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RECIPROC® blue

A great file. Even better.



User guide

ENDO
EASY
EFFICIENT

vdw-dental.com

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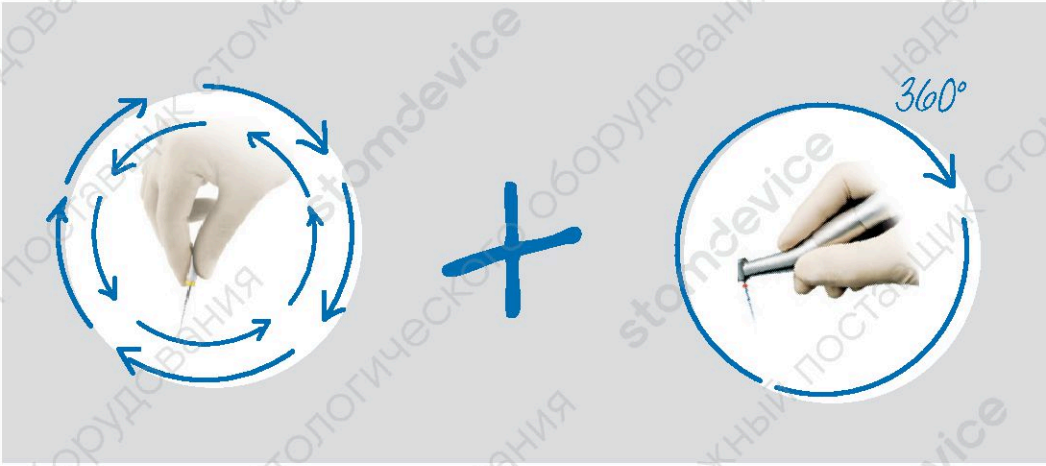
Reciprocation

Reciprocating history

Canal curvature has always introduced complexity into canal preparation. The “balanced force concept”, i.e. small clockwise and counter-clockwise movements, was developed over a period of twelve years, and proposed in 1985 by Roane as a means of overcoming the curvature influence. Using the balanced force technique, it is possible to shape curved canals with larger diameter hand instruments. The use of stainless steel hand instruments, however, is time-consuming and strenuous, and there is a high frequency of preparation errors.

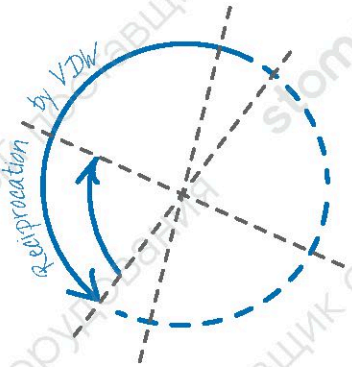
The development of continuous rotary preparation with nickel-titanium (NiTi) instruments solved some of these issues, although it is still necessary to use several hand and rotary files in different steps, and there may be a lengthy learning curve before proficiency can be achieved.

Inspired to find a simpler and more convenient safe way to successfully prepare a root canal, Prof. Ghassan Yared, who was at that time Professor of the Endodontic Undergraduate and Graduate Programmes at the University of Toronto, started researching and testing mechanical reciprocation with NiTi instruments. In 2008, he published a clinical article on canal preparation using only one engine-driven NiTi instrument and joined together with VDW to develop RECIPROC®, a system specifically for use in reciprocation.



Reciprocation by VDW

In reciprocation, the instrument is driven first in cutting direction and then reverses to release the instrument. One complete rotation of 360° is completed in several reciprocating movements. The angle in the cutting direction is greater than the angle in the reverse direction, so that the instrument continuously progresses towards the apex. The angles of reciprocation are precise and specific to the design of the RECIPROC® instrument and to VDW endo motors. They are designed to be smaller than the angle settings where the elastic limit of the instrument would be met, thus minimizing the risk of instrument fractures.





The standard with rotary systems up until now: initial hand filing to create a glide path.

With continuous rotary NiTi systems it is necessary to create a glide path in order to minimize the risk of fracture due to instrument binding. During the use of a rotary instrument, the tip of the instrument may bind in the canal. For this reason, it is necessary to create an initial glide path, or a minimal canal enlargement, before using continuous rotary instruments.

Just as with any continuous rotary NiTi system it is possible to use the RECIPROC® range instruments after creating an initial glide path with hand instruments (e.g. C-PILOT® File) to an ISO size 10 or 15. However, RECIPROC® and the reciprocating movement has opened a new option: using RECIPROC® without initial hand filing in the majority of cases.

A paradigm shift in endodontics: using RECIPROC® without initial hand filing to create a glide path in the majority of cases.

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“Canal preparation with only one mechanical instrument used in reciprocation, without a glide path, was introduced in 2011. This new concept was a paradigm shift. Studies from all over the world and clinical research have shown the efficiency and the safety of the RECIPROC® instrument in the preparation of canals without creating a glide path, and in the retreatment procedure.

RECIPROC® *blue*, an improved version of the original RECIPROC® instrument, has an increased resistance to cyclic fatigue and a greater flexibility. The centering ability of the reciprocation motion, and the design of the RECIPROC® *blue* instrument and its enhanced physical properties allow the RECIPROC® *blue* to follow the path of least resistance, which is the canal, without any prior instrumentation, and to be used efficiently for the preparation of strongly curved and calcified canals without a glide path, and for a retreatment procedure.”



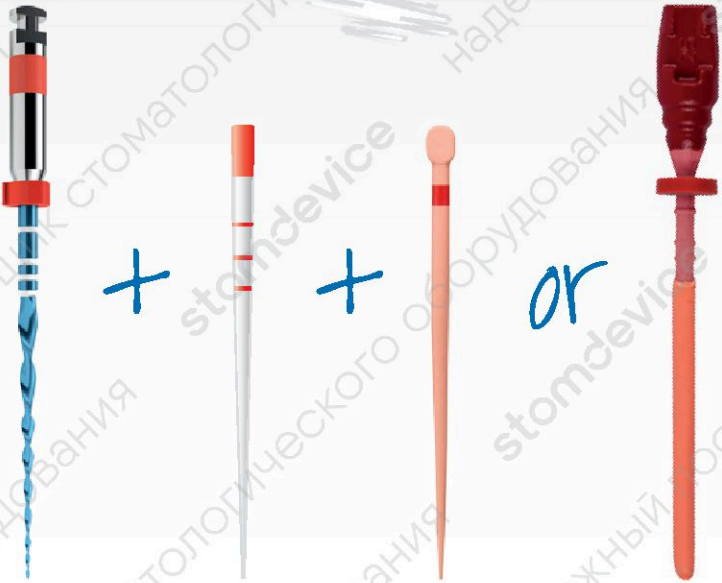
Prof. Ghassan Yared
Ontario, Canada

II The RECIPROC® *blue* system

RECIPROC® *blue* is the new generation of a proven system. Back in 2011, VDW released RECIPROC®, its biggest success in its history with over 7.5 million files sold and over 60 publications, becoming the market leader for reciprocating instruments worldwide.

System overview





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RECIPROC® *blue* instruments

RECIPROC® *blue* is designed to be used as a single instrument. That means that one instrument only is required to prepare a root canal. One RECIPROC® *blue* instrument does the job of several instruments which would need to be used for preparation with regular hand or continuous rotary instruments. The shape obtained by the RECIPROC® *blue* instrument enables effective irrigation and obturation with both cold and warm techniques.

Narrow canals

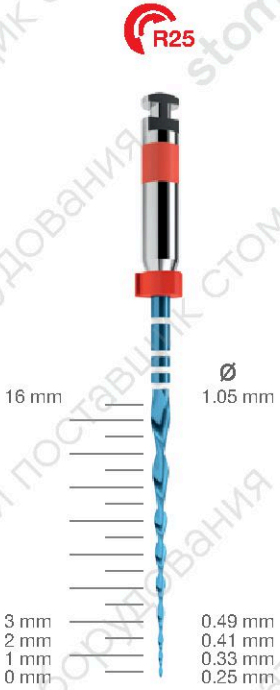
R25 prepares the root canal to a diameter of 0.25 mm with a taper of .08 over the first apical millimeters.

Medium canals

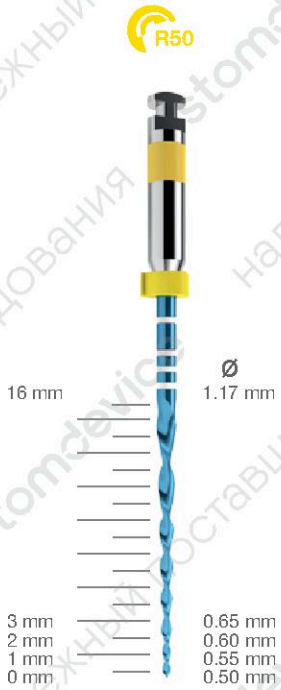
R40 prepares the root canal to a diameter of 0.40 mm with a taper of .06 over the first apical millimeters.

Wide canals

R50 prepares the root canal to a diameter of 0.50 mm with a taper of .05 over the first apical millimeters.







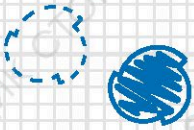
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Instrument design

RECIPROC® *blue* instruments have been specifically designed for use in reciprocation. The perfect combination between our specific s-shaped cross section, the variable taper, the cutting angles and the thermally improved raw material provides high efficiency and cutting performance. The file's tip is non-cutting for a gentle treatment near the apex.

Silicone stopper

The stopper, in the ISO color of the specific RECIPROC® *blue* instrument tip size, supports clear identification of the RECIPROC® *blue* instrument when it is inserted in the contra-angle. The three points represent three movements needed to complete 360° in reciprocation.



Depth markings

RECIPROC® *blue* instruments have radiograph visible depth markings e.g. at 18, 19, 20 and 22 mm.

ISO color

RECIPROC® *blue* instruments are marked with the ISO color of the instrument tip size for easy identification.

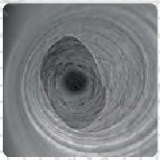
Shaft

RECIPROC® *blue* instruments have a short shaft of 11 mm enabling better access to molars compared to many other instruments which have a shaft of 13 mm or longer.



S-shaped cross-section

non-cutting tip



working length

Working length	Depth markings at
21 mm	18, 19 and 20 mm
25 mm	18, 19, 20 and 22 mm
31 mm	18, 19, 20, 22 and 24 mm

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The improved NiTi alloy

RECIPROC® *blue* files are produced with Nickel-Titanium (NiTi) that goes through an innovative heat treatment, modifying its molecular structure to give it increased resistance to cyclic fatigue and additional flexibility as well as its characteristic blue color.



Frequency of use

A RECIPROC® *blue* instrument is designed for single use in maximum one molar. As with all NiTi instruments, it should be examined during the treatment and discarded if signs of wear, such as untwisting, can be seen. If an instrument appears to be bent after being used in a strongly curved canal, it should be discarded.

Single use convenience

The RECIPROC® *blue* system stands for convenience and safety. The instruments are delivered ready to use, pre-sterilized in blister packaging and should simply be discarded after use, making work flow more efficient; eliminating the need to clean and sterilize instruments, considerably reduces the risk of contamination to office personnel and eliminating the risk of cross contamination between patients.

The RECIPROC® *blue* instrument cannot be autoclaved due to its non-autoclavable handle. This safety feature protects against metal fatigue caused by over-use.

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RECIPROC® *blue* Paper Points



These are highly absorbent, pre-sterilized RECIPROC® *blue* Paper Points corresponding to instrument sizes R25, R40 and R50. For convenient use they are packed in blister cells of four paper points each. Sterile paper points help to prevent root canal recontamination after thorough cleaning and disinfection. Markings at 18, 20 and 22 mm assist working length control.

RECIPROC® *blue* Gutta-Percha



The RECIPROC® *blue* system includes RECIPROC® *blue* Gutta-Percha Master Cones. These master cones mirror the variable taper and shape of the corresponding RECIPROC® *blue* instruments and are available in the sizes R25, R40 and R50. Our injection molding process improves dimensional stability up to 40 % compared to traditional hand rolled gutta-percha cones. This allows a more consistent shape and fit.

In addition, the unique gutta-percha formulation heats more consistently, providing better material flow and adaptation to the canal walls promoting a 3D-fill when used with warm vertical condensation for example with the BeeFill®2in1 system. Heat transfers through the gutta-percha cone up to 4 mm beyond the heat source ensuring warm, flowable gutta-percha that reaches all the way to the apex while enabling the clinician to utilize a lower heat plugger temperature, thereby improving patient safety.

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GUTTAFUSION® for RECIPROC® *blue*



GUTTAFUSION® for RECIPROC® *blue* obturators have been developed for an easy, warm and homogeneous 3D-obturation of the whole root canal system. Made entirely of gutta-percha, the obturators can be heated in the GUTTAFUSION® oven and can be placed precisely into the root canal either by hand or with tweezers, thanks to the specially designed handle.

The obturators correspond to the RECIPROC® *blue* preparation system and are available in the sizes R25, R40 and R50.

RECIPROC® endo motors from VDW

VDW.CONNECT Drive®, VDW.GOLD®RECIPROC® and VDW.SILVER®RECIPROC® endo motors are designed to enable the use of both reciprocating and continuous rotary NiTi systems. Thanks to the intuitive menu navigation and clearly structured display, the motors ensure easy and convenient use. All VDW motors are fully compatible with RECIPROC® *blue* and offer the specific motor settings (RECIPROC® or RECIPROC® ALL modes) for a safe operation.



VDW.GOLD®RECIPROC®
with integrated apex locator



VDW.SILVER®RECIPROC®



VDW.CONNECT Drive® –
the only cordless motor for RECIPROC®

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RECIPROC REVERSE Comfort Function

VDW RECIPROC® motors are equipped with the unique RECIPROC REVERSE Comfort Function, which has been specially designed by VDW. This function is a two-stage indicator, which signals when to switch to a brushing file motion in order to reduce stress on the instrument during preparation and to enable an easy advancement towards the apex.

RECIPROC REVERSE supports the user in working with the RECIPROC® system by giving a first acoustic signal to indicate an increase in friction experienced by the instrument in the root canal. In order to reduce friction, the instrument should temporarily be used in a lateral brushing motion towards the coronal section. This creates space in the root canal and the instrument can further advance towards the apex by using a pecking motion.

If the instrument is subjected to further stress, a second acoustic signal is given and the motor will automatically start rotating in a clockwise direction. In this way, stress on the instrument will immediately be reduced. By releasing and pressing the foot pedal again, the motor will resume the reciprocating motion. However, the instrument must be cleaned, the canal irrigated and an ISO size 10 C-PILOT® File should be used in order to check that the canal is not blocked before resume its reciprocating motion. The preparation can then be continued by temporarily using lateral brushing motions until the instrument can easily advance towards the apex (see “Canal preparation step by step and recommendations” on page 18).

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Advantages of reciprocation and the RECIPROC® *blue* system



One file endo. Less work steps than continuous rotary files.

Chair-side preparation is reduced to a minimum, as the RECIPROC® *blue* instrument comes pre-sterilized. A root canal can be completely prepared to a greater taper with only one reciprocating instrument. There is no need to change instruments in the contra-angle during preparation.

Centering ability

In reciprocation, the instrument stays better centered in the root canal. Large instruments with a large core can safely and efficiently negotiate even narrow and strongly curved canals.

Time-saving and easy to learn

Designed for convenience, RECIPROC® *blue* instruments are used on only one patient and then simply discarded, eliminating two work steps – cleaning and sterilizing.

Glide path management

RECIPROC® *blue* can be used without initial hand filing in the majority of cases. When a reciprocating instrument binds in the canal, it will not fracture because it will never rotate past its specific angle of fracture. Therefore, the creation of a glide path to minimize binding is not required for the RECIPROC® *blue* instruments.

The risk of instrument fracture is minimized

The innovative heat treatment gives increased resistance to cyclic fatigue and additional flexibility to the file. In addition, the angles of reciprocation are specific to the design of the RECIPROC® *blue* instrument. They are smaller than the angle settings where the elastic limit of the instrument would be met, thus minimizing the risk of instrument fractures.

Retreatment

Gutta-percha filling material and carrier based obturators can be removed with R25.

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IV Preparation with RECIPROC® *blue*

Selecting the correct RECIPROC® *blue* instrument

Pre-Operative Radiograph DECISION

canal is partially or completely **invisible**

narrow canal

In the majority of cases, the R25 RECIPROC® *blue* instrument is most suitable.



R25

canal is completely **visible**

wide or medium canal

hand instrument ISO 30 goes passively* to working length

Yes ✓

R50

No ✗

hand instrument ISO 20 goes passively* to working length

Yes ✓

R40

No ✗

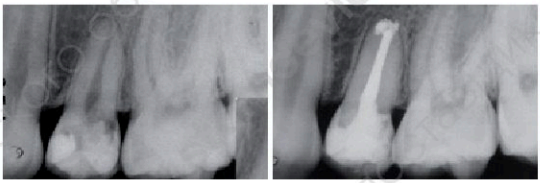
R25

Passively** means that the instrument goes directly to working length with a gentle watch winding movement (small right left rotations) but **without filing action.

Application examples



Canal is considered narrow: R25



Canal clearly visible from access cavity to apex: considered medium or wide (R50 was used for the canal preparation: an increased apical enlargement was obtained with a size 70 hand file)

Clinical orthography, Prof. Ghassan Yared, Canada

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Electronic length determination

Narrow canals

Before commencing preparation, the length of the root canal is estimated with the help of an adequately exposed and angulated pre-operative radiograph. The silicone stopper is set on the RECIPROC® *blue* instrument at 2/3 of its length.

During preparation with R25, after approximately 2/3 of the root canal has been prepared, use a C-PILOT® File or a K-File ISO size 10 and an apex locator such as RAYPEX®6 to determine the length of the root canal. The silicone stopper then can be set on the RECIPROC® *blue* instrument at this determined length.

Medium or wide canals

Before starting preparation with R40 and R50, determine the working length with an apex locator such as RAYPEX®6 by using a C-PILOT® File or a K-File. Set the silicone stopper of the RECIPROC® *blue* file at that length. After the coronal and middle thirds of the canal have been prepared, the working length should be re-checked.



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Canal preparation step by step and recommendations*

Ensure you have achieved a straight line access to the root canal orifice. It is not necessary to widen the root canal entrance with a Gates Glidden drill or an orifice opener. The design of the RECIPROC® *blue* instrument allows any obstructions in the coronal third to be removed.



1. Estimate the working length from a pre-operative radiograph.
2. Place irrigant in the access cavity.
3. Introduce the RECIPROC® *blue* instrument into the access cavity. Press the motor foot pedal when orifice is reached.



4. Move the instrument in a slow in-and-out pecking motion. The amplitude of the in-and-out movements should not exceed 3 mm. Only very light pressure should be applied. The instrument will advance easily in the canal. One in-and-out movement = 1 peck. **Remove the instrument from the canal after 3 pecks.**



5. Clean the debris from the flutes in the Interim Stand.



6. Irrigate the canal.



7. Make sure the canal is free to 1 mm beyond the prepared canal section with an ISO size 10 C-PILOT® File.

*also suitable for MB2 canals

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Continue root canal preparation with RECIPROC® *blue* until approx. 2/3 of the estimated working length (WL) has been reached. Then determine WL using a hand instrument ISO size 10 (see page 17 "Electronic length determination").

ISO 10 hand instrument used for length determination goes to WL **without being pre-curved**

Yes ✓

R25 to full WL

No ✗

The creation of a glide path may be required in some cases during the use of RECIPROC® *blue*.

ISO 10 hand instrument used for length determination only goes to WL **pre-curved**

Glide path up to ISO 15

Hand instrument ISO 15 goes to WL without being pre-curved

Yes ✓

R25 to full WL

No ✗

Finish preparation with hand instruments

Recommendations

- Pull the instrument out of the canal after 3 pecks or when resistance is encountered.
- Never apply pressure if the instrument does not advance into the canal.
- Do not forget to clean and inspect the flutes regularly during preparation.
- Remove the instrument from the canal as soon as working length has been reached.
- RECIPROC® *blue* instruments can be used in lateral brushing motion to enable preparation of irregularly shaped canals.
- It is not recommended to use RECIPROC® *blue* nor a continuous rotary system if the root canal has an abrupt curvature in the apical section.

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V Obturation with RECIPROC® *blue*

Root canals prepared with RECIPROC® *blue* instruments have a shape suitable for all obturation techniques. Use RECIPROC® *blue* Gutta-Percha with α-phase for both cold and warm obturation techniques. See RECIPROC® *blue* Gutta-Percha on page 12 and www.vdw-dental.com for further information on VDW obturation products such as BeeFill®2in1 or 2Seal easymiX®.

RECIPROC® *blue* Gutta-Percha

For single cone or lateral compaction technique select the variable tapered RECIPROC® *blue* Gutta-Percha Master Cones. Precision-machined to match the corresponding RECIPROC® *blue* instrument, providing consistent sizing for predictable fit, every time.





GUTTAFUSION® for RECIPROC® *blue*

For an easy and warm 3D root canal filling GUTTAFUSION® for RECIPROC® *blue* offers obturators entirely of gutta-percha. Select an obturator according to the instrument size used.





BeeFill®2in1

For warm vertical condensation select a RECIPROC® *blue* Gutta-Percha Master Cone and use downpack and backfill techniques.





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Retreatment of gutta-percha and carrier-based filling – step by step



1. Remove the gutta-percha in the coronal third e.g. with a Gates Glidden drill, an ultrasonic instrument such as VDW.ULTRA®.

Note: A solvent e.g. eucalyptus oil can be used as required during the procedure.

2. Use R25 as described in the treatment sequence (steps 1-6) until working length has been reached. If resistance is encountered, do not apply pressure. Remove the instrument from the canal, reapply solvent and try again.

3. Use a brushing motion against lateral walls to remove residual obturation material.

After reaching working length with R25, use R40 or R50 for an increased apical enlargement, as necessary.

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VII RECIPROC® *blue* product range

RECIPROC® *blue* single sizes

Blister of 6 instruments		21 mm	25 mm	31 mm
R25	●	V040252021025	V040252025025	V040252031025
R40	●	V040252021040	V040252025040	V040252031040
R50	●	V040252021050	V040252025050	V040252031050
Blister of 4 instruments		**21 mm**	**25 mm**	**31 mm**
R25	●	V040052021025	V040052025025	V040052031025
R40	●	V040052021040	V040052025040	V040052031040
R50	●	V040052021050	V040052025050	V040052031050



RECIPROC® *blue* assortments

Blister of 4 instruments		21 mm	25 mm
2×R25 1×R40 1×R50	●●●●	V040052021200	
2×R25 1×R40 1×R50	●●●●		V040052025200

RECIPROC® *blue* Paper Points

Box of 180 pieces		
R25	●	V040259029025
R40	●	V040259029040
R50	●	V040259029050
Assorted		V040259029237



RECIPROC® *blue* Gutta-Percha

Box of 60 pieces		
R25	●	V040258028025
R40	●	V040258028040
R50	●	V040258028050
Assorted		V040258028237



GUTTAFUSION® for RECIPROC® *blue*

Blister pack of 6 obturators		
R25	●	V041551000025
R40	●	V041551000040
R50	●	V041551000050
Box of 30 obturators		
R25	●	V041552000025
R40	●	V041552000040
R50	●	V041552000050



Interim Stand

For quick chair-side storing and cleaning of root canal instruments

REF V040495



Refills for the Interim Stand

Foam discs, 55 pieces

REF V040496



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RECIPROC® *blue* System Kit 24



- 2 Blister packs of 6 instruments R25, sterile
- 1 Blister pack of 6 instruments R40, sterile
- 1 Blister pack of 6 instruments R50, sterile
- Endo Training Tooth
- RECIPROC® *blue* Paper Points assorted, sizes R25, R40, R50, sterile
- RECIPROC® *blue* Gutta-Percha assorted, sizes R25, R40, R50

REF V041215025000

VDW.CONNECT Drive® Set Medium Blue

- Cordless endo motor with iPad application for reciprocating and continuous rotary NiTi systems
- RECIPROC® *blue* System Kit 24 with 24 RECIPROC® *blue* instruments (12 x R25, 6 x R40, 6 x R50) in 25 mm working length, RECIPROC® *blue* Paper Points and Gutta-Percha (R25, R40, R50, assorted), Endo Training Tooth
- Only non-EU countries: VDW.CONNECT Accessories for iPad mini

REF V041181025624 (for EU countries)
REF V041182025624 (for non-EU countries)

Blue Smile Package



- Cordless endo motor VDW.CONNECT Drive® with iPad application for reciprocating and continuous rotary NiTi systems
- 36 RECIPROC® *blue* instruments (18 x R25, 12 x R40, 6 x R50) in 25 mm working length, RECIPROC® *blue* Paper Points and Gutta-Percha (R25, R40, R50, assorted), Endo Training Tooth
- Only non-EU countries: VDW.CONNECT Accessories for iPad mini

REF V046045000000 (for EU countries)
REF V046047000000 (for non-EU countries)

VDW.GOLD®RECIPROC® Blue 24



- Motor with integrated apex locator for reciprocating and continuous rotary NiTi systems
- RECIPROC® *blue* System Kit 24 with 24 RECIPROC® *blue* instruments (12 x R25, 6 x R40, 6 x R50) in 25 mm working length, RECIPROC® *blue* Paper Points and Gutta-Percha (R25, R40, R50, assorted), Endo Training Tooth

REF V041173025624

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RECIPROC® *blue*

A great file. Even better.

For further information on RECIPROC®*blue*
please contact your preferred distributor or visit
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