stomdevice

Endo Easy Efficient®

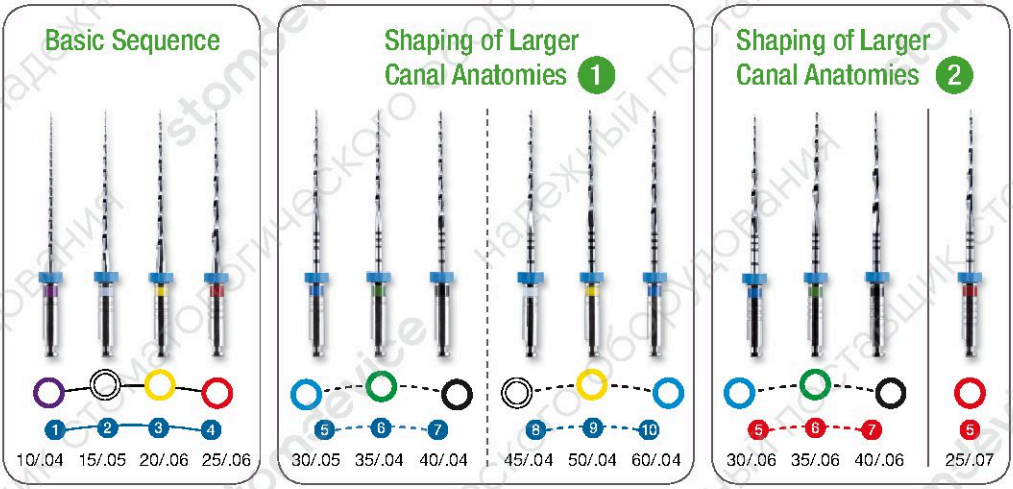
The efficient NiTi system

User Information



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Mtwo® Instruments at a Glance



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I. Technical details

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1. Design



The taper size of the instrument indicates how much the instrument diameter increases per hundredth millimetre

Markings for Easy Instrument Identification

The number of rings on the shaft
indicates the instrument's taper size:
e.g. 1 ring = taper .04

M_{two}® taper .04	1 ring
M_{two}® taper .05	2 rings
M_{two}® taper .06	3 rings
M_{two}® taper .07	4 rings

The ISO colour coding
indicates the size of the instrument's tip:
e.g. purple ISO 10 = Ø 0.10 mm

Depth markings
help to control the working length during preparation:
e.g. an M_{two}® 10/.04 with a working length of 25 mm has depth markings at 18, 19, 20 and 22 mm, starting from the instrument tip.

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

The taper .0X indicates how much the instrument diameter increases each millimetre from the tip towards the instrument shaft in hundredths of a millimetre. An M_{two}® instrument size 10/.04 e.g. has a tip diameter of 0.10 mm. One millimetre from the tip, the diameter is 0.14 mm, two millimetres from the tip the diameter has already increased to 0.18 mm. Sometimes taper is expressed as a percent, e.g. Taper 4% or Taper .04.

Benefits of M_{two}® instruments with different tapers:

- Early removal of obstructions in the coronal root canal section by using a larger instrument diameter compared to conventional ISO hand instruments.
- Fast and efficient preparation of the root canal with only a few instruments.
- Increased conical shaping for efficient irrigation.

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Special Features

M$_{two}$® instruments are available with different working part lengths. In the basic sequence, there are instruments with working part 16 mm and 21 mm. Instruments with a working part of 21 mm do not have any depth markings.

Advantage of 21 mm working part

While preparing the root canal, the instrument removes obstructions in the pulp chamber without unnecessarily weakening the tooth substance.



Cross-section

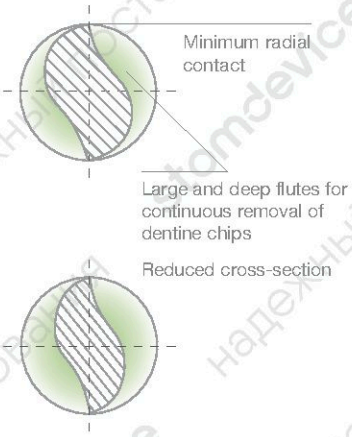
M$_{two}$® instruments have an s-shaped cross-section and two efficient cutting edges. In addition, M$_{two}$® is designed with minimum radial contact as well as large and deep flutes for continuous upwards evacuation of dentine chips. The instrument core is designed for maximum flexibility, however, without compromising the instrument's strength.

M$_{two}$® instruments with higher ISO sizes and tapers have a reduced cross-section. This design ensures the flexibility of the instrument and facilitates maintenance of the natural canal curvature even for larger apical preparations (e.g. with an M$_{two}$® 35/.06).

Advantages

- No blocking with dentine chips
- No blocking of instruments
- High flexibility

S-shaped cross-section



Shaft Length



A shaft length of 11 mm facilitates easier access to molars.

Non-cutting Tip



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2. Instrument Design and Benefits

Specific instrument design for safe and fast preparation

The specific instrument design ensures safe and fast preparation.

Reliable mechanical glide path for initial preparation with instrument sizes 10/.04 and 15/.05



10/.04

Small pitch, more spirals

A large and constant helical angle (i. e. more spirals) increases the instrument's stability.

Efficient dentine removal and precise shaping with instrument sizes 20/.06 and 25/.06



25/.06

Progressive pitch

Active cutting blades and a progressive pitch enable efficient dentine removal and excellent lateral cutting ability as well as automatic upwards transport of debris. Undesired screw-in effects are prevented.

Efficient preparation without unnecessary loss of tooth substance with instrument sizes 30/.05, 35/.04, 40/.04



35/.04

Instruments with a reduced taper enlarge the apical third without unnecessarily weakening the tooth. The reduced mechanical stress inside the canal ensures a safe preparation.

Trouble-free preparation of larger canals, e. g. with instrument sizes such as the 50/.04 or 40/.06



40/.06

A reduced cross-section for instruments with larger ISO sizes and tapers ensures instrument flexibility and safe root canal shaping.

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II. The Mtwo® Technique

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1. Simultaneous Shaping

Automatic file progression
Brushing file movement

Mtwo® cuts both on penetration and laterally. The instrument advances automatically from coronal towards apical, supported by the brushing file movement.

The **brushing file movement** is used, when resistance is felt during progression. The instrument is pulled back 1-2 mm and the file is used in a brushing movement with light lateral pressure against the canal wall (see illustration). This creates space for the instrument to progress automatically towards apical without pressure involved. The root canal is thus prepared to full working length by each instrument.



1 Insert the rotating instrument into the root canal without touching the walls of the canal.



2 Exerting light pressure, allow the instrument to touch the canal wall.



3 Make small, stroking/brushing movements (over a few millimetres) in a coronal direction, without taking the instrument out of the canal. (Similar to using a Hedstroem file).



4 Allow the instrument to move apically for a few millimetres and then repeat the movement described under 3. Gradually advance step-by-step towards the apex with up and down movements.

As soon as full working length has been reached, change to the next instrument in the sequence.

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2. Benefits of Simultaneous Shaping

Selected Shaping

The instrument finds its way in the canal automatically. If it feels as if the instrument is only progressing slowly towards apical, switch to lateral preparation of the canal wall (brushing file movement) to enable the instrument to automatically advance further. This procedure prevents over-preparation of the obstructed area and ensures a continuous conical preparation of the root canal to full working length.

Continuous conical shaping

Reliable Mechanical Glide Path

All instruments are brought to full working length, preparing the canal gradually while maintaining the original canal anatomy. The instrument design enables each instrument to prepare a glide path for the following instrument and ensures conical canal shaping. Preparation errors can thus be avoided.

Each instrument prepares a glide path for the next

Preparation without Unnecessary Loss of Tooth Substance

Compared to the coronal enlargement created by the crown-down technique, Simultaneous Shaping only removes as much substance as needed for progression towards the apex. Preserving the tooth substance during preparation prevents unnecessary weakening of the tooth and thus reduces the risk of root fractures.

Minimum loss of tooth substance

Preparation of Irregular Root Canal Anatomies

M*two*®'s Simultaneous Shaping technique allows for preparation e.g. of oval or dumb bell-shaped anatomies. This technique in combination with the instrument's high flexibility allows for preparation of demanding root canal structures with all instruments during all stages of the preparation.

Preparation of oval canals

Simultaneous Shaping allows precise preparation, creates a reliable glide path, prepares the root canal without unnecessary loss of tooth substance and enables safe preparation of irregular canal anatomies.

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III. Preparation and Retreatment

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1. One Sequence for All Canal Anatomies



Initial Steps

Create a Glide Path

Check the patency of the canal and create a glide path to the apical constriction or the foramen apicale to at least an ISO size 10.

C-PILOT® File

● ISO 06 → ● ISO 08 → ● ISO 10



Determine the Working Length

Electronic length determination of the root canal using an apex locator and a C-PILOT® file.

Enlarging the Canal Access

Through the brushing movement (see page 8) and the instrument's excellent lateral cutting efficiency, M*two*® can even remove obstructions in the coronal third. The canal entrance is gradually and systematically enlarged through the use of each instrument.

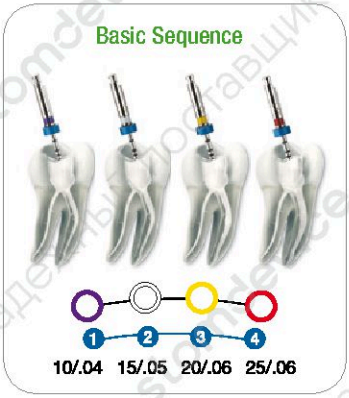
A separate enlargement of the canal access is, therefore, unnecessary. Should you, however, wish to enlarge the canal access, an M*two*® 25/.06 can be used.

M*two*® Basic Sequence

There is one single sequence for all root canals. The sequence follows the **Single Length Technique**, i.e. all instruments are brought to full working length. The first instrument, a 10/.04 is gradually brought to full working length using the brushing file movement, however, without exerting any pressure. As soon as working length has been reached, change to the next instrument in the sequence. Continue working this way through the basic sequence. Each instrument **creates a glide path for the following instrument.**

If the working length is reached easily in larger canal anatomies with hand instruments sizes 15 or 20, M*two*® preparation can be started using an M*two*® ISO size corresponding to the hand instrument used, i.e. M*two*® 15/.05 or 20/.06.

One sequence for all root canals
All instruments are brought to full working length



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Recommendations for Problem-Free Use

- ✓ If the instrument does not advance in the canal, pull it back 1-2 mm and work with brushing movements on the canal walls to widen the canal. The file should then advance without exerting pressure.
- ✓ Irrigate the root canal according to the appropriate irrigation protocol.
- ✓ The chelator FileCare®EDTA will facilitate the progression of the instrument in the canal.

Warnings

- △ Do not probe the pulp chamber floor with the M_{two}® 10/.04!
- △ Do not use the instrument in a picking movement!
- △ Do not force the instrument to reach working length!
- △ Bring the instrument to working length only once and then proceed immediately to the next instrument in the sequence!

2. Further Shaping

Apical gauging

Determination of the Apical Preparation Size – Apical gauging

After preparation using the M_{two}® basic sequence (size 25/.06), the diameter of the canal is measured at full working length by inserting a hand instrument size 30. If the hand instrument size 30 can be inserted (light tug-back) to 1 mm short of full working length (wl minus 1 mm), the apical part does not need further enlargement.

Should the hand instrument size 30 reach full working length, a further apical enlargement is required. The preparation size necessary for the apical enlargement can be determined based on the following:

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[1] If needed, repeat the procedure with larger hand instruments until tug-back is reached 1 mm short of full working length.

[2] The final assessment can be carried out using a hand instrument ISO size 40, in order to determine whether there is a slight tug-back 1 mm short of full working length. If this is the case, preparation with M$_{two}$® size 35/.04 is complete.

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Apical Enlargement

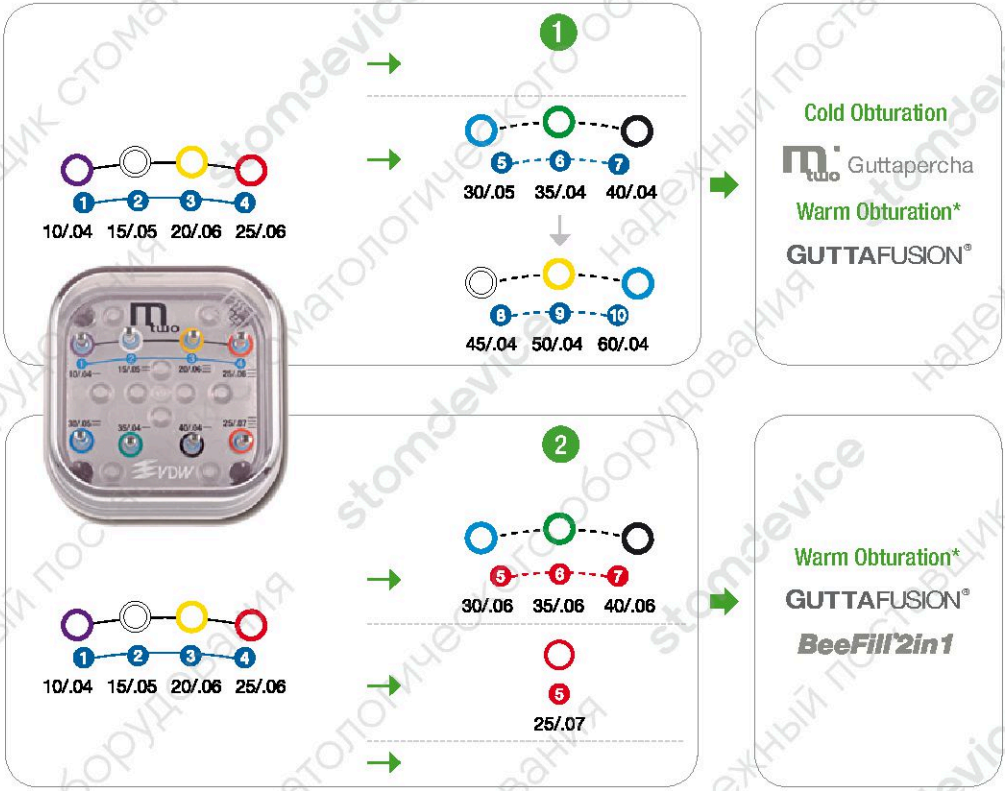
cold warm



Preparation of Larger Canal Anatomies

After preparation with the M$_{two}$® basic sequence, the apical canal section can be enlarged with further M$_{two}$® instruments. If necessary, the apical part can be prepared up to an ISO size 60. Depending on the conicity of the canal, the following M$_{two}$® instrument sizes with greater taper can be used after the basic sequence: M$_{two}$® 25/.07, 30/.06, 35/.06 and 40/.06.

For easy cold obturation, M$_{two}$® Gutta-Percha, which is perfectly in line with M$_{two}$® preparation can be used. To achieve an easy and fast warm three-dimensional filling, we recommend GUTTAFUSION® Obturators, made entirely of gutta-percha, for optimal obturation results.



* For further information on VDW's three-dimensional obturation systems GUTTAFUSION® and BeeFill®2in1, please consult our website: www.vdw-dental.com.

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3. Retreatment

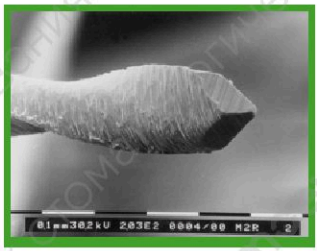
M_{two}® retreatment files are designed specifically for removal of root canal filling material. Retreatment of carrier-based fillings (e.g. GuttaMaster®, GUTTAFUSION®) is also possible. The retreatment files offer the following design features: a cutting tip and a constant helical angle which ensure the instrument's easy progression into the gutta-percha filling, without the need to exert pressure.

R 15/.05 for narrow canals



R15/.05

Retreatment File with Cutting Tip



To remove the gutta-percha filling material, brush the canal walls with light lateral pressure (Simultaneous Shaping). The M_{two}® retreatment range offers you the following instruments: the R 15/.05 for narrow root canals and the R 25/.05 for wide and medium root canals.

R 25/.05 for wide and medium canals



R25/.05

Retreatment Recommendations Using the M_{two}® R 25/.05

- ✓ Remove the gutta-percha from the coronal third using a Gates Enlarger or an ultrasonic tip. If needed, soften the gutta-percha with a solvent (e.g. eucalyptus oil, orange oil)
- ✓ Place the instrument tip on the gutta-percha filling and remove the gutta-percha with rotating, brushing movements. Do not take the instrument to full working length.
- ✓ Manually enlarge the apical part with a hand instrument ISO size 15. Then prepare the root canal with an M_{two}® instrument to the desired size.

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IV. Tips and Tricks

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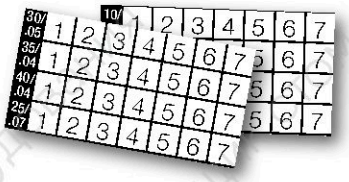
How often can M$_{two}$® instruments be used?

It is safest to use M$_{two}$® instruments only once. Should you use an M$_{two}$® instrument more than once, it is very important to document the frequency of use by means of control stickers. The number of times an instrument can be used depends on the strain put on it during root canal preparation.

Examine the M$_{two}$® instrument visually for signs of material fatigue after use. Optical means of magnification are very helpful: e.g. magnifiers, dental loupes and microscopes. Discard the instrument immediately if it shows the following defects:

- △ Instrument bent (plastic deformation)
- △ Spirals deformed
- △ Cutting edges damaged
- △ Cutting edges blunt
- △ ISO colour coding missing
- △ Corrosion

M$_{two}$® Control Stickers
Autoclavable, use water-resistant marker



Large, almost straight canals (e.g. front teeth)	X max. 8 canals
Canals with small or medium curvature (e.g. premolars)	X X max. 4 canals
Narrow and extremely curved canals (e.g. molars)	X X X max. 2 canals

Is it necessary to clean the instruments during root canal preparation?

We recommend removing accumulated debris from the instrument during preparation by using an interim stand. The instrument is cleaned by simply inserting the instrument into the foam disk. This procedure prevents debris from accumulating in the instrument's flutes which would increase the friction within the canal.



For information on cleaning and disinfection of M$_{two}$® instruments, please check our instructions for use and reprocessing at www.vdw-dental.com

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When should the working length be determined with an apex locator?

When starting root canal treatment with rotary nickel-titanium instruments, the canal patency should be determined with a hand instrument, and a glide path should be created. The working length should be determined with an electronic apex locator and the hand instrument before using an M$_{two}$® instrument. In order to verify the working length, e.g. in curved canals, the measuring result can be rechecked after each M$_{two}$® instrument.

Is it necessary to enlarge the canal access before preparation with M$_{two}$®?

The brushing file movement and the excellent lateral cutting efficiency of M$_{two}$® ensure removal of obstructions within the coronal third. Thus, with every instrument used, the canal access is gradually enlarged. A separate root canal enlargement is, therefore, not mandatory. However, the canal access can be enlarged with an M$_{two}$® 25/.06, for example.

How to determine if the apical preparation size has been reached?

After carrying out apical gauging and subsequent preparation, a visual inspection can be carried out. Humid or red debris located on the lower instrument third is a signal that further apical preparation is necessary. Dry and white dentine chips however mean that the apical target size is reached.

When to irrigate the root canal most efficiently during preparation with M$_{two}$®?

The root canal can be irrigated at any time during preparation. Thanks to the instruments' conicity in combination with Simultaneous Shaping to full working length, irrigation of the root canal can already be carried out after use of the second M$_{two}$® instrument size 15/.05 to 3 mm short of full working length. We recommend using an ISO size 30 irrigation cannula.

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V. Motors

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Revolutions per minute (rpm)
Torque limit (gcm)





For safe and easy preparation with M_{two}®, we recommend using an endodontic motor with torque control.

M_{two}® has a speed range of 250 to 350 rpm. In rotary mode VDW.GOLD® RECIPROC®, VDW.SILVER® RECIPROC® and VDW.CONNECT Drive® motors are programmed for M_{two}® at a speed of 280 rpm with constant revolutions.

Each instrument has its pre-programmed torque limit. Generally, the torque limit improves the instrument's safety and protects it from overcharge, provided that the instrument is used appropriately and that the frequency of use is limited. The motor insures that the instruments are driven in a precise and reliable manner, according to their specific mechanical values.

Directions for Use

- ✓ Choose an M_{two}® instrument and the corresponding motor setting.
- ✓ Insert the rotating instrument tip into the canal while avoiding contact with the canal walls.
- ✓ Do not exert any pressure on the contra-angle.
- ✓ The instrument will progress automatically towards apical using brushing file movements.
- ✓ A torque alarm signal indicates stress/friction on the file. The more frequently the alarm sounds, the higher the stress on the instrument.
  Possible reasons:

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Audible Warning Signal

Causes	Solution
Forced progression of the instrument in the root canal	Pull instrument back 1-2 mm and create more space with brushing movements
Too much pressure exerted on the contra-angle	Reduce pressure
Increased instrument friction due to dentine chips in the flute	Remove dentine chips regularly in the interim stand
Narrow canal anatomy	Recapitulate with a C-PILOT® ISO size 10 hand instrument. If needed, go back to the previous M$_{two}$® instrument and proceed with preparation



VDW.GOLD® RECIPROC®
with integrated Apex locator



VDW.SILVER® RECIPROC®



VDW.CONNECT Drive®

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VI. Product Overview

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Basic Sequence

Blister of 6 instruments



		M_{two}® working part 16 mm		M_{two}® working part 21 mm	
Size/Taper		21 mm	25 mm	25 mm	31 mm
10/.04	●	0234 021 010	0234 025 010	1234 025 010	1234 031 010
15/.05	○	0235 021 015	0235 025 015	1235 025 015	1235 031 015
20/.06	●	0236 021 020	0236 025 020	1236 025 020	1236 031 020
25/.06	●	0236 021 025	0236 025 025	1236 025 025	1236 031 025

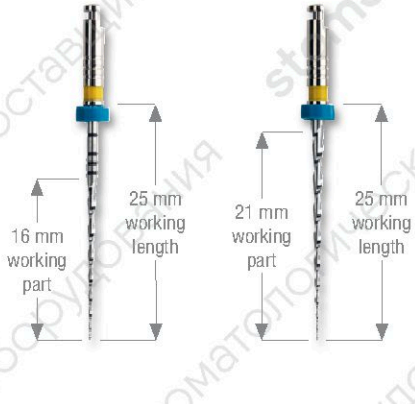
Shaping of Larger Canal Anatomies

Blister of 6 instruments





		M_{two}® working part 16 mm		M_{two}® working part 21 mm
Size/Taper		21 mm	25 mm	31 mm
30/.05	●	0235 021 030	0235 025 030	1235 031 030
35/.04	●	0234 021 035	0234 025 035	1234 031 035
40/.04	●	0234 021 040	0234 025 040	1234 031 040
45/.04	○	0234 021 045	0234 025 045	1234 031 045
50/.04	●	0234 021 050	0234 025 050	1234 031 050
60/.04	●	0234 021 060	0234 025 060	1234 031 060
25/.07	●	0237 021 025	0237 025 025	1237 031 025
30/.06	●	0236 021 030	0236 025 030	1236 031 030
35/.06	●	0236 021 035	0236 025 035	1236 031 035
40/.06	●	0236 021 040	0236 025 040	1236 031 040



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Assortments

STERILE

	M_{two}® working part 16 mm		M_{two}® working part 21 mm	
Blister of 4 instruments	21 mm	25 mm	25 mm	31 mm
10/.04, 15/.05, 20/.06, 25/.06	0007 021 701	0007 025 711	0007 025 701	0007 031 701
30/.05, 35/.04, 40/.04, 25/.07	0007 021 702	0007 025 702	-	0007 031 702
Blister of 6 instruments	**21 mm**	**25 mm**	**25 mm**	**31 mm**
2 x 10/.04, 15/.05, 20/.06 each	0230 021 456	0230 025 456	-	-
2 x 25/.06, 30/.05, 35/.04, 40/.04, 25/.07	0230 021 457	0230 025 457	-	-
2 x 10/.04, 15/.05, 20/.06 each	-	-	1230 025 456	-
2 x 25/.06, wp 21 mm, 30/.05, 35/.04, 40/.04, 25/.07, wp 16 mm	-	-	1230 025 457	-
2 x 30/.06, 35/.06, 40/.06 each	0236 021 203	0236 025 203	-	1236 031 203
2 x 45/.04, 50/.04, 60/.04 each	0234 021 246	0234 025 246	-	1234 031 246

Retreatment files

STERILE

	Blister of 6 instruments
Size/Taper	21 mm
R15/.05 ○	0232 021 015
R25/.05 ●	0232 021 025
3 x R15/.05, R25/.05 each	0232 021 202



GUTTAFUSION® Obturators

	Blister of 6 obturators	
Size	1 blister	5 blister
20 ●	1541 000 020	1542 000 020
25 ●	1541 000 025	1542 000 025
30 ●	1541 000 030	1542 000 030
35 ●	1541 000 035	1542 000 035
40 ●	1541 000 040	1542 000 040
45 ○	1541 000 045	-
50 ●	1541 000 050	-
55 ●	1541 000 055	-



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GUTTAFUSION® Size Verifiers

Blister of 6 size verifiers

Size		1 blister
20	●	1508 000 020
25	●	1508 000 025
30	●	1508 000 030
35	●	1508 000 035
40	●	1508 000 040
45	○	1508 000 045
50	●	1508 000 050
55	●	1508 000 055
25-35		1508 000 305



Mtwo® Gutta-Percha

Box of 60 pieces

Size/Taper		28 mm
25/.06	●	0220 628 025
30/.05	●	0220 528 030
35/.04	●	0220 428 035
40/.04	●	0220 428 040
45/.04	○	0220 428 045
50/.04	●	0220 428 050
60/.04	●	0220 428 060
25/.07	●	0220 728 025
30/.06	●	0220 628 030
35/.06	●	0220 628 035
40/.06	●	0220 628 040
20 x 25/.06, 10 x 30/.05, 35/.04, 40/.04, 25/.07 each		0220 028 457



Mtwo® Paper Points

STERILE

Box of 144 pieces

Size/Taper		29 mm
25/.06	●	0225 629 025
30/.05	●	0225 529 030
35/.04	●	0225 429 035
40/.04	●	0225 429 040
45/.04	○	0225 429 045
50/.04	●	0225 429 050
60/.04	●	0225 429 060
25/.07	●	0225 729 025
30/.06	●	0225 629 030
35/.06	●	0225 629 035
40/.06	●	0225 629 040
48 x 25/.06, 24 x 30/.05, 35/.04, 40/.04, 25/.07 each		0225 029 457



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M_{two}® SystemBox

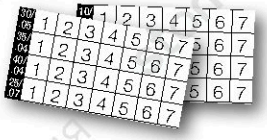
With module for easy organisation and storage of M_{two}® instruments, instruments not included, autoclavable



REF 0239

M_{two}® Control Stickers

16 Control Stickers for the basic sequence
12 Control Stickers for additional sizes, self-adhesive, autoclavable



REF 0491

REF

M_{two}® Basic Kit

238 025 000

Kit with instruments in 25 mm working length:

- 1 blister of 6 instruments M_{two}®, 2 x 10/.04, 15/.05, 20/.06 each, 21 mm working part STERILE
- 1 blister of 6 instruments M_{two}®, 2 x 25/.06, 21 mm working part, 1 x 30/.05, 35/.04, 40/.04, 25/.07 each, 16 mm working part STERILE
- 3 plastic training blocks
- CD ROM, M_{two}® user card



Interim Stand

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



REF 0495

Refills for the Interim Stand

Foam discs
55 pieces



REF 0496

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Look for the red dot
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in sterile endo products.



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