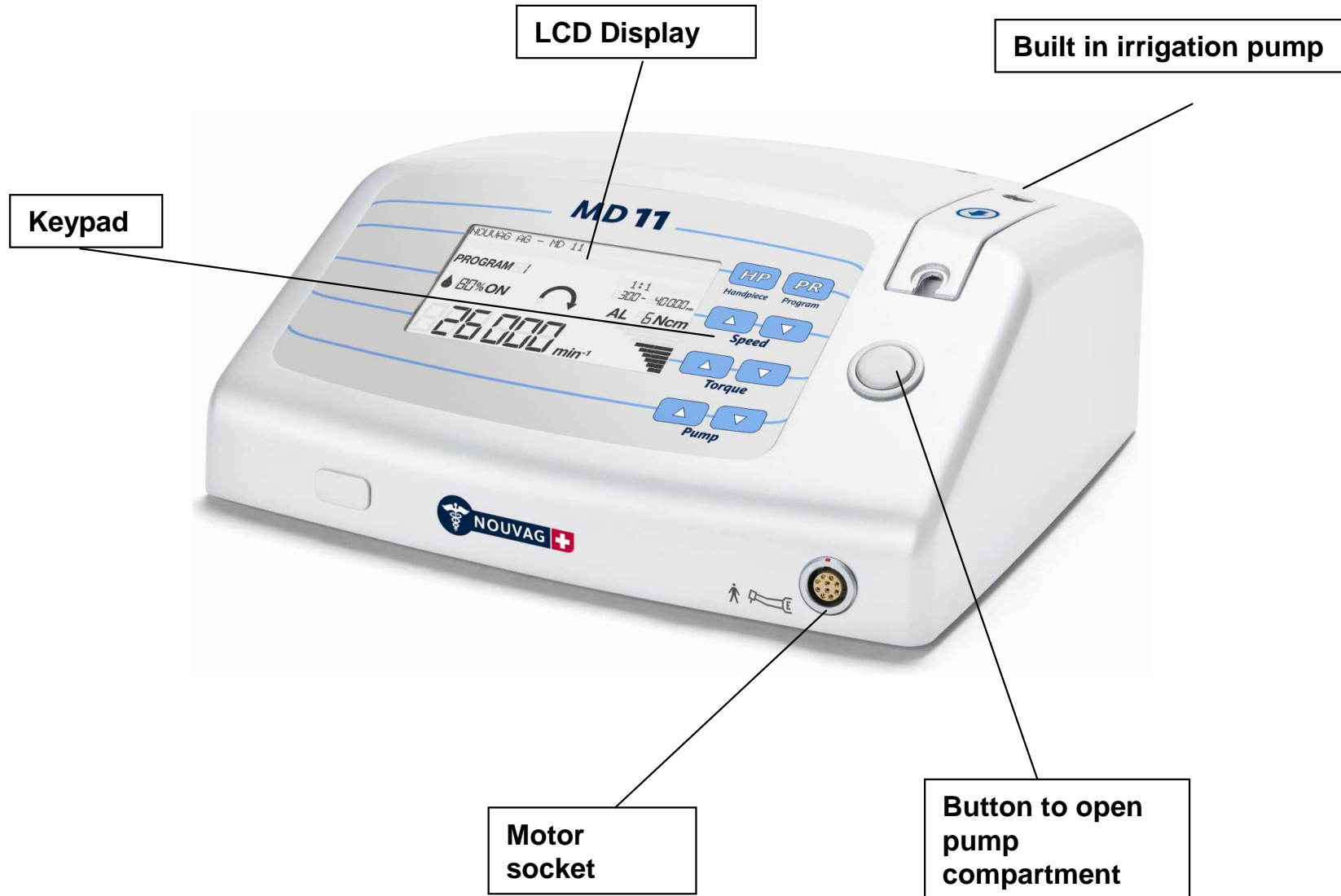


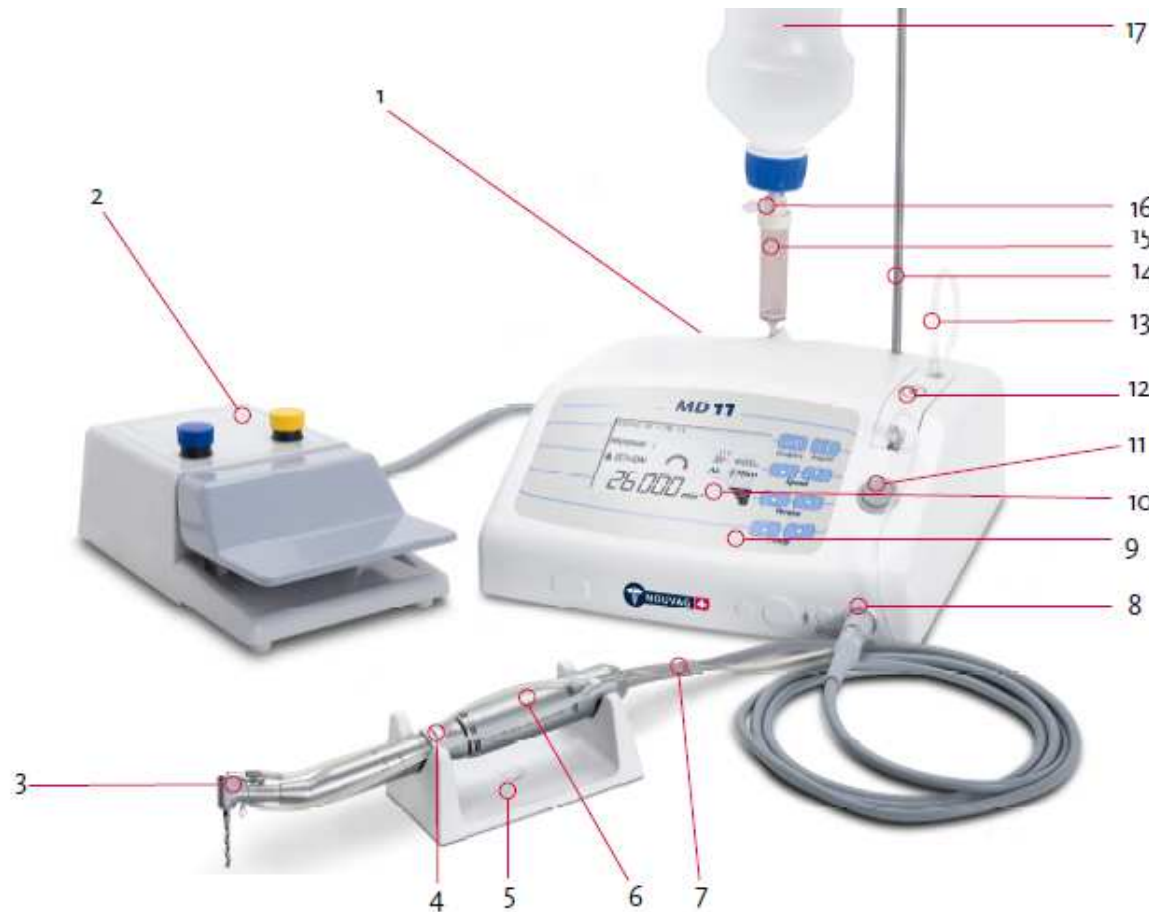
## NOUVAG Basic Micro-Motor System MD 11

The MD 11 meets the heart of the matter

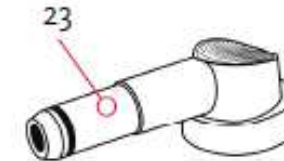
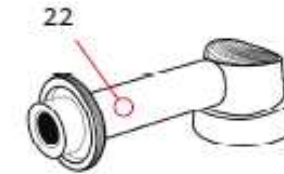
Your specialist for implants







1. Pedal socket, device rear
2. Vario pedal
3. Contra angle (optional)
4. Clip for tubing set attachment at handpieces and contra angles
5. Handpiece cradle
6. Electronic motor
7. Clip for tubing set attachment at motor cable
8. Motor socket
9. Operating panel
10. Display
11. Release key for tubing set bracket
12. Peristaltic pump
13. Tubing set
14. Stand for irrigation fluid bottle
15. Drip chamber
16. Bleed valve
17. Bottle with irrigation fluid



- 18. Type plate with type designation, reference number, serial number, information on power supply and device fuse.
- 19. Power plug socket
- 20. Main switch
- 21. Fuse compartment
- 22. Spray nozzle for maintenance of electronic motor
- 23. Spray nozzle for maintenance of handpieces and contra angles.

### Operation using the Vario pedal



- 1. Key "PUMP":**  
Pressing the key briefly: switches the pump on or off (see information on display).  
Pressing the key longer: increases the pump speed (see information on display).
- 2. Key "FOR/REV":**  
Pressing the key briefly: switches the direction of revolution. (see information on display).
- 3. Treadplate**  
With the treadplate pedal the motor speed is variably adjusted and the pump is activated.

## LCD Display



- F) **Transmission ratio of contra angle**  
Shows transmission ratio of used contra angle, e.g. 1:1, 16:1, 20:1, 32:1
- G) **Speed range**  
Shows speed range of the handpiece used.
- H) **Maximum torque**  
Shows maximum torque setting.
- I) **Current torque**  
Bar graph providing a graphical representation of the current torque. All bars active means max. torque reached.
- J) **AS/AL**  
Indication of the Auto Stopper (AS) mode or the Automatic Limiter (AL) mode, (see chapter "7.5 Torque limit function, AL mode" and chapter "7.6 Torque limit function, AS mode").

## LCD Display



- A) **Information Line**  
Information and error messages are displayed here. Display is illuminated red at error messages.
- B) **Program**  
Shows selected number of program.
- C) **Pump**  
The numerical value shows the pump flow rate in percent and the drop symbol together with the on/off indication shows if the pump is in stand-by mode or switched off.
- D) **Rotational direction of the motor**  
The arrow indicates the rotational direction set for the motor. The rotation direction can be changed by pressing the button "FOR/REV" on the pedal.
- E) **Current speed**  
At stand still of the device the maximum speed is displayed. If pedal is activated and motor begins to run the current speed is displayed.

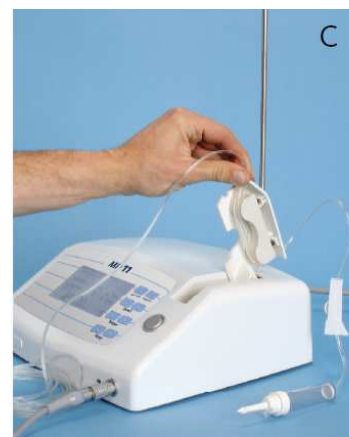
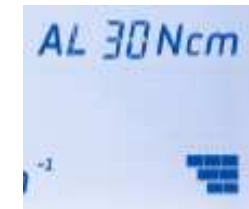
## Features and Advantages

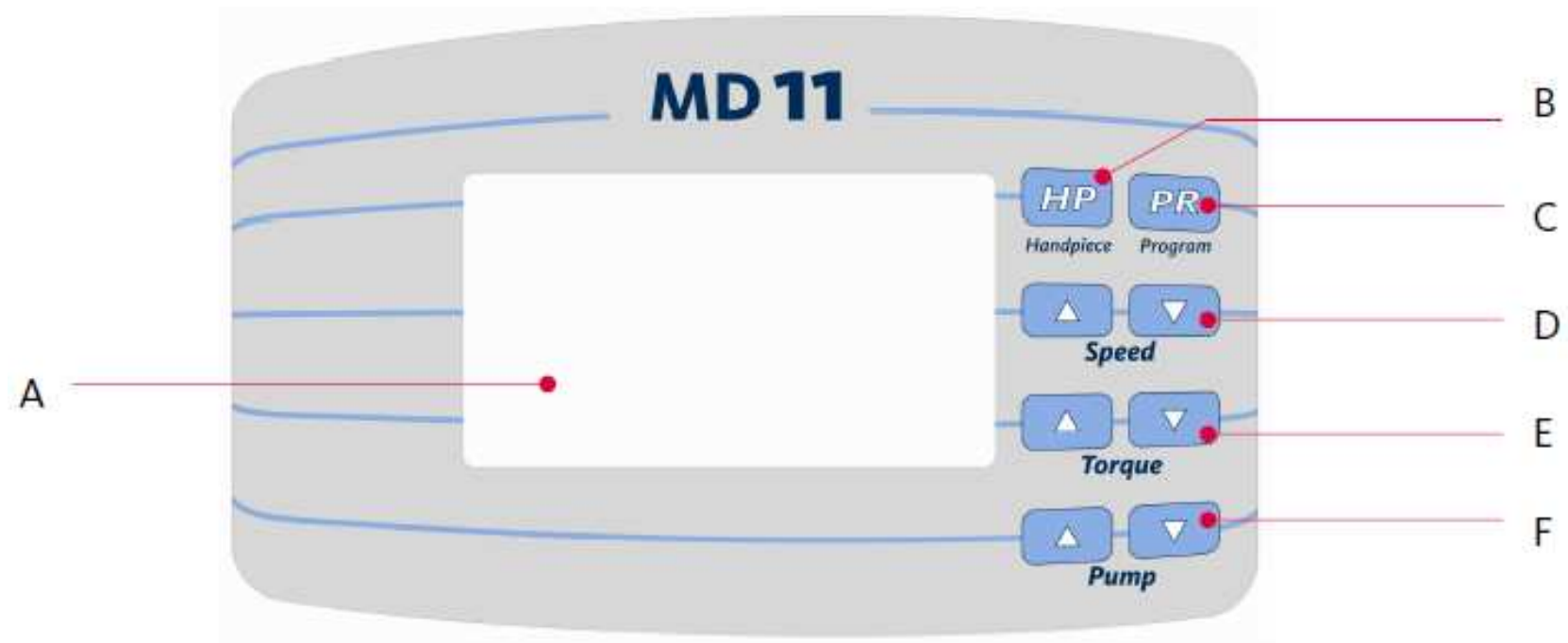
- Modern design – no sharp edges – easy to clean
- Large, illuminated display: Reduction to the essential. All treatment parameter are clearly shown and legibly on the large display
- Keyboard: Easy to navigate with the up and down button to change the respective values (torque and speed)
- Sophisticated motor control for smooth and precise power delivery in any speed range
- Two selected programs for drilling and placing the implant
- Automatic memorize parameters
- Calibration mode for contra angles



## Features and Advantages

- Powerful and strong, small micro-motor
  - **Speed range:** 300 – 40'000 rpm (with 1:1 hand piece)
  - **Torque:** 70 Ncm with 20:1 contra-angle
- Current Torque indication with diagram on the LCD display
- Programmable: 2 programs saved automatically with contra-angle 20:1 or 32:1
- Irrigation pump: built in low noise peristaltic pump – easy to load





- A) **Display:** Shows the operating values (See chapter “7.3 Overview: Standard display”).
- B) **“Handpiece” key:** Selection of the 1:1 contra angle (Program 1).
- Bei pressing both keys at the same time “HP + PR”, all Programs will be reset to factory default.
- C) **“Program” key:** Selection of program 2 or 3 with the Contra Angle selected in the configuration menu. Select between 4 different Contra Angles, available in the configuration menu.
- D) **“Speed” keys:**
- Restrict the maximum speed that can be selected using the pedal.  
“▲”: increases the maximum speed                      “▼”: reduces the maximum speed
  - By pressing both “Speed” keys at the same time “Speed ▲ + ▼” the handpiece calibration will be started (refer to “7.4.2 Calibrating handpieces”).
- E) **“Torque” keys:**
- Restricts the maximum torque.  
“▲”: increases the maximum torque                      “▼”: reduces the maximum torque
  - By pressing both “Torque” keys at the same time “Torque ▲ + ▼” the torque modes AL and AS are exchanged (see chapter “7.5 Torque limit function, AL mode (Automatic Limiter)” and chapter “7.6 Torque limit function, AS mode (Automatic Stopper)”).
- F) **“Pump” keys:**
- Changing the pump flow rate that can be supplied using the pedal.  
“▲”: increases the maximum supply quantity                      “▼”: reduces the maximum supply quantity
  - By pressing both “Pump” keys at the same time “Pump ▲ + ▼” the pump will be put on call, pressing again will switch it off.

## How to use the MD11



Press the **"HP"** key to select Program 1 with the 1:1 contra angle  
 Press the **"PR"** key to select Program 2 or 3. The desired contra angle has to be selected in the configuration menu before you can use it.

## Setting the speed



## Setting the pump



To activate or deactivate the pump, press both "Pump" keys at the same time, "Pump ▲ + ▼", or push the foot switch "**PUMP**" shortly.



## Setting the torque



### Torque limit function, AL mode (Automatic Limiter)

The AL function limits the torque applied to the instrument, for example to prevent crack initiation and bone fracture.

The speed at the instrument remains constant until the preset torque is reached. If the applied force gets over this limit the speed will be reduced, if necessary down to a stop, but the torque remains constant. If the applied force is reduced the speed picks up again.

On the display this procedure is shown as a bar graph. The bars in the graph fill up to their full range as the torque increases to its preset value. When the bar graph shows full capacity the speed will be reduced. As soon as the force on the instrument is reduced the torque decreases and the speed starts to pick up again as shown on the display.

The AL mode is active at all speeds, except at the speeds where the AS mode takes effect.

### Torque limit function, AS mode (Automatic Stopper)

The AS function limits the torque applied to the instrument. As soon as the preconfigured torque is reached, the electronic motor stops immediately. The electronic motor no longer generates any force. In order to restart the electronic motor, the treadplate must be released and pressed again.

On the display, the bar graph completes up to its full range, until the maximum torque is reached, then drops to zero.

## Setting the torque



The build up of torque is displayed as a bar graph. When maximum torque is reached all elements of the bar graph are full displayed.

The function “AS” is just active for certain contra angles and only in a certain speed range.

From the minimal speed up to the speeds shown at the right the AS-mode is activated automatically.

(refer to “7.8 Configuration Menu, Parameter level 2, AS-Zone”)

Handpiece	20:1
Speed rpm:	20

In the following speed ranges the AS-/AL-mode can also be switched manually by pressing both torque keys “Torque ▲ + ▼” at the same time.

Handpiece	20:1
From rpm:	15
To rpm:	45

## Calibrating handpieces

To make sure the displayed parameters correspond with the actual, measurable parameters of the handpiece or contra angle, it is recommended to calibrate each handpiece or contra angle on a regular basis.

It's a procedure as simple as it is important to guarantee safety and precision of each handpiece or contra angle being used.

After you take care of all prior preparations such as sterilization, maintenance and care of handpieces, device preparation and the selection of the handpiece of use, the calibration procedure can be performed.

The calibration of handpieces or contra angles guarantees accurate torque. Due to wear as well as varying lubrication of the handpieces or contra angles, and lack of maintenance and care, the distribution of torque can vary widely.



1. Hold motor with mounted handpiece or contra angle in your hand at safe distance from your body.
2. Press both "Speed" keys at the same time (Speed ▲ + Speed ▼).
3. Motor and handpiece start running and pass several speed cycles up to maximum speed.
4. After a tone is emitted and a message is displayed the calibration is finished.



## Electronic motor 21

### Ergonomically and handily!

Handy design and small weight (*only 21mm in diameter*) guarantee an ergonomic, fatigue-free working even with longer or more complicated surgical applications.



### High performance torque!

The high torque in connection with the broad speed range (300 up to 40'000 rpm) offer a maximum flexibility to be able to fulfil the increasing requirements.

### Precisely and long-lived!

Outer and inner parts consists of high-quality high-grade steel and ensures a high working reliability and long-live cycle.

Elektronik Motor 21  
Brushless Motor, sterilizable

### autoclavable, brush less micro motor!

The microprocessor-controlled electronic motor 21 is extremely stable against repeated sterilizing.

## Contra Angle 20:1 push button

- ✓ high-quality high-grade steel
- ✓ prepared for internal and/or external cooling
- ✓ for instruments with Dental shaft Ø 2.35 mm
- ✓ push button head – hexagon ready



C/A 20:1 with push button



C/A 20:1 with LED  
generator / push button

## Various contra angles & handpieces

### NOUVAG contra angles

- ✓ high-quality high-grade steel
- ✓ prepared for internal and/or external cooling
- ✓ for instruments with Dental shaft Ø 2.35 mm
- ✓ various transmission, latch head



C/A 1:1, 16:1, 32:1

### NOUVAG handpieces

- ✓ high-quality high-grade steel
- ✓ prepared for external cooling
- ✓ for instruments with Dental shaft Ø 2.35 mm
- ✓ various sizes, 1:1 transmission with quick lock system



## Cleaning, disinfection and sterilization

---

The following points in particular are important with regard to caring for the material:



- Perform cleaning, disinfection and sterilization after every treatment.
- Always autoclave the material in sterilization packaging.
- Make sure that sterilization packaging is no more than 80% full.
- Always autoclave the material at 135°C for at least 5 minutes.
- If sterilized material is not used immediately, the material packaging must be labeled with the sterilization date.
- Nouvag AG recommends including a sterility indicator.



## Spare parts list with order numbers

Accessories	Art. no.
Clip set large CL, for attachment to the handpiece, package with 3 pieces -----	1881
Clip set motor cable, for attachment to the motor cable, package with 10 pieces -----	1873
Single-use tubing set, 2 m, sterile, 10-unit pack-----	1706
Y-connector, for branching tube set for internal and external cooling-----	1777
Internal cooling nozzle for drilling handpieces with latch system-----	1712
Internal cooling nozzle clip for drilling handpieces with push button system-----	39116
Irrigation fluid, 0.9% sodium chloride, 1 liter -----	1707
Nou-Clean clean and care spray -----	1984
Spray nozzle attachment for surgical instrument e-coupling-----	1958
Spray nozzle attachment for electronic motor 21 -----	1974
Surgery Handpiece 1:1, length 90 mm, with attachable spray nozzle -----	1710
Surgery Handpiece 1:1, length 105 mm, with attachable spray nozzle -----	1950
Surgery Contra Angle 1:1, length 125 mm, with attachable spray nozzle -----	1960
Drilling Contra Angle 1:1, with INTRA EN3964 coupling, max. torque 10 Ncm-----	5050
Drilling Contra Angle 16:1, with INTRA EN3964 coupling, max. torque 30 Ncm-----	5060
Drilling Contra Angle 20:1, with INTRA EN3964 coupling, max. torque 80 Ncm-----	5053
Drilling Contra Angle 20:1 LED, with INTRA EN3964 coupling, max. torque 80 Ncm-----	5052
Drilling Contra Angle 32:1, with INTRA EN3964 coupling, max. torque 55 Ncm-----	5054
Drilling Contra Angle 70:1, with INTRA EN3964 coupling, max. torque 55 Ncm-----	5065

## MD 11 technical data

Voltage: ----- variable: 100 V~/ 115 V~/ 230 V~, 50-60 Hz  
 Fuse, power supply: ----- 2 fuses T 3.15 AL 250 VAC  
 Power consumption: ----- 120 VA  
 Applied part: ----- Type B\*  
 Protection class: ----- Class I  
 Dimensions (W x D x H): ----- 260 x 250 x 110 mm  
 Net weight control unit: ----- 3.3 kg

### Motor:

Motor coupling: ----- Intra coupling ISO3964  
 Motor speed: ----- 300 - 40,000 rpm  
 Max. Motor torque: ----- 6 Ncm  
 Motor weight: ----- 0.280 kg  
 Motor cable length ----- 2 m

### Pedal:

IP code (pedal) ----- IPX8

### Peristaltic pump:

Max. volumetric displacement of pump ----- 100 ml/min.

*\*Applied part of Type B is the instrument used with the MD 11.*

## Service & Repair

- **Is there a Service and Repair Center in my region?**

Please check our website to find our next Service and Repair centre in your region:

<http://www.nouvag.com/index.php/en/service/service-places>

**We assure absolute reliability!**



Forty Years of  
Swiss Innovation

