

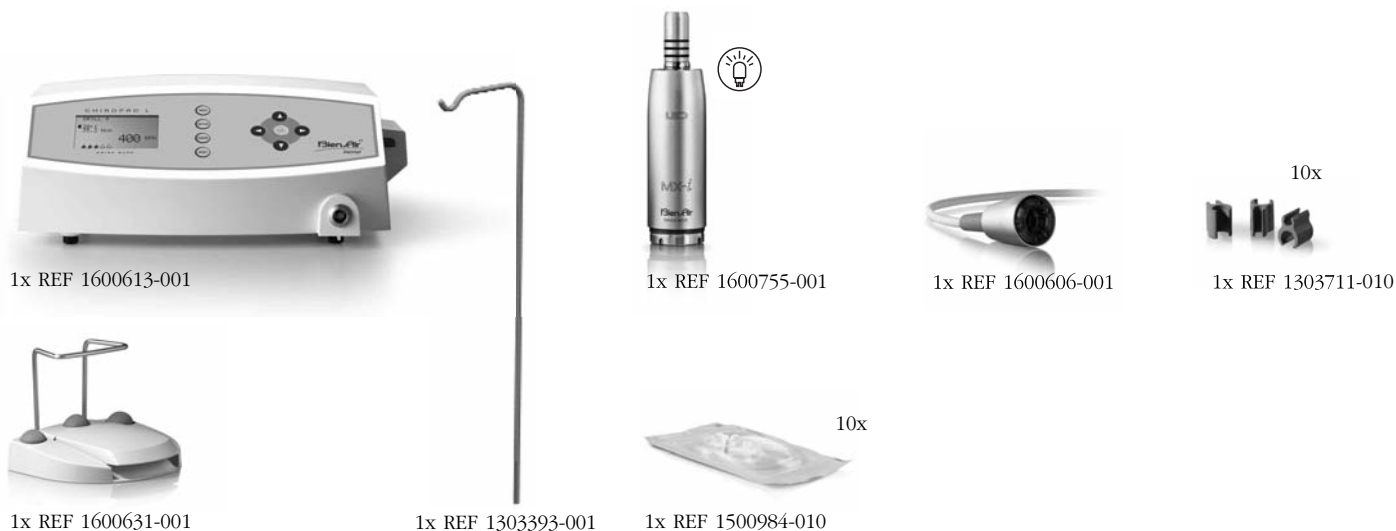
# CHIROPRO L / CHIROPRO

**ENG** Instructions for use

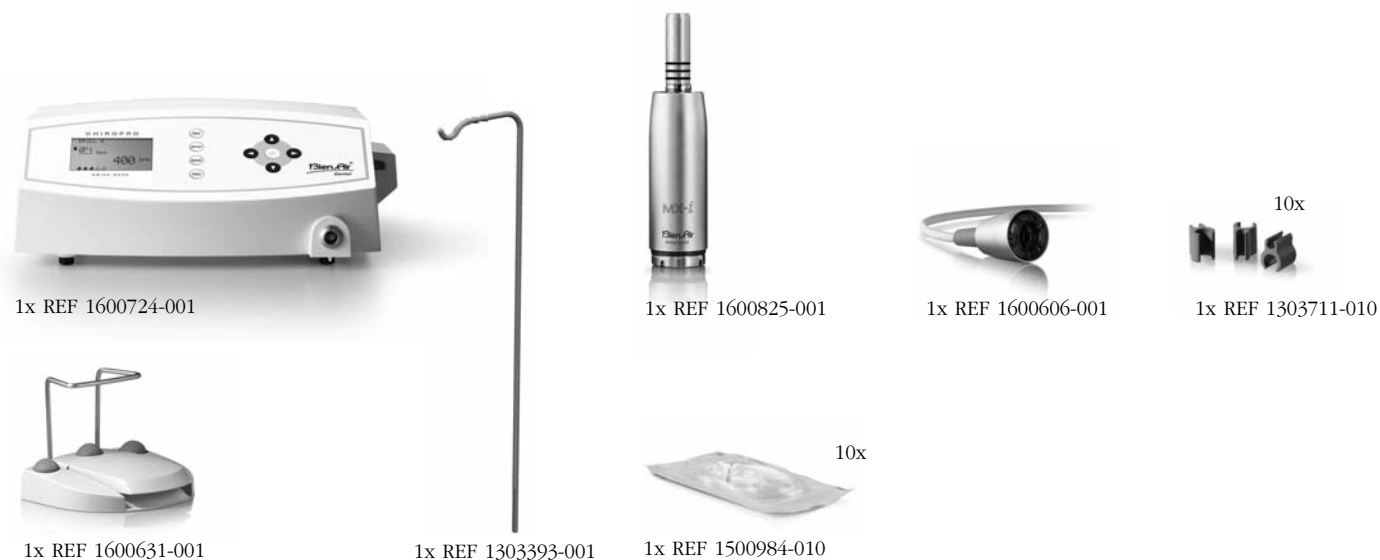
*Version not for sale/use in the USA*



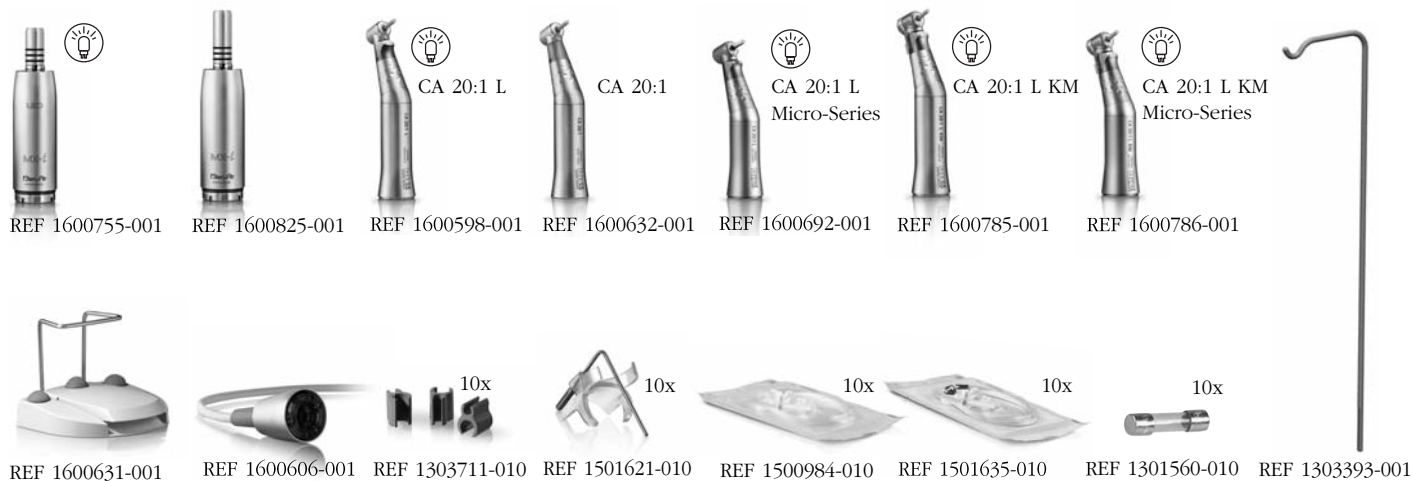
## Set CHIROPRO L REF 1700298-001



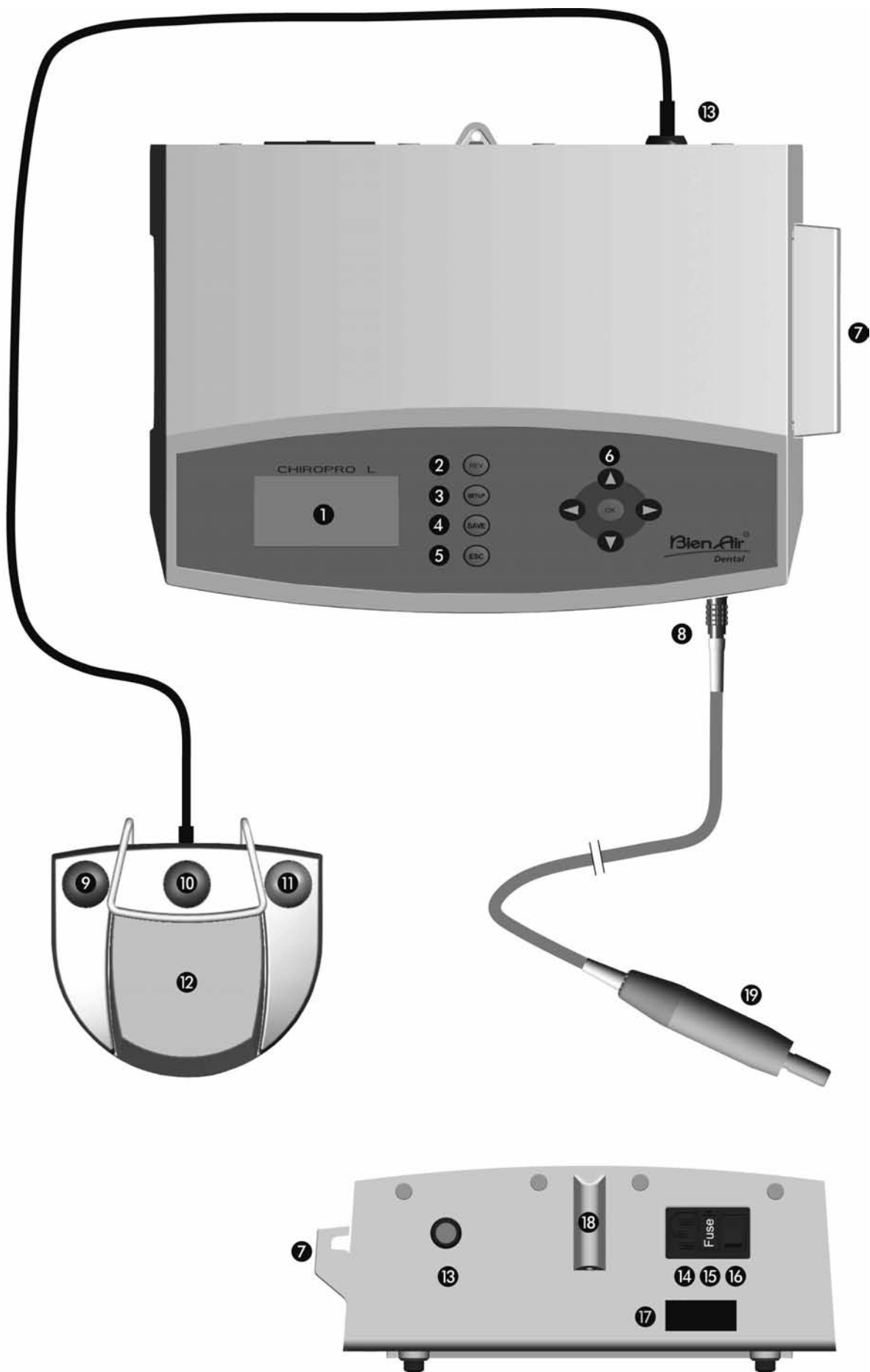
## Set CHIROPRO REF 1700387-001



## Options



# CHIROPRO L / CHIROPRO



## Summary

### Starting display



### Available values

MAIN MENU	Steps	Ratio	Speed in rpm	Torque in Ncm	Irrigation in ml/min
Implantology Endodontics Surgery	Round bur 1	128:1	100 - 40'000 rpm with a CA 1 : 1	0.48 - 4.8 Ncm with a CA 1 : 1	30 ml/min 20%
	Round bur 2	64:1			60 ml/min 40%
	Drill 1	30:1	Depends on the CA	Depends on the CA	90 ml/min 60%
	Drill 2	27:1			120 ml/min 80%
	Drill 3	20:1			150 ml/min 100%
	Drill 4	16:1			
	Tapping	10:1			
	Tap unscrewing	1:1			
	Implant screwing	1:2			
	Unscrewing	1:5			
Implantology Endodontics Surgery	Open pulp chamber	128:1	100 - 40'000 rpm with a CA 1 : 1	0.48 - 4.8 Ncm with a CA 1 : 1	30 ml/min 20%
	endo file 1	64:1			60 ml/min 40%
	endo file 2	30:1	Depends on the CA	Depends on the CA	90 ml/min 60%
	endo file 3	27:1			120 ml/min 80%
	endo file 4	20:1			150 ml/min 100%
	endo file 5	16:1			
	endo file 6	10:1			
	endo file 7	1:1			
	endo file 8	1:2			
	endo file 9	1:5			
Implantology Endodontics Surgery	Apical resection	128:1	100 - 40'000 rpm with a CA 1 : 1	0.48 - 4.8 Ncm with a CA 1 : 1	30 ml/min 20%
	Tooth extraction	64:1			60 ml/min 40%
	Sinus lift	30:1	Depends on the CA	Depends on the CA	90 ml/min 60%
	Free	27:1			120 ml/min 80%
		20:1			150 ml/min 100%
		16:1			
		10:1			
		1:1			
		1:2			
		1:5			

### Starting display



### Available values

IMPLANT SYST.	Steps	Ratio	Speed in rpm	Torque in Ncm	Irrigation in ml/min	
Implantology	Round bur 1	128:1	100 - 40'000 rpm with a CA 1 : 1	0.48 - 4.8 Ncm with a CA 1 : 1	30 ml/min 20%	
	Round bur 2	64:1			60 ml/min 40%	
	Drill 1	30:1	Depends on the CA	Depends on the CA	90 ml/min 60%	
	Drill 2	27:1			120 ml/min 80%	
	Drill 3	20:1			150 ml/min 100%	
	Drill 4	16:1				
	Tapping	10:1				
	Tap unscrewing	1:1				
	Implant screwing	1:2				
	Unscrewing	1:5				
	Straumann	Round bur 1	128:1	100 - 40'000 rpm with a CA 1 : 1	0.48 - 4.8 Ncm with a CA 1 : 1	30 ml/min 20%
	Nobel Biocare	Round bur 2	64:1			60 ml/min 40%
	Zimmer	Drill 1	30:1	Depends on the CA	Depends on the CA	90 ml/min 60%
Dentsply Friadent	Drill 2	27:1	120 ml/min 80%			
Biomet 3i	Drill 3	20:1	150 ml/min 100%			
Astra Tech	Drill 4	16:1				
Thommen Medical	Tapping	10:1				
Système	Tap unscrewing	1:1				
	Implant screwing	1:2				
	Unscrewing	1:5				

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# 1 Meaning of symbols



CE Marking with number of the notified body.



Main switch  
ON - The instrument is switched on.  
OFF - The instrument is switched off.



Fuse Ø 5 x 20 mm.



Alternating current.



Device of type B.



CAUTION ! Dangerous voltage.



Element sensitive to electrostatic discharges.



Warning.



CAUTION! Refer to the accompanying documents.



Danger of pinching. Do not put your fingers in rotating parts.



Machine washable.



Variability in steps.



Symbol for "Water-cooling".



Recyclable materials.



Recyclable electrical and electronic materials.



Sterilisable in autoclave up to the specified temperature.



Operating mode intermittent.



Manufacturer.



Light.



Expiration date.



Product containing phthalates.



Disposable product.



Sterilise with Ethylene Oxide

## 2 Description

### Identification

Electronically controlled tabletop device for dentistry allowing operation of an MX-i LED/MX-i micro-motor with variable speed control by a pedal.

A peristaltic pump conveys the physiological liquid via a disposable irrigation line without being contaminated.

The device's LCD display indicates the stage of implant fitting, the instrument's ratio, the bur speed, torque value and irrigation flow setting.

### Intended use

The system is to be used by dentists and surgeons in dental offices and hospitals. The system is designed to control a dental micromotor which can drive a dental hand-piece fitted with appropriate tools to cut hard and soft tissues in the mouth and to screw dental implants.

The system is intended for use in dentistry for implantology, dental surgery\* and endodontic\* work. Any use other than that for which this product is intended is unauthorised and may be dangerous. The medical device meets all the current legal requirements.

### Environment



The device is not designed for use in an explosive atmosphere (anaesthetic gas).

Working	Temperature:	+10°C (50°F) to +25°C (77°F)
	Relative humidity:	30% to 80%, including condensation
	Atmospheric pressure:	700 hPa to 1060 hPa

Transport and storage	Environmental conditions	
	Temperature:	-25°C (-13°F) to +70°C (158°F)
	Relative humidity:	10% to 100%, including condensation
	Atmospheric pressure:	500 hPa to 1060 hPa

### Environmental protection and information for disposal of the instrument



The disposal and/or recycling of materials must be performed in accordance with the legislation in force.



This device and its accessories must be recycled.

Electrical and electronic equipment may contain dangerous substances which constitute health and environmental hazards. The user must return the device to its dealer or establish direct contact with an approved body for treatment and recovery of this type of equipment (European Directive 2002/96/EC).

### 3 Set supplied

<b>Set CHIROPRO L</b> <b>REF 1700298-001</b>	1x CHIROPRO L control	REF 1600613-001
	1x Micromotor MX-i LED	REF 1600755-001
	1x Cable for MX-i LED micromotor	REF 1600606-001
	1x Pack of 10 disposable sterile lines	REF 1500984-010
	1x 10 attachment collars for fastening the sterile irrigation line to a cable	REF 1303711-010
	1x Bracket for fluid bottle	REF 1303393-001
	1x Pedal 3 buttons	REF 1600631-001
	1x Cable system 3P, Switzerland, length 2.00 m	REF 1300065-001
	1x Cable system 3P, Europe, length 2.50 m	REF 1300066-001
	1x Cable system 3P, US/Asia, length 2.00 m	REF 1300067-001
	1x Instructions	REF 2100219

<b>Set CHIROPRO</b> <b>REF 1700387-001</b>	1x CHIROPRO control	REF 1600724-001
	1x Micromotor MX-i	REF 1600825-001
	1x Cable for micromotor MX-i	REF 1600606-001
	1x Pack of 10 disposable sterile lines	REF 1500984-010
	1x 10 attachment collars for fastening the sterile irrigation line to a cable	REF 1303711-010
	1x Bracket for fluid bottle	REF 1303393-001
	1x Pedal 3 buttons	REF 1600631-001
	1x Cable system 3P, Switzerland, length 2.00 m	REF 1300065-001
	1x Cable system 3P, Europe, length 2.50 m	REF 1300066-001
	1x Cable system 3P, US/Asia, length 2.00 m	REF 1300067-001
	1x Instructions	REF 2100219

### 4 Options

Contra-angle handpiece CA 20:1 L (light)	REF 1600598-001
Contra-angle handpiece CA 20:1 L Micro-Series (light)	REF 1600692-001
Contra-angle handpiece CA 20:1 L KM (light)	REF 1600785-001
Contra-angle handpiece CA 20:1 L KM Micro-Series (light)	REF 1600786-001
MX-i LED micromotor	REF 1600755-001
MX-i micromotor	REF 1600825-001
Cable for MX-i LED micromotor	REF 1600606-001
Pedal 3 buttons	REF 1600631-001
Pack of 10 disposable sterile lines	REF 1500984-010
Kirschner/Meyer type detachable irrigation set for CA 20:1 L KM and CA 20:1 L KM Micro-Series, comprising 10 rings and 10 tubes	REF 1501621-010
Kirschner/Meyer pack of 10 disposable sterile lines	REF 1501635-010
10 attachments collars for fastening the sterile irrigation line to a cable	REF 1303711-010
Bracket for fluid bottle	REF 1303393-001
Support	REF 1301575-001
Cable system 3P, Switzerland, length 2.00 m	REF 1300065-001
Cable system 3P, Europe, length 2.50 m	REF 1300066-001
Cable system 3P, US / Asia, length 2.00 m	REF 1300067-001
10x Fuse T4.0A L 250 VAC breaking capacity 40A	REF 1301560-010



## 5 Technical Description: Technical data

### Voltage

100 – 240 VAC  
50 – 60 Hz

### Fuses

2 fuses T4.0A L 250 VAC, breaking capacity 40A

### Power demand

- 100 V /300 VA  
- 240 V /300 VA

### Classification

Class IIa in accordance with European Directive 93/42/EEC concerning medical devices.

### Electric insulation class

Class I, per IEC 60601-1  
(apparatus protected against electric shocks).

### Degree of protection

IP 40 (protection against insertion of objects larger than 1 mm).

### Dimensions L x W x H

309 x 220 x 123 mm. Height with bracket 506 mm

### Weight

Housing	2.7 kg	Pedal	830 g
Cable	105 g	Bracket	115 g

### Memory

Implantology mode: Storage in memory of 8 implant fitting sequences of 10 steps each.  
Endodontics\* mode: Storage in memory of an endodontics sequence of 10 steps.  
Surgery\* mode: Storage in memory of 4 separate programs.

### Languages

French, German, English, Italian, Spanish, Portuguese, Japanese and Russian.

### List of errors & Troubleshooting

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### Bracket for physiological liquid flask

Stainless steel

### Intended for use with:

	see instructions
Micromotor MX-i LED	REF 2100245
Micromotor MX-i	REF 2100245
Cable for micromotor	REF 2100163
Contra-angle CA 20:1, without light	REF 2100209
Contra-angle CA 20:1 L, with light	REF 2100209
Contra-angle CA 20:1 L Micro-Series, with light	REF 2100209
Contra-angle CA 20:1 L KM, light	REF 2100209
Contra-angle CA 20:1 L KM Micro-Series, light	REF 2100209



The use of the system with other handpieces, motors or cables has not been validated/certified

### Peristaltic pump

Pump delivery:	From 30 to 150 ml/min. (5 levels).
Hose for pump:	External Ø 5.60 mm, internal Ø 2.40 mm Wall thickness 1.60 mm.

### Pedal

REF 1600631-001  
Dimensions (LxWxH) 250 x 205 x 54 mm  
with handle: 250 x 205 x 144 mm  
The pedal is waterproof (IP X8 in accordance with CEI 529).

### Cables

Length of cables:  
Pedal cable 2.90 m  
Motor cable 2.00 m

### WARNING

To prevent any risk of electric shock, this device must be connected only to a power supply network provided with protective earth.  
Modification of the device forbidden.  
The system is not adapted to be used in the presence of inflammable gases (e.g. anaesthetic gas).  
Do not attempt to open the apparatus when it is connected to the electric mains. Beware of electric shocks.

### Applied parts (per IEC 60601-1)

MX-i LED micromotor	REF 1600755-001
MX-i Micromotor	REF 1600825-001
Cable for micromotor MX-i LED	REF 1600606-001
CA 20:1 L	REF 1600598-001
CA 20:1	REF 1600632-001
CA 20:1 L Micro-Series	REF 1600692-001
CA 20:1 L KM	REF 1600785-001
CA 20:1 L KM Micro-Series	REF 1600786-001
Irrigation lines	REF 1500984-010
KM Irrigation lines	REF 1501635-010
KM detachable Irrigation set	REF 1501621-010

### Operating mode:

Intermittent  
ON: 5 min.  
OFF: 40 min.

## 5 Technical Description: Electromagnetic compatibility

### Precautions regarding Electromagnetic Compatibility (EMC)

Electro-medical equipment needs special precautions regarding EMC and needs to be installed and put into service according to the EMC information provided in this document. CHIROPRO L/CHIROPRO complies with the EMC requirements according to IEC 60601-1-2. Radio transmitting equipment, cellular phones, etc. shall not be used in close proximity of the device since they could influence the performance of the device. Particular precaution is required when using strong emission sources such as High Frequency surgical equipment and similar equipment so that the HF cables are not routed on or near the device. If in doubt, please contact a qualified technician or Bien-Air Dental. CHIROPRO L/CHIROPRO should not be used adjacent or stacked with other equipment. If adjacent or stacked use is necessary, CHIROPRO L/CHIROPRO should be monitored to verify normal operation in the configuration in which it will be used.

### WARNING!

**The use of accessories, transducers and cables other than those specified, with the exception of transducers and cables sold by Bien-Air Dental as replacements parts for internal components, may result in increased emissions or decreased immunity of CHIROPRO L/CHIROPRO. Dental professionals need to be aware of potential electromagnetic interference between electronic dental devices and active implantable medical devices, and should always inquire about any devices implanted in the patient.**

### Guidance and manufacturer's declaration - electromagnetic emissions

CHIROPRO L/CHIROPRO is intended for use in the electromagnetic environment specified below. The customer or the user of CHIROPRO L/CHIROPRO should ensure that it is used in such an environment.

Emissions test	Compliance	Electromagnetic environment - guidance
RF emissions CISPR 11	Group 1	CHIROPRO L/CHIROPRO uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	CHIROPRO L/CHIROPRO is suitable for use in all Establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Not applicable	
Voltage fluctuations/flicker emissions IEC 61000-3-3	Compliant	

### Guidance and manufacturer's declaration - electromagnetic immunity

CHIROPRO L/CHIROPRO is intended for use in the electromagnetic environment specified below. The customer or the user of CHIROPRO L/CHIROPRO should ensure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for lines no input/output	±2 kV for power supply lines ±1 kV for lines no input/output	Mains power quality should be that of a typical commercial or hospital environment.
Shock waves IEC 61000-4-5	±0.5 kV line to line ±1 kV line to line ±0.5 kV line to earth ±1 kV line to earth ±2 kV line to earth	±0.5 kV line to line ±1 kV line to line ±0.5 kV line to earth ±1 kV line to earth ±2 kV line to earth	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips and outages IEC 61000-4-11	<5% $U_T$ (>95% dip in $U_T$ ) for 0.5 cycle  40% $U_T$ (60% dip in $U_T$ ) for 5 cycles 70% $U_T$ (30% dip in $U_T$ ) for 25 cycles  <5% $U_T$ (>95% dip in $U_T$ ) for 5 sec	<5% $U_T$ (>95% dip in $U_T$ ) for 0.5 cycle  40% $U_T$ (60% dip in $U_T$ ) for 5 cycles 70% $U_T$ (30% dip in $U_T$ ) for 25 cycles  <5% $U_T$ (>95% dip in $U_T$ ) for 5 sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of CHIROPRO L/CHIROPRO requires continued operation during power mains interruptions, it is recommended that CHIROPRO L/CHIROPRO be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

NOTE  $U_T$  is the a.c. mains voltage prior to application of the test level.


**Essential performance:** The essential performance is the maintaining of the visual lighting intensity of the LED and the maintaining of motor speed. Maximum allowed speed deviation is ± 5%.

## 5 Technical Description: Electromagnetic compatibility

### Guidance and manufacturer's declaration - electromagnetic immunity

CHIROPRO L/CHIROPRO is intended for use in the electromagnetic environment specified below.

The customer or the user of CHIROPRO L/CHIROPRO should ensure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 V	<p>Portable and mobile RF communications equipment should be used no closer to any part of CHIROPRO L/CHIROPRO, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</p> <p><b>Recommended separation distance</b></p> $d = 1.2\sqrt{P}$ $d = 1.2\sqrt{P} \quad 80 \text{ MHz to } 800 \text{ MHz}$ $d = 2.3\sqrt{P} \quad 800 \text{ MHz to } 2.5 \text{ GHz}$
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2,5 GHz	3 V/m	<p>where <math>P</math> is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and <math>d</math> is the recommended separation distance in metres (m).</p> <p>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey,<sup>a</sup> should be less than the compliance level in each frequency range.<sup>b</sup></p> <p>Interference may occur in the vicinity of equipment marked with the following symbol:</p> 

NOTE 1 At 80 MHz and 800 MHz, the higher frequency range applies.

NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

<sup>a</sup> Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the CHIROPRO L/CHIROPRO is used exceeds the applicable RF compliance level above, the CHIROPRO L/CHIROPRO should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the CHIROPRO L/CHIROPRO.

<sup>b</sup> Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

### Recommended separation distances between portable and mobile RF communications equipment and the CHIROPRO L/CHIROPRO

The CHIROPRO L/CHIROPRO is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the CHIROPRO L/CHIROPRO can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the CHIROPRO L/CHIROPRO as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter m		
	150 kHz to 80 MHz $d = 1.2\sqrt{P}$	80 MHz to 800 MHz $d = 1.2\sqrt{P}$	800 MHz to 2.5 GHz $d = 2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance  $d$  in metres (m) can be estimated using the equation applicable to the frequency of the transmitter, where  $P$  is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE 1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

## 6 Installation

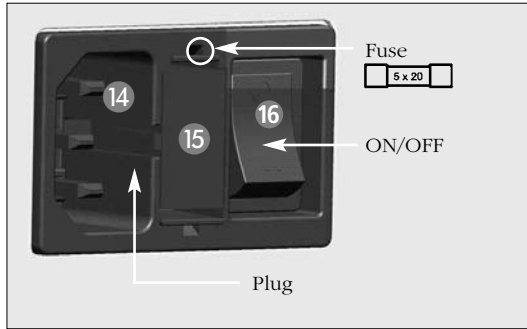


fig. 1

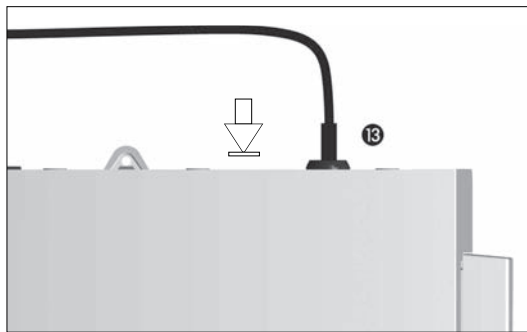


fig. 2

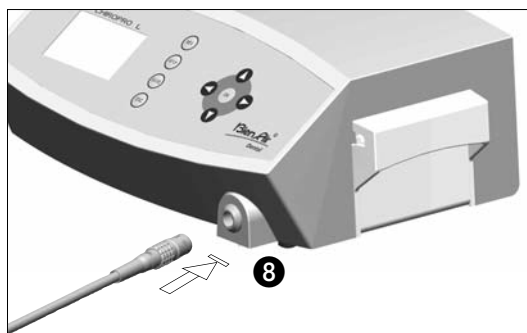


fig. 3

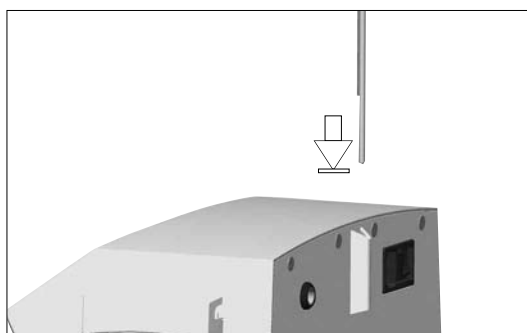


fig. 4



fig. 5

### Installation

A. CHIROPRO L/CHIROPRO may be positioned on a table, on a trolley or another surface, but in no circumstances on the floor.


Power plug 14 is the device for disconnection in case of problems, and it must be easily accessible at all times.

B. The fuse box may be opened with a screwdriver.

100 - 240 Vac = fuse T-4.0 A L 250 VAC REF 1301560-010

C. The equipment is powered by your line voltage (100/115/230 Vac). Connect the power cable to the plug **fig. 1**.

D. Connect the pedal cable to the output provided on the rear panel, guiding the connector and plug by means of the index pin on the connector **fig. 2**.

 Do not raise the pedal using the connection cable.

E. Connect the micromotor cable to the motor output, guiding the connector and plug by means of the index pin on the connector **fig. 3**.

F. Align and attach the bracket to the housing provided on the console's rear and suspend the flask or bottle **fig. 4**.

G. Check the packaging integrity, as well as the expiry date of the irrigation line.

Only lines supplied by Bien-Air Dental ensure trouble-free operation. These lines are sterile and for single use. Re-use may result in microbiological contamination of the patient.



## 6 Installation



fig. 6

H. Remove the single-use sterile irrigation line from its pouch.

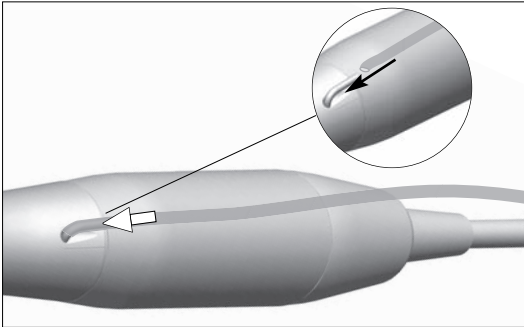


fig. 7

### Fitting on the spray tube

I. Connect the flexible hose of the irrigation line to the spray tube of the handpiece or contra-angle **fig. 7**.

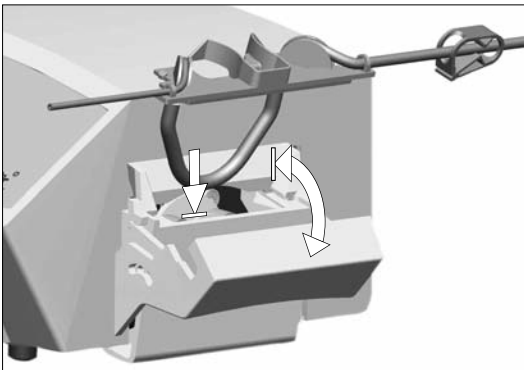


fig. 8

### Installation on the peristaltic pump

J. Install the plastic cassette in the peristaltic pump.

Check that the cassette is clipped correctly.

Close the pump lid, **fig. 8**.

If there is resistance to closing, open the lid again and check the correct positioning of the cassette.



**Warning!**

**Do not run the pump while the lid is open.**



**Danger of pinching!**

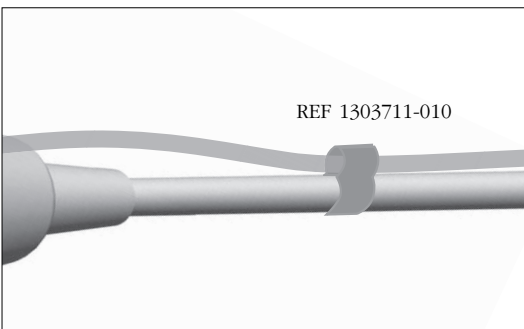


fig. 9

K. Perforate the cap of the physiological liquid flask with the pointed end of the irrigation line after removing the protective cap.

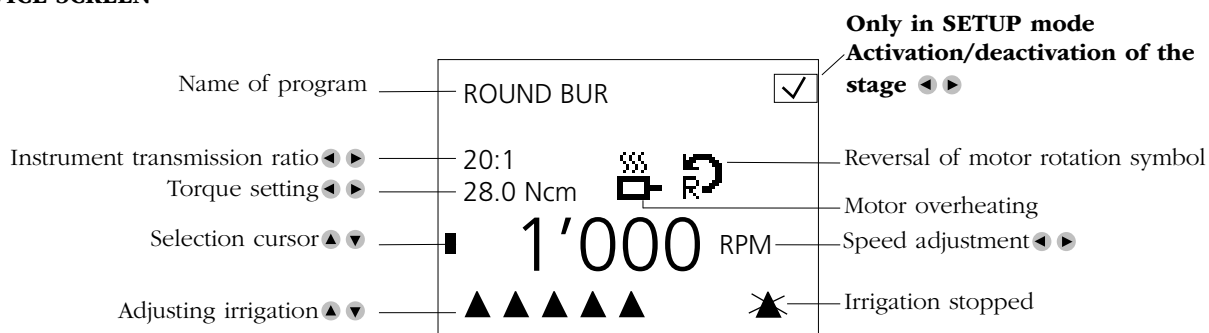
L. Attach the irrigation line on the motor cable using the attachment collars REF 1303711-010 **fig. 9**.

### Stopping procedure

The device can be safely stopped using the main switch **16**.

## 7 Description of keys and elements

### 1 DEVICE SCREEN



### 2 COMMAND TO REVERSE THE ROTATION OF THE MICROMOTOR

### 3 "SETUP" MENU CALL-UP KEY

### 4 PARAMETERS BACKUP KEY

### 5 RETURN KEY

### 6 COMMANDS DEVICE

▼ Down key } cursor

▲ Up key }

◀ Left key (-) } adjusting

▶ Right key (+) }

OK Confirmation/selection key  
In implantology/endodontics\* mode: next stage

### 7 PERISTALTIC PUMP LID

### 8 MICROMOTOR CONNECTOR

### 9 IRRIGATION ON/OFF CONTROL BUTTON ON PEDAL

### 10 "PROGRAM" BUTTON ON PEDAL

In implantology/endodontics\* mode:  
- Short press: next stage  
- Long press: previous stage

### 11 BUTTON TO REVERSE THE ROTATION OF THE MICROMOTOR ON PEDAL

### 12 VARIABLE SPEED DRIVE ON PEDAL

### 13 PEDAL CONNECTOR

### 14 MAINS CONNECTOR (100/115/230 VAC)

### 15 FUSE HOLDER

### 16 MAIN SWITCH ON THE DEVICE

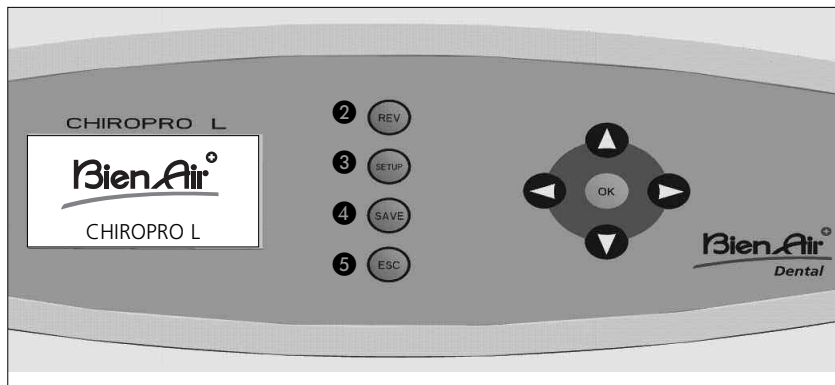
### 17 LABEL


### 18 BRACKET SUPPORT

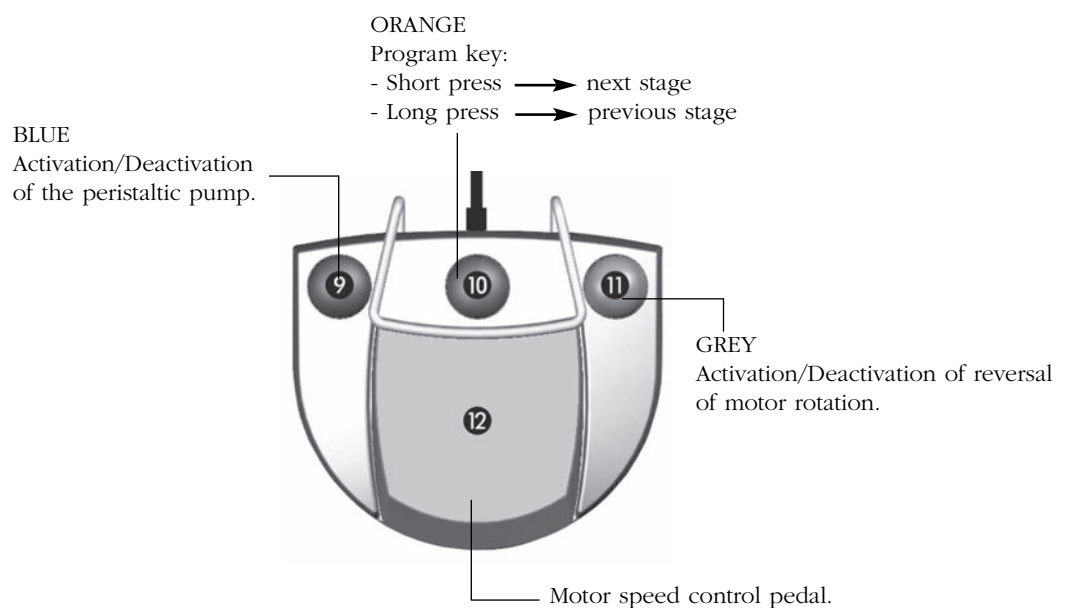
### 19 MICROMOTOR

## 8 Operation

### Description of functions



- 2 REV** The "reverse" function can be chosen directly in all the programs except endodontics\*. Upon selection, a beep and the "reversal of motor rotation" icon  indicate reverse rotation. For endodontics\*, settings must be performed under SETUP (Auto-forward/Auto-reverse).
- 3 SETUP** See next page.
- 4 SAVE** Stores the settings of a program: press the key until a beep is emitted, and the values that are flashing will be stored in the memory directly.
- 5 ESC** Return function. With "ESC", you can leave the current screen. In "Implantology" and "Endodontics\*" mode, can also be used to return to the previous stage. If the name of the program flashes when exiting, the changes will not be taken into consideration. The changes must always be confirmed with "SAVE", otherwise they will be lost.



## 8 Operation

### Start-up

1. System loading.....

2. LANGUAGE  
 English ✓  
 Français  
 Deutsch  
 Italiano  
 Espanol  
 Português  
 Russian  
 Japanese

Select with ▼ ▲  
 Confirmation with OK

3. IMPLANT. SYSTEM  
 Straumann  
 Nobel Biocare  
 Zimmer ✓  
 Dentsply Friaden  
 Biomet 3i  
 Astra Tech  
 Thommen Medical  
 System

Select with ▼ ▲  
 Confirmation with OK

4. <Name of selected system>  
 Please check the pre-programmed values before inserting implant.

OK: continue  
 ESC: back

5. INFORMATION  
 Key functions:  
 ▲ move cursor UP  
 ▼ move cursor DOWN  
 ◀ decrem./disable  
 ▶ increm./enable

OK: continue

\*6. MAIN MENU  
 Implantology  
 Endodontics\*  
 Surgery\*

Select with ▼ ▲  
 Confirmation with OK

with  
 OK: go directly to pre-setting with no possibility of deactivating the stages

or  
 with SETUP, possibility of deactivating the stages with

**!** All the pre-programmed settings are indicative and **MUST** be validated by the user.

This storing in memory takes place only at the first connection of the device and is subsequently maintained. These parameters can then be modified in SETUP.

### Pre-settings

**SETUP**

Language	English
Implant. system	Français
Endo* system	Deutsch
Ratio	Italiano
Light	Español
Footpedal	Português
Torque units	Russian
Contrast	Japanese
Editor	
System info	
Restore defaults	

Select the language wanted  
 ▼ ▲ and confirm with OK.

Language	
Implant. system	
Endo* system	Endo steps
Ratio	Endo parameters
Light	
Footpedal	
Torque units	
Contrast	
Editor	
System info	
Restore defaults	

Select with ▼ ▲ then OK.  
 If modifications with ◀ ▶, the screen flashes.  
 save with SAVE continue with OK.  
 Without modification, continue with OK.  
 ESC: back

Language	
Implant. system	Straumann
Endo* system	Nobel Biocare
Ratio	Zimmer
Light	Dentsply Friadent
Footpedal	Biomet 3i
Torque units	Astra Tech
Contrast	Thommen Medical
Editor	System
System info	
Restore defaults	

Select the system wanted  
 ▼ ▲ and confirm with OK.  
 ESC: change

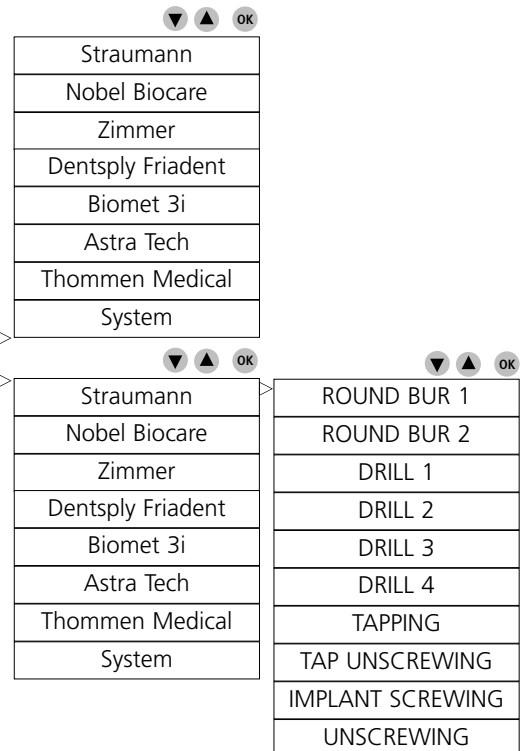
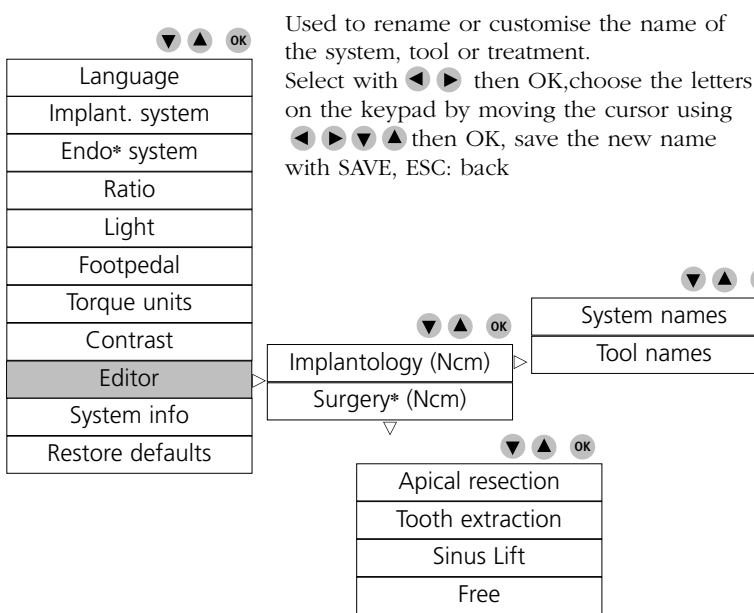
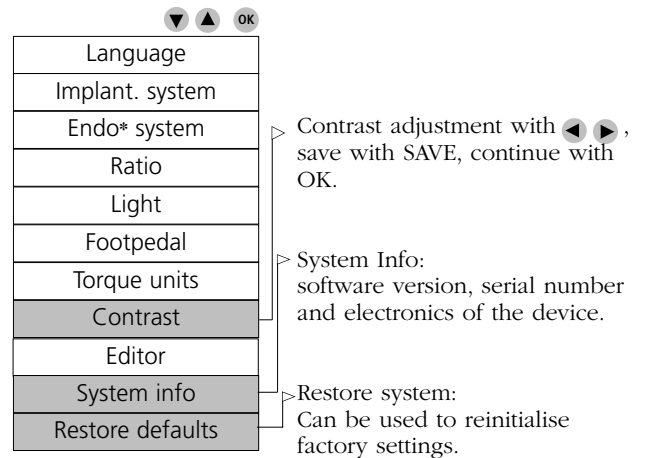
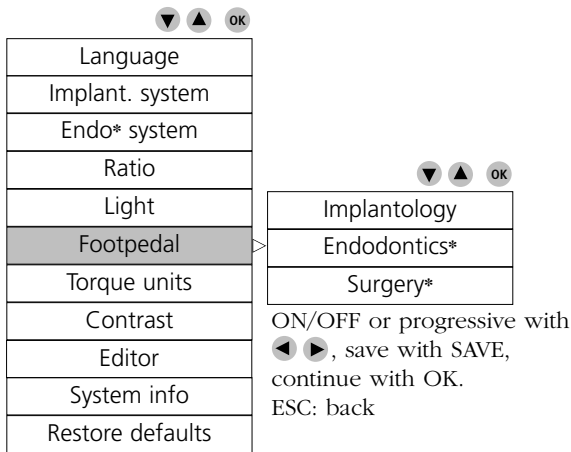
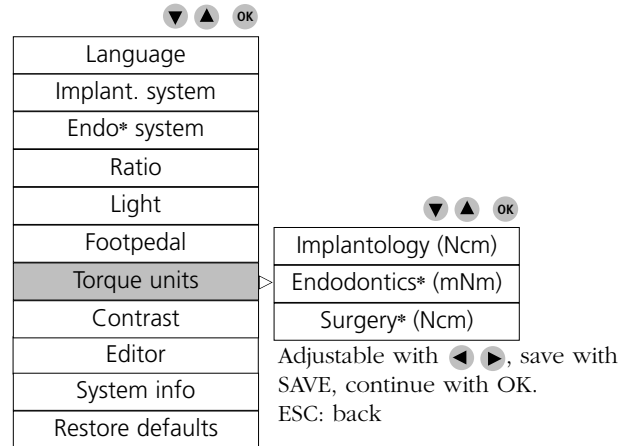
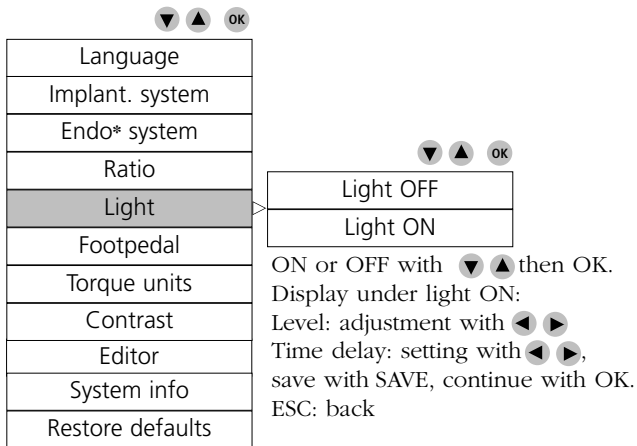
Language	128:1
Implant. system	64:1
Endo* system	30:1
Ratio	27:1
Light	20:1
Footpedal	16:1
Torque units	10:1
Contrast	1:1
Editor	1:2
System info	1:5
Restore defaults	

Select the ratio to be changed ▼ ▲ OK, then change of value with ▼ ▲ and with ◀ ▶ then save with SAVE. Continue with OK. ESC: back



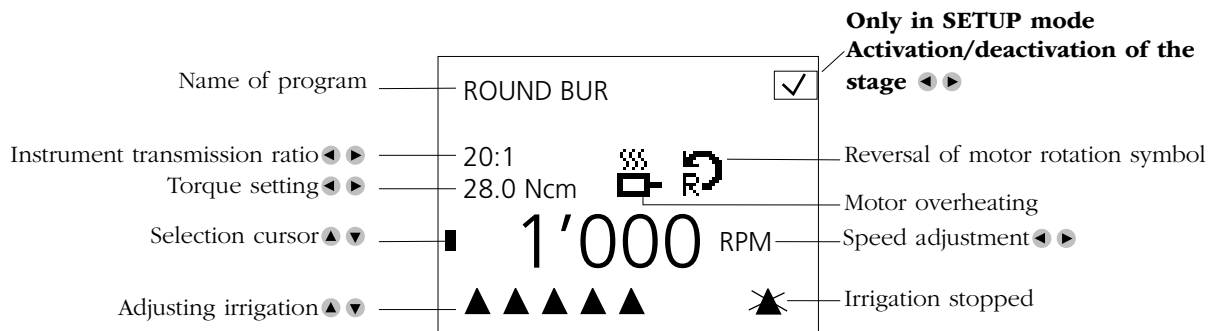
# 8 Operation

## Pre-settings



## 8 Operation

### Description of functions



MAIN MENU	Steps	Transmission ratio	Speed in rpm	Torque in Ncm	Irrigation in ml/min
Selection wanted ▲ ▼ and confirm with <b>OK</b>	Each of these stages can be activated or deactivated from the SETUP menu. See also info on the last page.  OK: next step ESC: previous step	Select with the cursor ■			
		Adjustable: ◀ ▶ then SAVE	Adjustable: ◀ ▶ then SAVE	Adjustable: ◀ ▶ then SAVE	Adjustable: ◀ ▶ then SAVE

Implantology	ROUND BUR 1
Endodontics*	ROUND BUR 2
Surgery*	DRILL 1
	DRILL 2
	DRILL 3
	DRILL 4
	TAPPING
	TAP UNSCREWING
	IMPLANT SCREWING
	UNSCREWING




Implantology	OPEN PULP CHAMBER
Endodontics*	ENDO FILE 1
Surgery*	ENDO FILE 2
	ENDO FILE 3
	ENDO FILE 4
	ENDO FILE 5
	ENDO FILE 6
	ENDO FILE 7
	ENDO FILE 8
	ENDO FILE 9

Implantology	Apical resection
Endodontics*	Tooth extraction
Surgery*	Sinus Lift
	Free

128:1	100 - 40'000 rpm with a CA 1:1	0.48 - 4.8 Ncm with a CA 1:1	30 ml/min 20%
64:1			60 ml/min 40%
30:1	Depends on the CA selected	Depends on the CA selected	90 ml/min 60%
27:1			120 ml/min 80%
20:1			150 ml/min 100%
16:1			
10:1			
1:1			
1:2			
1:5			

Pre-programmed values, see pages 129-130

## 9 List of errors & Troubleshooting

Message		Cause of error	Action
 Release the pedal	The pedal is pressed when starting the device. The motor is blocked for more than 2 sec.	Safety	Release the pedal and press again.
 	The motor control card limits the power supplied to the motor to prevent motor overheating.	Safety	Avoid extended use.
<b>Equipment initialisation error</b>			
The following error may occur at start-up of CHIROPRO L/CHIROPRO			
<b>1. Check on the integrity of the CHIROPRO L/CHIROPRO memory</b>			
INIT ERROR 1	The memory is corrupt! Please contact Bien-Air Dental SA. ESC: restore	The memory data check failed.	Press the ESC key to try to restore the memory. Contact Bien-Air Dental SA.
<b>Device operating error</b>			
The following errors may occur during operation of the device			
<b>1. Loss of pedal connection</b>			
ERROR 1	The pedal is not connected! Please check the connection. ESC: exit	The pedal is not connected correctly.	Check pedal connection. Contact Bien-Air Dental SA.
<b>2. Peristaltic pump overheating</b>			
ERROR 2	Irrigation pump overheating! Please wait for it to cool.  ESC: exit	Peristaltic pump motor overheating	Wait until the system cools. Contact Bien-Air Dental SA.
<b>3. Peristaltic pump general error</b>			
ERROR 3	Irrigation pump fault! Please contact Bien-Air Dental SA. ESC: exit	Peristaltic pump electrical fault.	Contact Bien-Air Dental SA.
<b>4. Loss of motor connection</b>			
ERROR 4	The motor is not connected! Please check the connection. ESC: exit	Loss of motor phase fault. The motor is not connected correctly.	Check motor connection. Contact Bien-Air Dental SA.
<b>5. Motor cable fault</b>			
ERROR 5	Motor cable fault! Please change cable. ESC: exit	Motor power fault. The motor cable may be defective.	Check motor cable. Contact Bien-Air Dental SA.
<b>6. Motor control overheating</b>			
ERROR 6	System overheating! Please wait for it to cool. ESC: exit	Overheating of motor control card (electrical control of motor).	Wait until the system cools. Contact Bien-Air Dental SA.
<b>7. System electrical fault</b>			
GEN ERROR [Error code]	System electrical fault! Please contact Bien-Air Dental SA. ESC: exit	Communication fault with motor control card: [EC100]  Motor control card power supply undervoltage: [EC101]  Motor control card power supply overvoltage: [EC102]  Other motor control card faults: [EC120]	Contact Bien-Air Dental SA.

## 10 Default values

### Implantology:

#### Default values page 129

The table shows the default operating values for the 8 implantology systems pre-programmed in the system, namely:

- Straumann • Nobel Biocare • Zimmer • Dentsply Friadent
- Biomet 3i • Astra Tech • Thommen Medical • System, available to the user (default settings identical to the Straumann system).

### Endodontics\*: Default values page 130

The table shows the default operating values for the endodontics sequence.

### Surgery\*: Default values page 130

The table shows the default operating values for 4 types of surgical operations proposed by the system, namely: • Root resection • Extraction of wisdom teeth • Sinus raising • Free program, left available to the user.

## 11 Maintenance

Only use original Bien-Air Dental maintenance products and parts or those recommended by Bien-Air Dental. Using other products or parts may cause operational failure and/or void the guarantee.

### Servicing

Never disassemble the device. For any modification and repair, we recommend that you contact your regular supplier or Bien-Air Dental directly. Bien-Air Dental asks the user to have its dynamic instruments checked or inspected at least once a year.

### Information

The technical specifications, illustrations and dimensions contained in these instructions are given only as a guide. They may not be the subject of any claim. The manufacturer reserves the right to make technical improvements to its equipment, without amending these instructions. For all additional information, please contact Bien-Air Dental SA at the address indicated on the back cover.

### Cleaning-disinfection

- Disinfect the surfaces of the console and pedal with a clean cloth soaked in a suitable product.
- Do not exert any pressure on the screen.
- Do not immerse in disinfectant solution
- Not designed for an ultrasonic bath.
- Use a new sterile irrigation line for each patient.

### Important

For maintenance:	see instructions
Micromotor MX-i LED	REF 2100245
Micromotor MX-i	REF 2100245
Cable for micromotor	REF 2100163
Contra-angle CA 20:1, without light	REF 2100209
Contra-angle CA 20:1 L, with light	REF 2100209
Contra-angle CA 20:1 L Micro-Series, with light	REF 2100209
Contra-angle CA 20:1 L KM, light	REF 2100209
Contra-angle CA 20:1 L KM Micro-Series, light	REF 2100209

## 12 Generalities and guarantee

### General information

The device must be used by a qualified professional in compliance with the current legal provisions concerning workplace safety, health and accident prevention measures, and these working instructions. In accordance with such requirements, the operators:

- must only use devices that are in perfect working order; in the event of irregular functioning, excessive vibration, abnormal heating or other signs that may indicate malfunction of the device, the work must be stopped immediately; in this case, contact a repair centre that is approved by Bien-Air Dental;
- must ensure that the device is used only for the purpose for which it is intended, must protect themselves, their patients and third parties from any danger, and must avoid contamination through the use of the product.

### Terms of guarantee

Bien-Air Dental grants the user a guarantee covering all functional defects, material or production faults. The device is covered by this guarantee for 24 months from the date of invoicing.

In case of justified claim, Bien-Air Dental or its authorised

representative will fulfil the company's obligations under this guarantee by repairing or replacing the product free of charge. Any other claims, of whatever nature, in particular in the form of a claim for damages and interest, are excluded.

Bien-Air Dental shall not be held responsible for damage or injury and the consequences thereof, resulting from:

- excessive wear and tear
- improper use
- non-observance of the instructions for installation, operation and maintenance
- unusual chemical, electrical or electrolytic influences
- poor connections, whether of the air, water or electricity supply.

The guarantee does not cover flexible "fibre optic" type light conductors, or any parts made of synthetic materials.

The guarantee shall become null and void if the damage and its consequences are due to improper manipulation of the product, or modifications to the product carried out by persons not authorised by Bien-Air Dental. Claims under the terms of the guarantee will be considered only on presentation, together with the product, of the invoice or the consignment note, on which the date of purchase, the product reference and the Serial No. should be clearly indicated.

## Default values

### Implantology: default values

**⚠ All the pre-programmed settings are indicative and MUST be validated by the user before starting the treatment/operation. Always follow the implant manufacturer recommendations.**

The table shows the default operating values for the 8 implantology systems pre-programmed in the system, namely:

- Straumann • Nobel Biocare • Zimmer • Dentsply Friadent • Biomet 3i • Astra Tech • Thommen Medical
- System, available to the user (default settings identical to the Straumann system).

STRAUMANN / SYSTEM	NOBEL BIOCARE	ZIMMER	DENTSPY FRIADENT	BIOMET 3i	ASTRA TECH	THOMMEN MEDICAL
<b>ROUND BUR 1</b>	<b>ROUND BUR</b>	<b>ROUND BUR</b>	<b>ROUND BUR</b>	<b>ROUND BUR</b>	<b>ROUND BUR</b>	<b>PILOT DRILL 1</b>
20:1	20:1	20:1	20:1	20:1	20:1	20:1
28.1 Ncm	28.1 Ncm	28.1 Ncm	28.1 Ncm	28.1 Ncm	35.3 Ncm	28.1 Ncm
1'000 RPM	2'000 RPM	1'000 RPM	1'200 RPM	1'500 RPM	1'500 RPM	800 RPM
▲▲▲△△	▲▲▲△△	▲▲▲△△	▲▲▲△△	▲▲▲△△	▲▲▲△△	▲▲▲△△
<b>ROUND BUR 2</b>	<b>PILOT DRILL</b>	<b>DRILL 1</b>	<b>DRILL 1</b>	<b>DRILL 1</b>	<b>DRILL 1</b>	<b>PILOT DRILL 2</b>
20:1	20:1	20:1	20:1	20:1	20:1	20:1
28.1 Ncm	35.3 Ncm	35.3 Ncm	35.3 Ncm	35.3 Ncm	35.3 Ncm	28.1 Ncm
1'000 RPM	800 RPM	800 RPM	800 RPM	500 RPM	1'500 RPM	800 RPM
▲▲▲△△	▲▲▲△△	▲▲▲△△	▲▲▲△△	▲▲▲△△	▲▲▲△△	▲▲▲△△
<b>DRILL 1</b>	<b>DRILL 1</b>	<b>DRILL 2</b>	<b>DRILL 2</b>	<b>DRILL 2</b>	<b>DRILL 2</b>	<b>DRILL 1</b>
20:1	20:1	20:1	20:1	20:1	20:1	20:1
35.3 Ncm	35.3 Ncm	35.3 Ncm	35.3 Ncm	35.3 Ncm	35.3 Ncm	35.3 Ncm
800 RPM	800 RPM	800 RPM	800 RPM	500 RPM	1'500 RPM	600 RPM
▲▲▲△△	▲▲▲△△	▲▲▲△△	▲▲▲△△	▲▲▲△△	▲▲▲△△	▲▲▲△△
<b>DRILL 2</b>	<b>DRILL 2</b>	<b>DRILL 3</b>	<b>DRILL 3</b>	<b>DRILL 3</b>	<b>DRILL 3</b>	<b>DRILL 2</b>
20:1	20:1	20:1	20:1	20:1	20:1	20:1
35.3 Ncm	35.3 Ncm	35.3 Ncm	35.3 Ncm	35.3 Ncm	35.3 Ncm	35.3 Ncm
600 RPM	800 RPM	800 RPM	800 RPM	500 RPM	1'500 RPM	500 RPM
▲▲▲△△	▲▲▲△△	▲▲▲△△	▲▲▲△△	▲▲▲△△	▲▲▲△△	▲▲▲△△
<b>DRILL 3</b>	<b>DRILL 3</b>	<b>DRILL 4</b>	<b>DRILL 4</b>	<b>DRILL 4</b>	<b>DRILL 4</b>	<b>DRILL 3</b>
20:1	20:1	20:1	20:1	20:1	20:1	20:1
35.3 Ncm	35.3 Ncm	35.3 Ncm	35.3 Ncm	35.3 Ncm	35.3 Ncm	35.3 Ncm
500 RPM	800 RPM	800 RPM	800 RPM	500 RPM	1'500 RPM	400 RPM
▲▲▲△△	▲▲▲△△	▲▲▲△△	▲▲▲△△	▲▲▲△△	▲▲▲△△	▲▲▲△△
<b>DRILL 4</b>	<b>DRILL 4</b>	<b>DRILL 5</b>	<b>DRILL 5</b>	<b>DRILL 5</b>	<b>DRILL 5</b>	<b>SHAPING DRILL</b>
20:1	20:1	20:1	20:1	20:1	20:1	20:1
35.3 Ncm	35.3 Ncm	35.3 Ncm	35.3 Ncm	35.3 Ncm	35.3 Ncm	35.3 Ncm
400 RPM	800 RPM	800 RPM	800 RPM	500 RPM	1'500 RPM	250 RPM
▲▲▲△△	▲▲▲△△	▲▲▲△△	▲▲▲△△	▲▲▲△△	▲▲▲△△	▲▲▲△△
<b>TAPPING</b>	<b>TAPPING</b>	<b>TAPPING</b>	<b>TAPPING</b>	<b>TAPPING</b>	<b>TAPPING</b>	<b>TAPPING</b>
20:1	20:1	20:1	20:1	20:1	20:1	20:1
35.3 Ncm	35.3 Ncm	35.3 Ncm	35.3 Ncm	35.3 Ncm	35.3 Ncm	35.3 Ncm
15 RPM	15 RPM	15 RPM	15 RPM	15 RPM	20 RPM	20 RPM
△△△△△	△△△△△	△△△△△	△△△△△	△△△△△	△△△△△	△△△△△
<b>TAP UNSCREWING</b>	<b>TAP UNSCREWING</b>	<b>TAP UNSCREWING</b>	<b>TAP UNSCREWING</b>	<b>TAP UNSCREWING</b>	<b>TAP UNSCREWING</b>	<b>TAP UNSCREWING</b>
20:1	20:1	20:1	20:1	20:1	20:1	20:1
42.5 Ncm	42.5 Ncm	42.5 Ncm	42.5 Ncm	42.5 Ncm	42.5 Ncm	42.5 Ncm
15 RPM REV	15 RPM REV	15 RPM REV	15 RPM REV	15 RPM REV	15 RPM REV	20 RPM REV
△△△△△	△△△△△	△△△△△	△△△△△	△△△△△	△△△△△	△△△△△
<b>IMPLANT SCREWING</b>	<b>IMPLANT SCREWING</b>	<b>IMPLANT SCREWING</b>	<b>IMPLANT SCREWING</b>	<b>IMPLANT SCREWING</b>	<b>IMPLANT SCREWING</b>	<b>IMPLANT SCREWING</b>
20:1	20:1	20:1	20:1	20:1	20:1	20:1
35.3 Ncm	35.3 Ncm	35.3 Ncm	35.3 Ncm	35.3 Ncm	35.3 Ncm	35.3 Ncm
15 RPM	15 RPM	15 RPM	15 RPM	15 RPM	15 RPM	15 RPM
△△△△△	△△△△△	△△△△△	△△△△△	△△△△△	△△△△△	△△△△△
<b>UNSCREWING</b>	<b>UNSCREWING</b>	<b>UNSCREWING</b>	<b>UNSCREWING</b>	<b>UNSCREWING</b>	<b>UNSCREWING</b>	<b>UNSCREWING</b>
20:1	20:1	20:1	20:1	20:1	20:1	20:1
54.7 Ncm	54.7 Ncm	54.7 Ncm	54.7 Ncm	54.7 Ncm	54.7 Ncm	54.7 Ncm
15 RPM REV	15 RPM REV	15 RPM REV	15 RPM REV	15 RPM REV	15 RPM REV	15 RPM REV
△△△△△	△△△△△	△△△△△	△△△△△	△△△△△	△△△△△	△△△△△

## Default values

### Endo\* : default values

The table shows the default operating values for the endodontics sequence.

ENDODONTICS
OPEN PULP CHAMBER
1:5
7.20 mNm
100'000 RPM
▲▲▲△△
ENDO FILE 1
1:1
30.2 mNm
250 RPM
△△△△△
ENDO FILE 2
1:1
10.1 mNm
250 RPM
△△△△△
ENDO FILE 3
1:1
14.9 mNm
250 RPM
△△△△△
ENDO FILE 4
1:1
20.2 mNm
250 RPM
△△△△△
ENDO FILE 5
1:1
30.2 mNm
250 RPM
△△△△△
ENDO FILE 6
1:1
20.2 mNm
250 RPM
△△△△△
ENDO FILE 7
1:1
14.9 mNm
250 RPM
△△△△△
ENDO FILE 8
1:1
14.9 mNm
250 RPM
△△△△△
ENDO FILE 9
1:1
10.1 mNm
250 RPM
△△△△△

### Surgery\* : default values

The table shows the default operating values for 4 types of surgical operations proposed by the system, namely:

- Root resection
- Extraction of wisdom teeth
- Sinus raising
- Free program, available to the user.

SURGERY			
APICAL RESECTION	TOOTH EXTRACTION	SINUS LIFT	FREE
1:5	1:2	1:5	1:5
0.72 Ncm	2.40 Ncm	0.72 Ncm	0.72 Ncm
100'000 RPM	80'000 RPM	50'000 RPM	100'000 RPM
▲▲▲△△	▲▲▲△△	▲▲▲△△	▲▲▲△△

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