

Bien Air⁺
Dental

Bien Air
SWISS MADE

ELECTRIC
MICROMOTORS
INTEGRATED SOLUTIONS



ELECTRIC REVOLUTION TAKE THE ADVANTAGE

5 TIMES MORE POWER AND 20 TIMES MORE TORQUE THAN AN AIR TURBINE

A Bien-Air electric micromotor delivers 5 times more power and 20 times more torque compared to an air turbine. The electric micromotor can achieve full speed (40,000 rpm with a 1:1 handpiece), with constant torque (MX2 = 3.5 Ncm) and more than 100 Watt's (mechanical power).

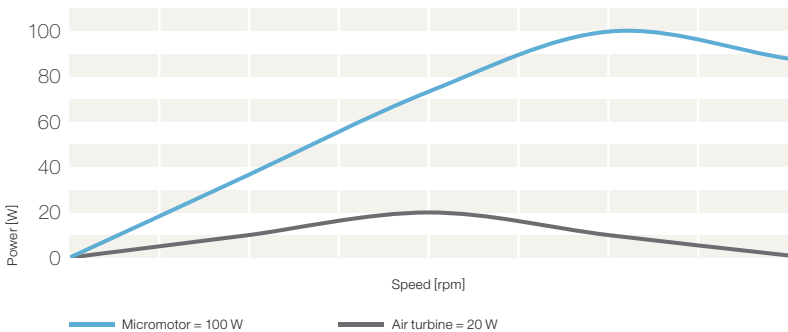
The speed will not decrease as the bur is applied to the tooth because the system compensates by automatically increasing the torque. This yields constant speed regardless of the pressure applied, over the entire speed range, and provides the ability for the micromotor to be used on today's hardest restorative materials.

- High torque at low speeds = No vibrations, allowing for precise control
- High torque at high speeds = Reduced finishing and polishing times

The faster preparation with the electric handpiece creates less heat buildup at the tooth surface.

What this means to the dentist:

- Endodontics: Reduce time while increasing accuracy in root canal procedures
- Periodontics: Superior controlled removal of soft and hard tissue
- Treatment of cavities: Reduce time while increasing accuracy in tooth preparation
- Oral surgery: Reduce time while increasing accuracy in sectioning bone
- Implantology: Reduce time and ability to use the same micromotor to place implants because of the high torque (max = 70 Ncm)



Role of Speed vs. Torque

Torque is the «force» necessary to maintain a certain speed. For example, an air turbine has very low torque but operates at a very high speed. When a load is applied, the speed decreases due to the low torque. An electric handpiece is able to maintain constant speed even with a high load applied.

NOISE LEVELS REDUCED AND LESS VIBRATION

A Bien-Air electric micromotor reduces noise levels by 2 compared to an air turbine. This greatly decreases patient anxiety and discomfort and allows the dentist to work more efficiently. It also vibrates considerably less. This offers greater cutting precision and a smoother finish.

Micromotor (with handpiece) ~ 57 dBA Turbine ~ 65 dBA

Noise is measured in decibels (dB) on a logarithmic scale, however, dental instruments are measured using a specific scale (dBA) adapted to the sensitivity of the human ear. A 10dBA increase represents a doubling of perceived loudness (i.e. 60 dBA sounds twice as loud as 50 dBA to the human ear).

BRUSHLESS TECHNOLOGY A NEW DIMENSION

ADVANTAGES OF BRUSHLESS MICROMOTORS

Simple micromotor design.

Better technology providing more power and torque.

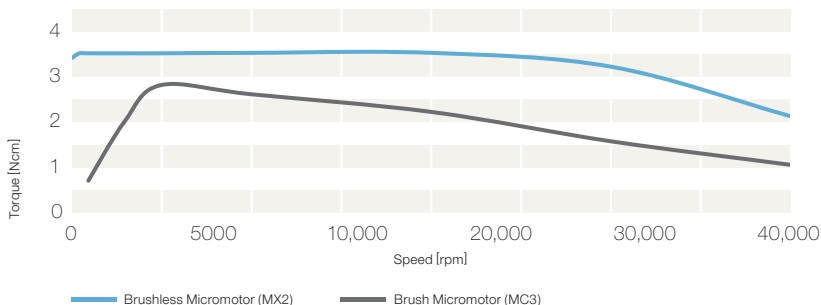
Torque and speed control: The electronic drive precisely regulates the speed and the torque, allowing for applications like endodontics to be performed with the same micromotor (auto-reverse, auto-forward). The torque is stable over the entire speed range.

Less noise and vibration free at low speed: There is no electrical sparking from carbon brushes and much less noise.

Easy and economical to maintain: There are no brushes to wear out or regularly replace.

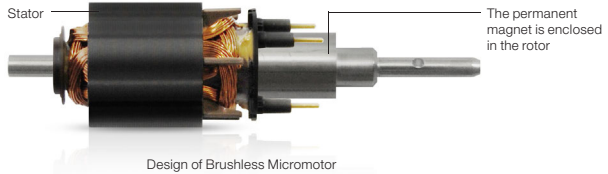
Better hygiene: The micromotor can be sterilized.

24-month Warranty: Bien-Air offers a 24-month warranty for the brushless micromotor.



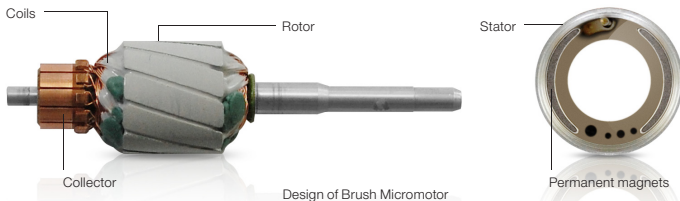
HOW DO MCX, MX2 AND MX-i BRUSHLESS MICROMOTORS WORK?

Like any other electric micromotor, brushless micromotors consist of a rotor and a stator. Unlike the brush micromotor, the rotor consists of a permanent magnet, while the coils are mounted to the stator. The mechanical switching function, implemented by the brush and collector combination in a carbon brush-type micromotor, is replaced by a sophisticated electronic drive that became possible only with the development of high-speed and powerful microprocessors. The electronic drive creates a rotating electric field in the stator that interacts with the permanent magnet.



HOW DO THE MC2 AND MC3 CARBON BRUSH MICROMOTORS WORK?

All electric micromotors are made up of a rotor and a stator. The rotation is generated by magnets interacting with an electric current flowing through a wire coil. In the case of brush micromotors, the coils are located on the rotor. Electrical power is supplied to the coils through carbon brushes located on the stator. The electrical current in the coil interacts with the magnets of the stator, thus generating rotation.



ADVANTAGE OF BRUSH MICROMOTORS:

Simple electronic drive.

COMPLEXITY OF BRUSH MICROMOTORS

Complex mechanical design (rotor: multiple windings, collector and brushes, stator: permanent magnet).

The brushes wear out so they must be regularly replaced (approximately 18-24 months in a dental micromotor).

The carbon dust from the brushes disperses in the micromotor and can reduce the life of the micromotor bearings.


The carbon brushes can cause interference with other electronic devices because of their constant interaction with the electrical components in the micromotor.

The carbon brushes cannot be washed or sterilized as they absorb moisture generated from an air compressor.


BRUSHLESS MICROMOTORS WITH LIGHT

micro
SERIES




MX2 



MCX 



MX-i 

Applications	Restorative Prophylaxis Endodontics	Restorative Prophylaxis	Implantology Surgery
Type	Brushless, internal spray	Brushless, internal spray	Brushless, autoventilated
Speed range	100-40,000 rpm	1000-40,000 rpm	100-40,000 rpm
Max torque	3.5 Ncm	2.5 Ncm	5 Ncm
Torque control	Yes	No	Yes
Weight	90 gr	79 gr	115 gr
Dimensions	Ø 21 x 50 mm	Ø 21 x 42 mm	Ø 23 x 91 mm
Light	LED with adjustable intensity		
Max noise level, compliant with ISO 11498	51 dBA	51 dBA	53 dBA
Sterilisable	Yes	Yes	Yes + thermal desinfector
Ball bearings	Life-time lubricated ball bearings		
Hose rotation	± 200°	0°	0°
References	1600677-001	1600751-001 MCX without light: 1600780-001	1600755-001

BRUSH MICROMOTORS

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Applications	Restorative Prophylaxis	
Type	With brushes, internal spray	
Speed range	60 - 40,000 rpm	
Max torque	2.8 Ncm	2.3 Ncm
Torque control	No	
Weight	98 gr	
Dimensions	Ø 21 x 95 mm	Ø 23 x 79 mm
Light	LED with adjustable intensity/Bulb	
Max noise level, compliant with ISO 11498	54 dBA	54 dBA
Sterilisable	No	
Hose rotation	400°	0°
References	MC3 LED: 1600680-001 MC3 LK with light: 1600077-001 MC3 IR without light 1600071-001	MC2 LED: 1600681-001 MC2 Isolite 300 with light: 1600078-001

BRUSH MICROMOTORS

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MC2 IR



MC2 GTAV

Applications	Restorative Prophylaxis	
Type	With brushes, internal spray	With brushes, autoventilated
Speed range	60 - 40,000 rpm	
Max torque	2.3 Ncm	2.8 Ncm
Torque control	No	
Weight	73 gr	77 gr
Dimensions	Ø 23.5x81 mm	Ø 24x93 mm
Light	No	
Max noise level, compliant with ISO 11498	50 dBA	57 dBA
Sterilisable	No	
Hose rotation	0°	
References	1600073-001	1600075-001

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