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# TCM Endo III

Operation manual GB

Made in Switzerland

Nr. 31817




SWISS QUALITY

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Dental and Medical Equipment

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# 1 Description

## 1.1 Operation and functions

The TCM Endo is a microprocessor controlled endodontic electronic motor system.
The slow speed, high torque rotary instrument uses an electronic torque controlled motor to achieve a faster and easier root canal preparation. The speed is held constant under varying loads until the selected torque level is reached.
The protection mode (AP) provides an automatic protection against file breakage. When the file reaches the selected torque level, the motor reverses immediately to protect the file, and then returns to forward to finish the root canal preparation. With use of the (AP) mode, file stress is greatly reduced.

## 1.2 Technical Data

Voltage: ..... 115V~ / 50-60Hz or 230V~/ 50-60Hz (see device label !)
Fuses: ..... 2 x T2A (for 115V~) and 2 x T1A (for 230V~)
Power: ..... 40 VA
Type: ..... Application part type B
Speed: ..... 1,200 – 16,000 rpm
Dimension: ..... 90 x 100 x 170 mm
Net weight: ..... 2 kg

## 1.3 Operating Environment

Relative Humidity: ..... max. 80%
Temperature: ..... 10 to 40°C
Barometric Pressure: ..... 800 to 1060hPa

## 1.4 Transport and Storage Environment

Relative Humidity: ..... max. 90%
Temperature: ..... 0 to 60°C
Barometric Pressure: ..... 700 to 1060hPa

## 1.5 Description on device


: Attention: Read instructions first


: Application part Type B

CE 1275 : Sign of EU-Conformity


: Certified by the Canadian Standards Association (CSA) for Canada and USA


: Old electrical and electronic equipment must be disposed separately and may not be included in regular domestic waste.



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## 2 Safety measures

Your safety, the safety of your team, and, it goes without saying, the safety of your patients is for Nouvag AG the first priority. It is therefore vital that the following measures be strictly observed:



- **The TCM Endo III should be operated by qualified personnel only!**
- **Check the correct operation voltage on the rating plate!**
- **Responsibility for the use of accessories, parts or assemblies from other manufacturers rest solely with the user!**
- **Repairs are to be carried out by authorized Nouvag AG service technicians only!**
- **Nouvag AG cannot be held liable for any malfunction of the TCM Endo III, or performance failure and/or its designed or desired utility, nor can Nouvag AG be held liable for any injuries to persons or animals, in any case when the device is miss-used or not operated, applied or maintained in strict accordance with the user/owner instructions set out in the operating manual. In the event of any doubt or question, the user is to contact Nouvag AG or its lawful representative for clarification or assistance!**

English

## 3 Shipping contents

| | | |
|---|---|---|
| 1520 | Control unit TCM Endo III | 1 piece |
| 1823 | Micromotor Endo | 1 piece |
| 1488 | On / Off -Footswitch | 1 piece |

## 4 Set-up

1) Connect On/Off-footswicht to “FOOT“
   (→ when operating unit with footswitch)
2) Connect the micromotor to “MOTOR“
3) Attach handpiece or contra angle
4) Attach AC cord into the plug in the back of the unit and the electrical outlet
5) Turn on green power “ON / OFF“ switch (rear of unit)
6) Adjust desired reduction and speed.
7) Press “MOTOR“-key or step on the foot switch (if foot switch is connected) to start the micromotor.



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# 5 Operation

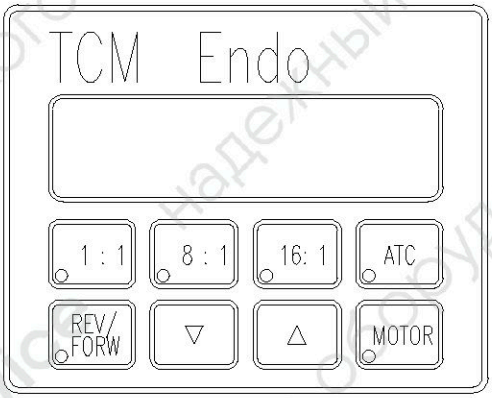
## 5.1 The TCM Endo III unit

**Starting the device:**

Press green "ON/OFF" switch (rear of unit).

**Display:**

The digital display indicates the current drill speed or the selected torque level.




**Keypad/Control functions:**

| | |
|---|---|
| **„Motor":** | Switch On/Off for micromotor (green light illuminates when the motor is in operation) |
| **„▲":** | Speed up or increase torque |
| **„▼":** | Speed down or reduce torque |
| **„Rev/Forw":** | To change motor direction of rotation → a warning tone will sound when the motor operates in reverse mode |
| **„1:1":** | Press this key if using handpiece 1:1<br>Speed : from 1,200 to 16,000 rpm<br>Torque: 1, 2, 3, 4, 5, 7, 10, 13, 16, 19 Nmm |
| **„8:1":** | Press this key if using contra angle 8:1<br>Speed: from 150 to 2,000 rpm<br>Torque: 2, 4, 6, 10, 15, 20, 25, 30, 40, 50 Nmm |
| **„16:1":** | Press this key if using contra angle 16:1<br>Speed: from 75 to 1'000 Upm<br>Torque: 5, 10, 15, 20, 25, 30, 40, 50, 75, 100 Nmm |
| **„ATC":** | AL- and AP- mode selection for desired torque function |

**The „Motor" key functions only when the foot switch is not connected**



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## 5.2 The footswitch

The TCM Endo III can be operated with or without footswitch. Press footswitch to start the motor.

*Footswitch not pressed:.....Motor off*
*Footswitch fully pressed: .....Motor on*

The tool speed corresponds to the speed adjusted on the control unit.

## 5.3 Automatic Limiter (AL)

The Automatic Limiter (AL) limits the torque level applied to the instrument. If the selected torque level is reached, the speed will drop to zero rpm. A torque level equal to the selected setting will still be exerted against the file.
All torque values are shown in Nmm (for example a setting of AL 20→ indicates that the instrument can be loaded to maximum of 20 Nmm before rotations stops).

**The Automatic Limiter (AL) can be adjusted in the following ranges:**

**1:1 → from 1 to 19 Nmm**
**8:1 → from 2 to 50 Nmm**
**16:1 → from 5 to 100 Nmm**

**Adjusting the AL mode:**

1) Press the key “ATC SET”. In the display appears the torque mode set (for example [AL 20]).
2) Pressing the keys “▲” and“▼” will increase and decrease the torque level respectively.
3) By pressing the “ATC SET” briefly once more the digital display switches back automatically.

**If the display says [AP.....] :**
**press the key “▼” to get back to [AL.....].**

**The green light will illuminate when the AP - mode is activated, the green light does not illuminate on the AL- mode.**

## 5.4 Automatic Protection (AP)

The automatic protection (AP) mode is a special function against file breakage.
When the selected torque level is reached, the motor reverses immediately to free the file and then returns automatically to forward operation.
All torque values are shown in Nmm (for example a setting of AL 20→ indicates that the instrument can be loaded to maximum of 20 Nmm before rotations stops).

**The automatic protection AP can be adjusted in the following ranges:**

**1:1 → from 1 to 19 Nmm**
**8:1 → from 2 to 50 Nmm**
**16:1 → from 5 to 100 Nmm**

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**Adjusting the AP:**

1) Press the “ATC” key. In the display appears the torque mode set (for example [AL 20]).
2) Pressing the keys “▲” and“▼” will increase and decrease the torque level respectively.
3) By pressing the “ATC SET” briefly once more the digital display switches back automatically.



**If the display says [AL.....] :**
**press the key “▼” to get back to [AP.....].**

**The green light “ATC” will illuminate when the AP-Modus is activated.**

**The AP-Modus works only when the motor runs forward (the green light LED “Rev/Forw“ does not illuminate).**

### 5.5 Memory

Once programmed, the preselected speed, torque and value setting will remain stored in memory, even when the motor is turned off.

## 6 Disinfection, Cleaning and sterilization

Please pay attention to the following important points for the maintenance of the device:



- **Clean, disinfect and sterilize the device and components after each use!**
- **Do not use dissolving agents for cleaning**
- **Autoclave material in transparent packaging!**
- **Do not fill the sterilization bag more than 80%.**
- **Autoclave material at 134℃ maximum.**
- **Sterilized material should be stored and tagged with sterilization date!**

### 6.1 Control unit and footswitch

The control unit and the pedal do not come into contact with patients. Only clean the surface of the unit, do not use harsh cleaners or solvents for cleaning. Use 80% ethyl alcohol or microbiologically effective disinfectants.



**The control unit should be wiped with a clean, damp cloth only. No spray cleaners or disinfecting agents should be employed, as the control unit face is not watertight!**



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### 6.2 Mikromotor Endo

1) The micromotor, cable and plug should be cleaned after each use to prevent the build up of deposits and debris that can destroy it, if not removed. Wipe it with a clean cloth dampened with disinfectant solution.
2) Put the sterilizable stopple on the motor.
3) After packing motor and cable, autoclave it **at maximum 134°C**.
4) After autoclaving, allow motor to dry for one hour at room temperature.

Store motor bagged and tagged with sterilization date!



- **Do not bend the motor cable!**
- **Clean, disinfect and sterilize the Micromotor after each use**
- **Do not clean Micromotor with compressed air**

English

## 7 Troubleshooting

| *Problem:* | *Cause:* | *Solution:* |
|---|---|---|
| **Device does not operate at all:** | Plug is not inserted properly | Insert plug and check fitting |
| | Wrong operating voltage | Check mains voltage output<br>→ please see operating voltage on the rating plate |
| **Footswitch fails to function:** | Pedal not connected | Plug pedal cable into rear of control unit |
| | Control unit not turned on | Turn main switch ON/OFF |
| **Micromotor does not run:** | Motor not turned on | Turn motor with „Motor"-key on or with footswitch |
| | Motor not connected | Connect motor cable to control unit |
| | Motor incorrectly attached | Press handpiece firm on motor until handpiece snaps in |

In the event a problem cannot be solved, contact dealer or authorized service technicians, as listed on the last page of your Operating Instruction Manual.

## 8 Disposal

Disposal of device, components and accessories must strictly conform to local laws and regulations as set out by the relevant authorities.
With regard to the preservation of the environment old equipment may be returned to the distributor or manufacturer.


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