

# Accurate length determination

The Raypex 5 apex locator from VDW

No apex locator on the market today is a measuring device in terms of the Medical Device Law (MDL). It is a widespread misunderstanding that electronic length measuring devices can measure the length of a root canal. Nonetheless, the latest generation of devices can be more precise than radiography!

By definition measuring should produce a metric result, that is, indicate exact millimetres. No apex locator is able to do so, not even if the device has a millimetre scale. The apex locator determines a reference point by analysing electronic signals. This reference point is the narrowest place at the end of the canal, the apical constriction. A good device can do so very precisely and can determine the length of the constriction, although not in metric units.

For example, the Raypex 5 calculates the position of the apical constriction by impedance measuring. Just before the tip of the measuring file reaches the apical constriction the Apex Zoom is activated. The display shows the apical constriction in its total length in a much larger scale.

The scale does not represent millimetres but the total length from the constriction to the apical foramen. This distance, be it <1mm, or <2mm, is scaled with graduation lines. This allows the dentist to decide, according to his or her 'preparation philosophy' whether to stop at the apical constriction, or at any point between

constriction and apical foramen. The recommended point of preparation at the beginning of the apical constriction is displayed by green bars. The actual working length in millimetres can be checked on the stopper position of the measuring gauge, in order to record it.

Even if the apex locator does not read metric units it determines the desired preparation length more accurately than x-ray images. It detects the narrowest place as well as its exit to the physiological apex. And this is what counts.

An apex locator cannot be deviated from its goal. This is the reason why it outmatches x-ray radiography. Radiography is limited to represent in only two dimensions a three-dimensional situation. While it is difficult, if not impossible, to represent the hidden canals in multi-rooted molars on a radiograph, the apex locator has no problem with it. Finding canal entrances is the only aspect the apex locator is unable to do.

If an apex locator is not a measuring device according to the MDL, it should not be necessary to maintain or calibrate? Correct. Modern devices do not need to be calibrated. And precise measuring, even without a metric scale, is radiation-free, delivers immediate and precise results. And the only thing the patient is aware of is the dentist using a high-tech device that beeps. ■

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## Features

- Large projection of apical section with unique visualization of apical constriction
- Precalibrated display of apical constriction area
- Live representation of file movement along entire root canal
- Impedance measurement based on advanced multi-frequency system
- Latest digital technology
- Foldable backlight display adjusts to desired viewing angle
  - Anti-slip casing with cable storage compartment
- Rechargeable AAA batteries
  - Battery charger indicator
  - Instruction CD-ROM included in kit
  - Built-in demo mode for quick demonstration to patients
- Optional PC interface to show file movement on external monitor
  - Length measurement without radiation
  - Electronic length determination

