

Midwest[®] E

Handpiece Attachments

Directions For Use

1:5 L

1:1 / 1:1 L

5:1 / 5:1 L

1:1 ST

CAUTION: US Federal law restricts this device to sale by or on the order of a licensed dental professional

MIDWEST[®] E
Electric Handpiece System
Doc. No. 87512-0914

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Manufactured for:

DENTSPLY Professional

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1 Important Information

Indications for Use

The Midwest® E Electric Handpiece System is intended for use by dental professionals in the performance of dental restoration, prophylaxis and endodontic procedures.

Attachments are offered to complement the system used for general dentistry work. The intended use of the respective attachment is dependent on the gear ratio. The System offers handpiece attachments for the removal of decayed matter, cavity and crown preparations, and removal of fillings and surface finishing of tooth and restoration surfaces. In addition, the system offers attachments for caries excavation and endodontics.

Midwest E 1:5L and 1:1 ST are intended for: The removal of decayed matter, cavity and crown preparation, and the removal of fillings and surface finishing of tooth and restoration surfaces.

Midwest 1:1/L, and 5:1/L are intended for: Cavity preparations, caries excavation, endodontics, and surface finishing of tooth and restoration surfaces.

Contraindications

None Known

1 Important Information



Warnings

- This product is intended for use by dental professionals only. Before operating this device read and follow these instructions. Any form of misuse or changes to the product may lead to personal injury or damage to the device.
- These handpiece attachments are for use with the Midwest® E Electric Handpiece system. Use of non-original or spare parts not provided by DENTSPLY or DENTSPLY authorized dealers can result in personal injury or damage to the device.
- Never place a handpiece attachment on a running dental motor. Personal injury or damage to the equipment may occur.
- Handpieces must be properly used and maintained according to the directions described in this manual. Electric handpieces generate significantly more power than traditional air turbines and air motors. Due to increased torque and speed, poorly maintained, worn, damaged or misused handpieces may generate frictional heat capable of causing serious burns and injuries to the patient.
- Always inspect handpiece prior to use for any damage. Immediately stop using the handpiece if it begins generating heat, excessive noise, or vibration. For prolonged usage periods, check the instrument every ten minutes.

1 Important Information

- During Usage:
 - Never use the head of the handpiece as a cheek or tongue retractor.
 - Do **not** press the push-button at anytime during operation.
 - Always inspect and ensure all burs and files are in good condition and completely fastened. Do not use diamond burs which have missing grains.
 - Use of a rubber dam is recommended.
 - When using the Midwest E 1:5L attachment always use with the cooling spray on.
- To dispose of this device adhere to local, state, federal and/or other governing regulations.
- Handpiece attachments should be sterilized between patients to prevent cross-contamination which could result in serious illness or even death from infectious organisms such as HIV (the virus that causes AIDS) or hepatitis B.
 - **Sterilize handpiece attachments before use, handpieces are supplied non-sterile.**
 - Always remove the bur or file prior sterilization.
 - Follow all sterilization methods described in this manual for safe use of the product.








Cautions

- This product is intended for use by dental professionals only.
- Use protective gloves and goggles when working with the handpieces on patients.
- Service of the Midwest® E handpiece attachments is restricted to DENTSPLY authorized service personnel only.







1 Important Information

Applied Symbols

Appearing in the manual:

| | |
|--|--|
|  | A potential hazard to the operator/patient |
|  | Important information for the operator. A potential hazard that may lead to damage to the device |
|  | Sterilizable up to 135°C (275°F) |
|  | Manufacturer |
|  Consult Instructions for Use | Consult Directions For Use |

Appearing on the packaging:

| | |
|---|-----------------------|
|  | Handle with care |
|  | Keep dry |
|  | Maximum stacking load |
|  | Temperature range |
|  | Atmospheric Pressure |
|  | Humidity |

2 Cleaning and Maintenance



WARNING:

- Always take protective actions when handling with patients.
- Always follow the cleaning and sterilization instructions after each patient use for infection control.
- Never soak the handpiece attachment in the cleaning solution. Excessive exposure to cleaning products may cause damage to the handpieces.
- Only use disinfectant cleaning solution specifically designed for cleaning dental handpieces.
- Do not use cleaning solutions containing sodium bicarbonate, aldehyde, or alkaline. Do not use vinegar to clean the spray heads.
- Always clean the handpiece attachments per the instructions prior to sterilization.
- Always remove the bur or file prior to sterilization.



CAUTION:

- If the handpiece attachment will not be used for a long period of time, clean it per the instructions and store it in a dry location to prevent damage.
- Do not place handpiece attachments in a cleaning basin or ultrasonic device. Damage to the handpieces can occur.

2 Cleaning and Maintenance

Cleaning

This procedure recommends the steps to follow between each patient use to prevent cross-contamination and to ensure continued trouble-free operation of the handpiece attachments. The handpiece attachments must be cleaned after each use and no later than 1 hour after patient use. The attachments can be cleaned using an automated cleaning system or manually by hand.

The following will be required for cleaning:

- Water
- Cleaning Spray (Midwest Plus Cleaner)
- Maintenance Spray (Midwest Plus Lubricant)

To Clean Handpiece Attachments with an Automated Cleaning System:

Clean handpiece attachments after every use with the Midwest® Automate Automated Handpiece Maintenance System:

- Clean and maintain the handpiece attachments in accordance to the directions in the Midwest® Automate Systems Operator's Manual.



2 Cleaning and Maintenance

To Clean Handpiece Attachments Manually

After every use perform the following:

1. Disconnect handpiece attachment from the coupler.
2. Press push button (or twist the clamping ring) to remove the bur or file.
3. Spray exterior of the attachment with Midwest Plus™ Cleaner. Scrub and rinse the attachment under warm tap water at 30°C+/- 5°C (86°F+/-9°F) with a soft brush or sponge for 20 seconds. While scrubbing and rinsing, it is best to keep the attachment in the upright position.
4. Dry thoroughly
5. Make sure the fiber optic light port is scrubbed well. Once a week or as needed, gently rub an alcohol-soaked cotton swab against the inside end of the fiber optic light to remove debris build up.
6. Lubricate and Expel the attachment using Midwest Plus Aerosol Spray.
7. While holding the can of Midwest Plus™ Aerosol Spray upright, insert the nozzle fully into the back-end of the attachment and cover the head of the attachment with Midwest Spray Guard or a paper towel.
8. Spray no more than one (1) second
9. If excess debris appears, spray again but no more than (1) second.
10. Insert a bur into the attachment and connect the attachment to the motor.
11. To prevent any lubricant from going into the motor, always place the attachment head downwards before expelling.
12. Expel and run the attachment until it reaches normal speed, or until all excess lubricant is expelled (a minimum of 30 seconds).
13. After expelling, immediately remove attachment from the motor to prevent any excess lubricant from going into the motor.
14. Wipe off any excess lubricant on the outside of the attachment with a paper towel.
15. Sterilize the handpiece attachment per the Sterilization Section below.

3 Sterilization

Sterilization

Sterilize dental handpiece attachments in a sterilizer per manufacturer recommendations. Refer to manufacturer instructions for list of equipment required.

Recommended sterilization methods or parameters are as follows:

| | | | |
|--|-----------------|---|----------------------------|
| Dynamic Air Removal: Unwrapped (Cassette Type) | 135 °C (275 °F) | Minimum sterilization time = 3.5 minutes Minimum Pressure = 300 Pa | Drying time not applicable |
| Dynamic Air Removal: Wrapped or pouched | 135 °C (275 °F) | Minimum sterilization time = 3.5 minutes Minimum Pressure = 300 Pa | Drying time = 60 minutes |

Note: For a specific sterilizer, consult the manufacturer's recommendations

The dental handpiece attachments can withstand a sterilization temperature of up to 135°C (275 °F).

Do not open pouches after sterilization until right before use with the patient. Store sterilized devices in a dust-protected, dry, dark, and cool room until use.

4 Installation and Operation



WARNING:

- To prevent risk of infection to the user and patient, sterilize handpiece attachments before first time use and after each use.
- Failure to correctly attach the handpiece attachment to the motor may cause personal injury, before each use check whether the handpiece is securely latched to the motor.
- Do NOT attach or remove the handpiece while the motor is running (i.e. pressing the foot switch).
- Always wear protective gloves when working with handpieces.
- Always inspect to ensure the water spray channels are clean and set to at least 50 ml/min during use to prevent overheating of the teeth or gums.
- Prior to use, inspect the pressures from the supply air, spray air, and spray water to ensure they meet all of the specifications described in Section 4.



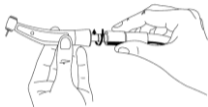
CAUTION:

- If handpiece attachments have been stored in a cold environment, allow the attachments to return to room temperature before use.
- Ensure the air supply is dry and clean per ISO 7494-2 standards. Polluted or non-dry air supply can lead to premature wearing of the bearings and malfunction of the device.
- Use caution when handling the handpiece attachments. Damage to the device can occur if the attachment is dropped.

4 Installation and Operation

To Attach a Handpiece Attachment to the Motor Coupling:

1. Ensure the O-rings on the motor coupling are lubricated with Midwest Plus™ lubricant by using a cotton roll coated with the lubricant spray.
2. Insert the handpiece in the motor coupling and rotate until the latch engages flush with the coupling as illustrated below.
3. Ensure that the handpiece is securely inserted fully onto the motor coupling – the handpiece will no longer be able to rotate independently from the motor and there should be no visible gap between the motor and attachment .



To Remove a Handpiece Attachment:

To remove, pull on the handpiece directly away from the motor.

NOTE: Check to make sure the Cooling Air, Spray Water, and Spray Air pressures meet the pressure specifications described in Section 4, Specifications.

4 Installation and Operation

Installing Burs and Files



WARNING:

- Only use burs or files that meet the criteria described in the Specifications Section 4 “Tools (Burs/Files)”.
- Never use worn out burs or files.
- Handle files and burs with caution when installing as they can be very sharp.
- Always ensure the bur or file is securely attached prior to use by gently pulling on it.
- NEVER press the push-button or touch the bur/file on the handpiece while the handpiece is running.
- Always remove burs or files from the handpiece after use on a patient to prevent injury and infection.

To Insert/Remove Burs and Files onto Angled Handpieces

1. While firmly pressing down on the push-button on the front of the head of the handpiece, insert the bur or file into the chuck as far as it will go, then release the push-button.
2. Ensure the bur or file is inserted completely by pulling on the bur or file without the push-button pressed.
3. To remove, press down on the push-button and pull the bur or file away.

To Insert/Remove Burs and Files on the Straight Handpieces

1. Turn the clamping ring counter-clockwise and insert the bur or file into the chuck as far as it will go.
2. Re-tighten the clamping ring by turning it clockwise.
3. Ensure the bur or file is inserted completely by pulling on it after the clamp ring has been tightened.
4. To remove, un-tighten the clamping ring and pull the bur or file away.

5 Specifications

Handpiece Attachment Technical Specifications

| | Midwest E 1:5L | Midwest E 1:1L or 1:1 | Midwest E 5:1L or 5:1 |
|---------------------------------|--------------------------------|---|---|
| Description | High Speed, Contra-Angle Light | Low Speed, Contra-Angle Light or No Light | Low Speed, Contra-Angle Light or No Light |
| Labeling/Designation | Red dot | Blue dot | Green dot |
| Max motor drive speed | 40,000 min ⁻¹ | 40,000 min ⁻¹ | 40,000 min ⁻¹ |
| Gear Ratio Transmission | 1 : 5 | 1 : 1 | 5 : 1 |
| Max. rotation speed | 200,000 min ⁻¹ | 40,000 min ⁻¹ | 8,000 min ⁻¹ |
| Lighting system | Glass light rod | Glass light rod (1:1L only) | Glass light rod (5:1L only) |
| Chuck | Push-button chuck | Push-button chuck | Push-button chuck |
| Classification as per 93/42/EEC | Class IIa | Class IIa | Class IIa |
| Connection of instruments | ISO 3964 / DIN 13940 | ISO 3964 / DIN 13940 | ISO 3964 / DIN 13940 |

5 Specifications

| | Midwest E 1:5L | Midwest E 1:1L or 1:1 | Midwest E 5:1L or 5:1 |
|-------------------------|--|---|---|
| Tools (Burs/Files) | Carbide cutter/diamond grinder made of steel or carbide according to ISO 1797-1, type 3 | Carbide cutter/diamond drill made of steel or carbide according to ISO 1797-1, type 1 | Carbide cutter/diamond drill made of steel or carbide according to ISO 1797-1, type 1 |
| - Shaft diameter | 1.59 – 1.60 mm | 2.334 – 2.350 mm | 2.334 – 2.350 mm |
| - Max. total length | 25 mm | 22 mm | 22 mm |
| - Shaft clamping length | Min. 11 mm | | |
| - Cutting edge diameter | Max. 2 mm | | |
| Air cooling | 8 NI/min 2.5 bar (36.3 psi) | 8 NI/min 2.5 bar (36.3 psi) | 8 NI/min 2.5 bar (36.3 psi) |
| Spray air | 1.8 NI/min 2.5 bar (36.2 psi) | 1.8 NI/min 2.5 bar (36.2 psi) | 1.8 NI/min 2.5 bar (36.2 psi) |
| Spray water | 50 ml/min 2 bar (29 psi) | 50 ml/min 2 bar (29 psi) | 50 ml/min 2 bar (29 psi) |

5 Specifications

| | Midwest E 1:1 ST |
|---------------------------------|--------------------------|
| Description | Straight |
| Labeling | Blue ring |
| Max. motor drive speed | 40,000 min ⁻¹ |
| Gear Ratio Transmission | 1 : 1 |
| Max. rotation speed | 40,000 min ⁻¹ |
| Classification as per 93/42/EEC | Class IIa |
| Connection of instruments | ISO 3964 / DIN 13940 |

5 Specifications

| | Midwest E 1:1 ST |
|-------------|--|
| Tools | Handpiece drill/contra-angle drill made of steel or carbide according to ISO 1797-1, type 2 - Shaft diameter: 2.334 – 2.350 mm - With drill stop: Shaft clamping length min. 12 mm / max. 22 mm - Without drill stop: Shaft clamping length min. 30 mm / max. 44.5 mm |
| Air cooling | 8 NI/min 2.5 bar (36.3 psi) |
| Spray air | 1.8 NI/min 2.5 bar (36.2 psi) |
| Spray water | 50 ml/min 2 bar (29 psi) |

5 Specifications

Operating Conditions

| | |
|------------------------|-----------------------------|
| Installation location: | Permitted in interior rooms |
| Ambient temperature: | 10 to 35 °C (50 to 95 °F) |
| Relative humidity: | 30 – 75 % |

Storage and transport conditions

| | |
|----------------------|---|
| Ambient temperature: | Transport: -30 to 70 °C (-22 to 158 °F) Storage: 0 to 40 °C (32 to 104 °F) |
| Relative humidity: | 5 – 95 % |
| Air pressure: | No restriction |
| Keep dry | |

6 Spare Parts

NOTE: There are no spare parts available for the handpiece attachments. Service of the Midwest® E handpiece attachments are restricted to DENTSPLY authorized service personnel only.

7 Warranty

The Midwest® E Handpiece Attachments are guaranteed to be free of defects in material and workmanship for a period of 24 months from date of purchase – provided the handpiece attachments have been operated and maintained as prescribed in these Instructions for Use, at the discretion of DENTSPLY, and has not been subject to apparent misuse, abuse or accident.

All questionable, defective or loose parts must be returned with proof of purchase, transportation prepaid.

Not following the provided instructions for Installation, Operation and Maintenance will void the warranty.

There are no warranties, express or implied, which extend beyond the description of the face hereof. DENTSPLY neither assumes, nor authorizes any person to assume for it, any other liability in connection with the sale or use of its products.

Damages are limited strictly to repair or replacement of parts.

DENTSPLY expressly disclaims liability for incidental and consequential damages resulting from the use of the products.

Claims covered by this warranty will be honored when presented through your DENTSPLY Professional distributor within 30 days from discovery of defect within the applicable warranty period.

MAINTENANCE & REPAIR – Within USA

Midwest Air Repair
901 West Oakton Street
Des Plaines, IL 60018-1843
800-800-7202

MAINTENANCE & REPAIR – Within Canada

Contact your dealer of choice to arrange maintenance & repair.