockwise direction, the motor works with maximally 80% of its nominal torque to ensure that the other 20% is available for reverse operation.

The EndoPilot motor is also provided with a torque limiting function when approaching the apex. This function limits the cutting efficiency of the file in the apical region and ensures continuous evacuation of chips from the root canal.

At this point, many other motors will switch to reverse operation, which will lead to the debris being conveyed towards the apex. The EndoPilot shows equally intelligent behavior when the apex has been reached. Unlike other motors, it does not switch to anticlockwise rotation, but it instead stops briefly before it carefully resuming clockwise rotation.





## The apex locator

### Full control thanks to precise, real-time measurements

The fully insulated electric contra-angle provided together with the EndoPilot was especially developed for use in endodontics. In combination with this contra-angle, the integrated apex locator allows for an exact, real-time determination of the length during preparation. The operator is always in full control of the current position of the file. He/She can therefore work in complete safety. The contra-angle directs the signal of the apex locator directly to the file, thus eliminating the need for annoying file contact bows. Thanks to the complete insulation of the motor and the contra-angle, measuring errors, for example caused by contact with

the mucosa, are excluded. The precise electronic measurement of the length is carried out according to the impulse measurement technique within a fraction of the usual time.

The instant analysis of the signal allows the apex to be measured in real-time during preparation.

The depth of the preparation can be changed by simply moving the marker (cross bar on the apex indicator) on the touch display.

The apex locator can even be used – without endodontic motor – to determine

the preparation length with manual files in combination with a file clamp.

All functions of the EndoPilot are selected on the clearly laid-out touch display which can be used with certainty as the data is entered directly on the display.

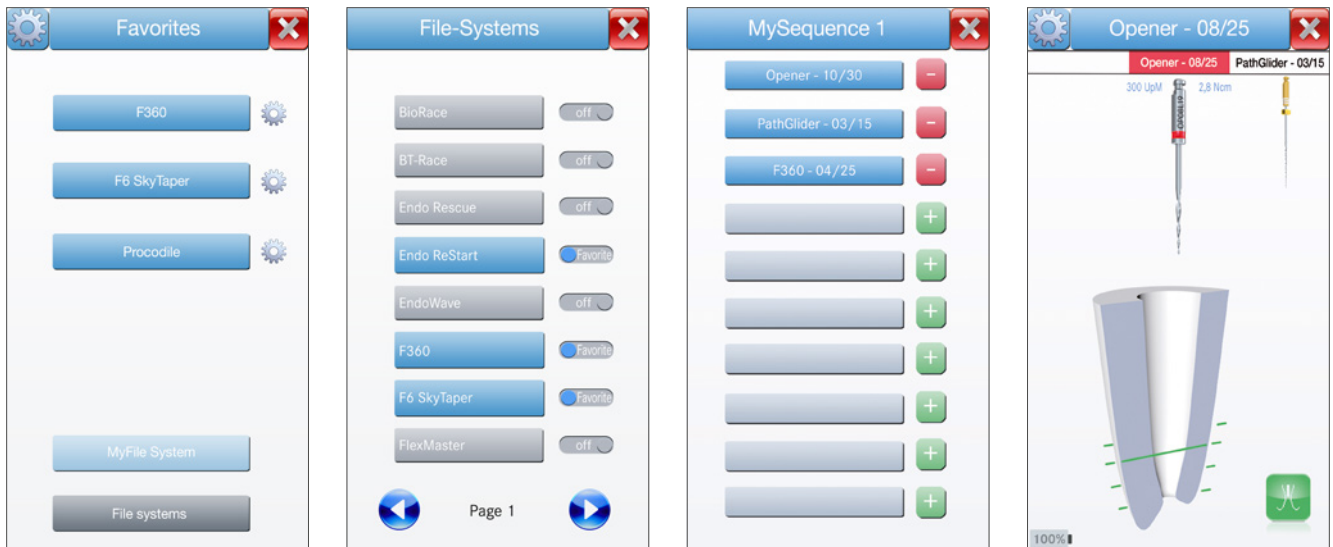
A gentle touch of your finger tip is enough to make the EndoPilot automatically choose the next file within the selected file sequence.



EndoPilot™  
REF 109 0112  
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### Favorites - File library

The menu “Favorites” offers the option to choose five favorite file systems from various pre-programmed file systems. The advantage is that the most frequently used file system can be accessed immediately. The favorite file system is selected by pressing the file icon, and the file library can be accessed via the menu item “all file systems”.

The EndoPilot is features a file library containing the parameters (i.e. speed, torque etc.) of the F360, F6 SkyTaper and Endo ReStart files made by Komet and nearly all other commonly used file systems.

The file library can easily be updated by installing new file systems. The memory capacity of the EndoPilot is sufficient to store 1000 different files and their respective parameters!

### MyFile – develop and save your own individual sequence

The function “MyFile” allows the operator to develop individually adapted sequences. To do this, the individual files and their parameters can be taken from the file library and combined as required. The new sequence can then be saved under “MyFile.” The speed and torque are automatically imported from the file library. The user is of course free to change the preset speed and torque values if necessary to meet their preferences.





#### Advantages at a glance:

- Endo motor and apex locator all-in-one
- Modern, attractive design
- Fully insulated motor and contra-angle
- 7-inch color touch display
- Wireless remote foot switch
- Easily updated to allow for future developments with a micro SD card
- Battery operated (Charging time approx. 9 hours; Battery lifetime during continuous operation approx. 15 hours)
- High-grade metal support and concealed cable routing
- File library with many preset file systems
- Option to install individually adapted sequences
- Clearly laid out menu and easy to operate
- Precise length measurement in real-time via a patented pulse measurement procedure
- Customizable preparation length at the apex locator
- Motor functionality to stop once the preparation length has been reached
- Reduced torque in vicinity of the apex



# ReFlex.

## Intelligent movement.

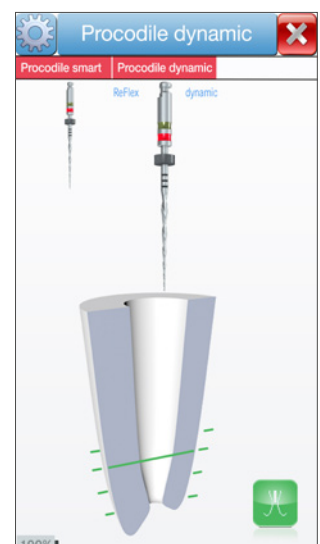
### ReFlex recognizes the torsion of the file - thereby minimizing the risk of fracture

ReFlex is a patented anticlockwise movement pattern on the EndoPilot, which is exclusively available for the Procodile file system and the reciprocating Opener. This movement intelligently combines the advantages of rotary and reciprocating movements. ReFlex is capable of determining both the torque load on the instrument shank and the torsional stress exerted on the file. Thanks to this intelligent feature, the motor is able to identify the part of the file that is subjected to the load.

ReFlex is characterized by its full-circle motion which is interrupted by short regular breaks to continuously control the torque load and torsional stress exerted on the file. Torsional stress stands for straightening of the blades when the instrument tip jams in the root canal. By determining the torque and torsional stress of the file, the motor identifies the part of the root canal which is subjected to the load, i.e. the coronal, center or apical third. Depending on the chosen mode, the motor performs a movement that is duly adjusted to the situation.

Thanks to this ability to differentiate, the motor ensures optimal use of the file thereby minimizing the risk of fracture. If the file is only subjected to minor loads, the motor does not perform an active backward movement. This allows optimal evacuation of the debris from the canal. Thanks to this intelligent behavior, the ReFlex movement provides extra security and increased efficiency during the preparation of the root canal.

The ReFlex movement can be operated in two different modes. The ReFlex **smart** option reacts more sensitively to jamming of the file, thereby ensuring greater security. The ReFlex **dynamic** mode is characterized by its greater speed, which means increased efficiency during the preparation of the root canal. During the preparation of root canals with a more complex canal anatomy, the user can switch back to the more tactile ReFlex smart option at any time. We, therefore, recommend working with a combination of both modes depending on the given situation.



# ReFlex dynamic. Maximum efficiency.

The ReFlex dynamic mode mainly focuses on the efficiency of the preparation. Only when the file jams as previously defined, does the motor switch to a backward movement to relieve the stress exerted on the file irrespective of which part of the file is subjected to stress. Afterwards, the file returns to the cutting direction as quickly as possible. The ReFlex dynamic mode, therefore, enables a fast and efficient preparation of the root canal.

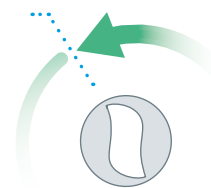
## Advantages:

- Clocked movement in cutting direction for optimal removal of debris
- Very fast work with maximum efficiency
- Ideal for straightforward canal anatomies
- Efficiency comparable to that of all-rotary movement



••• Measuring break

← Fast forward movement

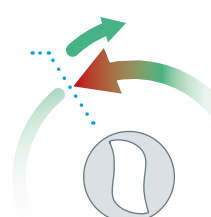


**ReFlex dynamic | Minor load or no load at all**



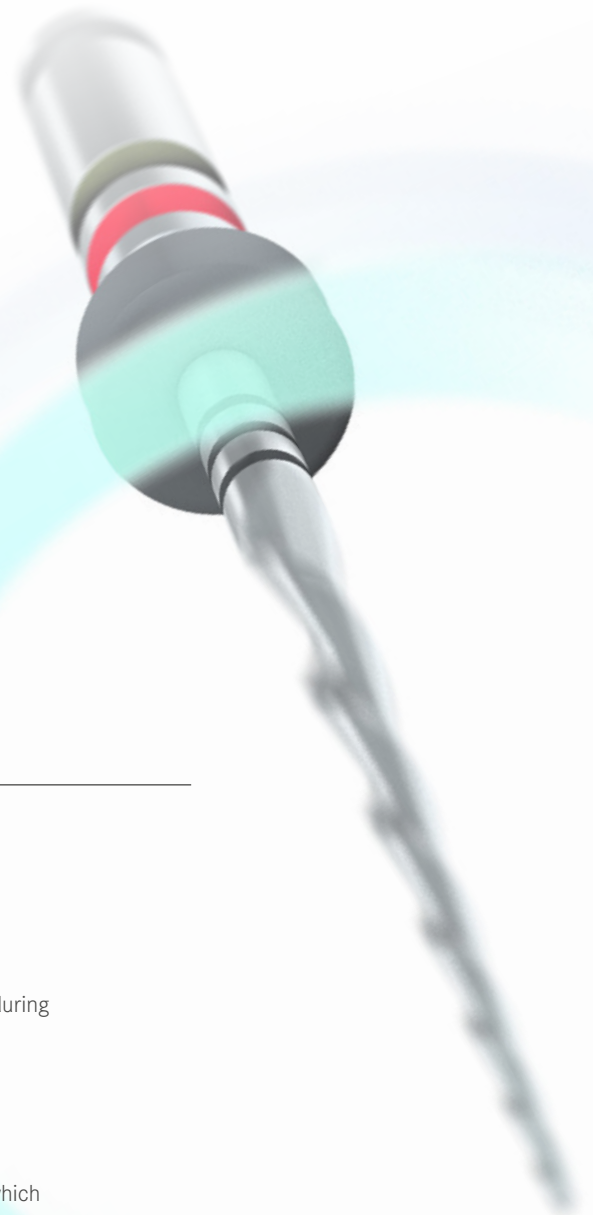
••• Measuring break

→ Backward movement  
← Fast forward movement



**ReFlex dynamic | Load**





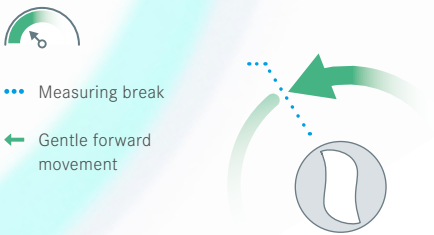
# ReFlex smart. Maximum tactility.

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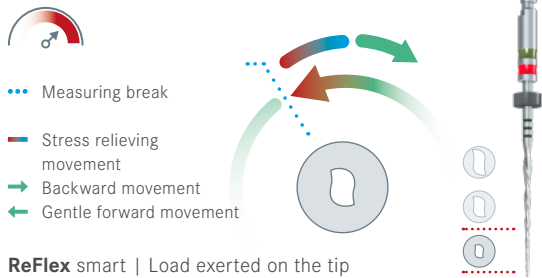
In the ReFlex smart mode, the EndoPilot is set to a considerably higher level of sensitivity based on the position of the load exerted (coronal, central, apical). For example, the EndoPilot operates at a lower speed when the file works in the apical region. In the event of the file jamming, the motor reacts by performing a gentle stress relieving movement. In contrast, when the file jams in the coronal part, the motor accelerates speed. Depending on which part of the file is subjected to the load, the intelligent ReFlex smart movement is as tactile as necessary and as efficient as possible.

#### **Advantages:**

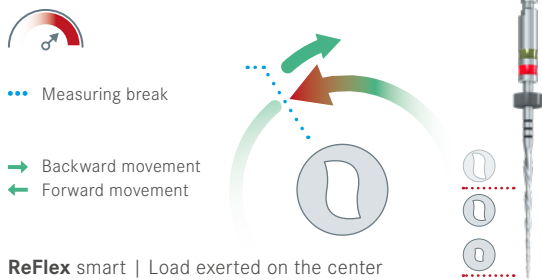
- Increased safety and tactile work during treatment
- Ideal for more complex canal anatomies due to gentle motion in case of torsional stress
- Intelligent root canal preparation which is adapted to the stress level
- Tactile and efficient in the canal



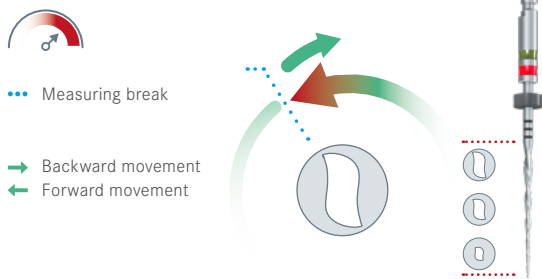
ReFlex smart | Minor load or no load at all



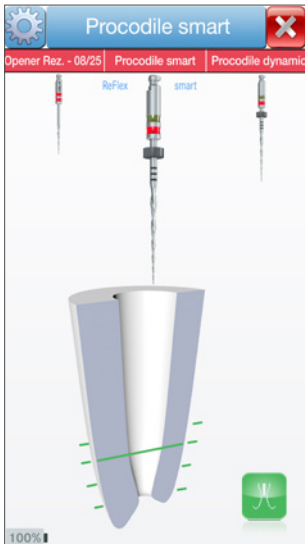
ReFlex smart | Load exerted on the tip



ReFlex smart | Load exerted on the center



ReFlex smart | Load exerted on most of the working part



# Accessories.

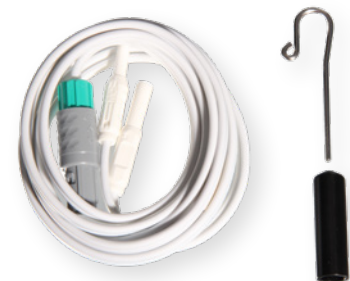
## Fully insulated contra-angle.

The fully insulated electric contra-angle was especially developed for use in endodontics. The contra-angle directs the signal of the apex locator directly to the file, thus eliminating the need for contact bows or protective sheaths. Thanks to the complete insulation of the motor and the contra-angle, measuring errors on these components are excluded.



## Apex cable - completely demountable

Precise electronic length measurement can take place directly with the contra-angle or probing can be carried out separately with the file clamp. Note, the patented file clamp can be steam sterilized. For cleaning in compliance with the guideline of the Robert Koch Institute, it can be demounted in just a few simple steps. (Please see below)



## Wireless remote foot switch

The EndoPilot comes with a perfectly designed, aesthetically pleasing remote foot switch. Its wireless control makes work much easier and more convenient.





# Technical data.

Type	EndoPilot
Power supply <sup>1</sup>	Input: 100–240 V/AC (50–60 Hz) Output: 12 V/1,25 A/DC or 12 V/1,5 A/DC The power supply unit complies with IEC 60601 for medical devices. (Only use the original power supply unit provided with the EndoPilot). Recharge device regularly, at least every 6 months.
Battery	Li-Ion Akku, 7.2 V, Power: 48 Wh
Electric protection class	II
Output	max. 3 V/5 A or 12 V/1.25 A (direct current)
Use	The device is designed for short-term use only Motor: 30 seconds full-load operation/1 minute idle
Speed	200–1.000 min <sup>-1</sup> +/- 10%
Torque	0,2–5 Ncm +/- 10%
Device class	Class according to EN 60601: Application part type BF Do not use device in areas exposed to explosion hazards. Keep device away from flammable substances.
IP class	IP31 EndoPilot and remote foot switch IP40 Power supply unit
MPG/EU class	Ila
Environmental conditions	Air pressure 800 hPa to 1060 hPa
During operation:	+59 °F bis +104 °F/air humidity: 20–80%, non-condensing
During transport:	-59 °F bis +140 °F/air humidity: 20–80%, non-condensing
Weight	1450 g EndoPilot Controller
Dimensions	19 cm x 20,5 cm x 17,5 cm
Charging time of the battery	Approx. 9 hours
Battery life in continuous operation	Approx. 15 hours
Batteries for the remote foot switch	2 x 1.5 V AAA batteries

Subject to technical modifications.

<sup>1</sup> Do not use other power supply units. The power supply unit is essential for the safe use of the device.



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