ENGLISH

NOTICE OF SAFETY & LIABILITY

For safety, read the instructions carefully before using this unit. The manufacturer, distributor, or retailer of this product can exercise no control over the use of the MicroEtcher. Therefore, the buyer or user shall assume full responsibility for any loss or injury. In all cases, original jurisdiction shall rest in San Diego County of the State of California.

SAFETY

Caution: Do not point the abrasive nozzle toward your face or eyes. Always wear safety glasses when using the unit outside of a closed cabinet. Note also that excessive back flushing can pressurize the abrasive jar and cause it to pop off or even burst. For this reason, back flushing should always be done in a safe receptacle.

We recommend that non-intraoral sandblasting operations be done inside a dust cabinet. The cabinet should be equipped with a dust collection system to draw off the spent abrasive dust. Abrasive dust particles floating in the air can cause eye, nose, and throat problems, as well as damage to nearby machinery and optical instruments. Abrasive particles will scratch eye glasses.

Protect the patient's eyes, glasses, and nose during intraoral procedures, and use high speed suction.

PRODUCT DESCRIPTION

MicroEtcher II/IIA and CD are handheld dental sandblasting units for intraoral sandblasting and dental lab applications.
Surface area and surface reactivity are dramatically increased for maximum bonding.

MicroEtcher IIA and CD have stainless steel construction and are fully autoclavable units (except for removable jar).
MicroEtcher CD includes a custom disconnect at the rear of the unit that plugs directly into your KaVo, Sirona or Bien-Air handpiece quick connector.
MicroEtcher II has only an autoclavable nozzle.

Nozzle

All units have a replaceable carbide tip that rotates 360 degrees.

Selection Of Abrasives

The jar on the MicroEtcher II/IIA/CD should be filled three-quarters full with clean, dry abrasive. Abrasive should flow freely as the jar is rotated.
Moist abrasive will cling to itself. Abrasives are very hygroscopic and should be kept in tightly sealed containers.

General abrasives and their uses with MicroEtcher II/IIA and CD:
• **Aluminum Oxide, 90 micron, tan** – Rapid removal of cements from metals. Preparation of metals for bonding.
• **Aluminum Oxide, 50 micron, white** – General bonding preparation of metallic and nonmetallic surfaces. (Will not discolor porcelain or composites).
• **SiUet Powder** – Effective application of silane to surfaces.
• **Microprophy B, white (Sodium Bicarbonate)** – Stain removal. Pit and fissure preparation. Sodium Bicarbonate, Flavored.
• **SA-85** – Remove resin paste without enamel erosion.
• **Glass Beads, 90 micron, white** – Satin luster texturing metal surfaces to reduce brightness. Clean dentures. Not for bonding or intraoral use.

Jar Filter

The MicroEtcher II/IIA and CD contains a filter located within the cap of the abrasive jar. It is user replaceable, see Troubleshooting / Maintenance for details.

Hook Up Kits

1. **Quick disconnect kits:** These kits allow multiple connections in operatory and in the lab with a common connector.
2. **High speed handpiece line adaptors:** Allow easy connection to 4-Hole, 2-Hole, Kavo & Siemens-Sirona Quick Couplers and EMS.

INDICATIONS FOR USE / INTENDED USE

■ Pit & fissure preparation.
■ Tough stain removal from grooves.
■ Crowns, bridges, posts and other restorations roughened for maximum bond.
■ Existing amalgam, composite and porcelain can be etched intraorally.
■ SiUet powder application.
■ Intraoral porcelain repair and acrylic refacing.
■ Orthodontic bonds and brackets roughening and cement removal for reuse.
■ Denture repairs.

WARNINGS AND PRECAUTIONS

■ Do not connect MicroEtcher to Oxygen, flammable, or toxic gases.
■ Do not spray into gingiva for risk of air embolism.
■ Protect eyes, nose & optical equipment.

■ Have patient hold breath during intraoral spray, or use rubber dam.
■ Clinical use which is not in accordance with the indicated uses listed in this manual should be avoided.

MULTI-USE DEVICES

MicroEtcher II/IIA/CD, abrasive jar, and carbide nozzle are multi-use devices and are provided non-sterile.
Reusable tools and instruments must be cleaned and sterilized prior to use or reuse on patients.
Reuse without cleaning may transfer infectious material.

PREPARATION FOR CLEANING/STERILIZATION

Prior to sterilization and while connected to the compressed air line:
• Remove abrasive jar and depress finger button.
• Unscrew nozzle and remove debris to purge abrasive.

Note: Remove clear jar and white filter before sterilization. Replace filter before reuse.

CLEANING

• Soak instruments in enzymatic solution for 20 minutes. Scrub with nylon brush.
• Rinse in tap water for minimum 3 minutes.
• Place in ultrasonic cleaner if additional cleaning is needed (10 minutes).
• Rinse again for 3 minutes.
• Remove excess moisture with non-shedding wipe.

STERILIZATION

Carbide nozzles: steam autoclave at **132°C (270°F)** for 15 minutes.
MicroEtcher II body: may be sterilized using FDA-approved liquid chemical sterilant.

Re-sterilizable instruments must be dried and stored properly.

Model Type	Component	Sterilization Procedure
MicroEtcher CD	Nozzle	Autoclave at 132 °C (269 °F) for 15 minutes.
MicroEtcher CD	Body	Autoclave at 132 °C (269 °F) for 15 minutes.
MicroEtcher IIA	Nozzle	Autoclave at 132 °C (269 °F) for 15 minutes.
MicroEtcher IIA	Body	Autoclave at 132 °C (269 °F) for 15 minutes.
MicroEtcher II	Nozzle	Autoclave at 132 °C (269 °F) for 15 minutes.
MicroEtcher II	Body	Sterilize using FDA-approved liquid chemical sterilant.

INSTALLATION — MicroEtcher CD

• Requires compressed air: 40–100 psi (2.6–6.6 bars) at 1 cfm.
• Do not use oxygen, flammable, or toxic gases.
• Water trap filter recommended.
• Do not use Teflon tape.

Handpiece Adaptor Inserts

Adaptors can be changed but frequent interchanging will damage O-rings.

Changing Adaptor Inserts

Unscrew rear cap → plug in & pull out handpiece connector.
If no connector, wedge a small instrument to remove adaptor.

Changing Adaptor O-rings

Replace worn O-rings using sharp instrument; seat with blunt instrument.

INSTALLATION — MicroEtcher II/IIA

1. Use quick disconnect kit.
2. Locate air supply line.
3. Turn off air; cut line; install tee fitting.
4. Female disconnect may be panel mounted.
5. Install male disconnect on MicroEtcher line.

INSTALLATION IN LAB

Stop cock may be used; tee can be installed. Adapters available with/without quick disconnect.

PROCEDURE FOR USE

• Use plastic sleeve for intraoral use.
• Sterilize nozzle before each use.
• Hold nozzle 2–10 mm from surface.
• Use continuous, overlapping sweeps.
• Avoid excessive blasting on porcelain.
• Nozzle changed by unscrewing collar; clean threads before reinstalling.

TROUBLE SHOOTING / MAINTENANCE

Problem: Air flow but sporadic or no abrasive flow
• Back-flush briefly
• Check abrasive fill / moisture

• Tighten nozzle; check O-rings
• Replace worn nozzle

Limited air flow
• Check air pressure
• Remove nozzle; clear plugs by blowing air backward

Carbide tip replacement
• Replace worn tips (.048 unscrew; .032 return for replacement)

Handpiece connector leaks
• Replace O-rings

Filter replacement
• Filter pushes in/out of jar cap

STORAGE

No special storage considerations in original packaging.

DISPOSAL

Dispose of contaminated devices per facility procedures and regulations.

NOTICE TO USERS IN THE EUROPEAN UNION

Serious incidents must be reported to manufacturer and competent authority.

DEFINITIONS OF SYMBOLS

The following symbols may appear on packaging or labeling.

NOTICE OF SAFETY & LIABILITY

For safety, read the instructions carefully before using this unit. The manufacturer, distributor, or retailer of this product can exercise no control over the use of the MicroEtcher. Therefore, the buyer or user shall assume full responsibility for any loss or injury. In all cases, original jurisdiction shall rest in San Diego County of the State of California.

SAFETY

Caution: Do not point the abrasive nozzle toward your face or eyes. Always wear safety glasses when using the unit outside of a closed cabinet. Note also that excessive back-flushing can pressurize the abrasive jar and cause it to pop off or even burst. For this reason, back-flushing should always be done in a safe receptacle.

We recommend that non-intraoral sandblasting operations be done inside a dust cabinet. The cabinet should be equipped with a dust collection system to draw off the spent abrasive dust. Abrasive dust particles floating in the air can cause eye, nose, and throat problems, as well as damage to nearby machinery and optical instruments. Abrasive particles will scratch eye glasses!

PRODUCT DESCRIPTION

MicroEtcher ERC is a handheld dental sandblasting unit for dental lab applications. Surface area and surface reactivity are dramatically increased for maximum bonding. MicroEtcher ERC has stainless steel construction and can be cold sterilized but not autoclaved. It is not intended for intraoral use.

Nozzle

Tungsten carbide with mount, 0.048" ID

Selection of Abrasives

The jar on the MicroEtcher ERC should be filled three-quarters full with clean, dry abrasive. Abrasive should flow freely as the jar is rotated. Moist abrasive will cling to itself. Abrasives are very hygroscopic and should be kept in tightly sealed containers prior to use.

General Abrasives and their uses with MicroEtcher ERC:

- **Aluminum Oxide 90 micron, tan –**
  Rapid removal of cements from metals. Preparation of metals for bonding.
  NOTE: Use only on metals.

- **Aluminum Oxide 50 micron, white –**
  Universal etching and preparation of all restoration types and cement removal. (Will not discolor porcelain or composites)
- **MicroProphy B, White (Sodium Bicarbonate)**
  Prophylaxis. **NOTE:** Jar should not be filled over three-quarters full.
- **Glass Beads, 90 micron, white –**
  Satin luster texturing metal surfaces to reduce brightness. Clean dentures. Not for bonding or intraoral use.

Jar Filter

The MicroEtcher ERC contains a filter located within the cap of the abrasive jar. It is user-replaceable; see Troubleshooting / Maintenance for details.

INDICATIONS FOR USE / INTENDED USE

The MicroEtcher ERC is indicated for laboratory use only for:

- Porcelain repair and Maryland Bridge repair.
- Etching metals, composites, acrylics, and porcelain.
- Etching orthodontic bands and brackets.
- Removing cement.

MULTI-USE DEVICES

MicroEtcher ERC, abrasive jar, and carbide nozzle are multi-use devices and are provided non-sterile. Reusable tools and instruments must be cleaned and sterilized prior to use or reuse on patients (or patient-contacting materials). Reuse of a multi-use device without cleaning and sterilization may cause harm to the patient in the transfer of blood, tissue, or saliva that may contain infectious disease.

PREPARATION FOR CLEANING/STERILIZATION

While still connected to the compressed air line, remove the abrasive jar from the pickup stem, and depress the finger button. Then, unscrew the nozzle and remove any debris. This will clear abrasive from the internal components of the MicroEtcher ERC.

Failure to do so may result in clogging. Disconnect from compressed air line, and proceed to clean/sterilize. When complete, reassemble before next use.

CLEANING

- Soak the instruments in enzymatic cleaning solution mixed according to manufacturer's instructions by completely submerging them for 20 minutes. Scrub the components using a soft-bristled nylon brush until all soil has been removed. Visually verify, and repeat if necessary.
- Remove the instruments from the enzymatic cleaning solution and rinse in tap water for a minimum of 3 minutes. Make sure to thoroughly flush internal holes/crevices of the instruments that have difficult-to-reach areas.
- If additional cleaning is needed, place instruments in an ultrasonic cleaner with enzymatic cleaning solution prepared according to manufacturer's instructions, making sure that they are completely submerged, and sonicate for 10 minutes.
- Remove the instruments from the ultrasonic cleaner, and rinse for 3 minutes, making sure to thoroughly flush cleaning solution out of the holes/crevices and/or difficult-to-reach areas.
- Remove excess moisture from the instruments with a clean, absorbent, non-shedding wipe.

STERILIZATION

Carbide nozzles can be sterilized by steam autoclave at 132°C (270°F) for 15 minutes. Additionally, MicroEtcher ERC body may be sterilized/disinfected using an FDA-approved liquid chemical sterilant in accordance with the manufacturer's instructions.

Re-sterilizable instruments should be dried completely and stored in a clean and dry location at normal room temperature. Prior to instrument use, the exterior of any sterilized packaging should be inspected for integrity. Care must be exercised in handling wrapped or autoclave-bagged instrument kits or instruments to prevent damage to the sterile barrier. If damage to the sterile barrier is observed, resterilization is recommended for reusable devices only. Single-use devices should not be resterilized.

Model Type Component – Sterilization Procedure

Model Type	Component	Sterilization Procedure
MicroEtcher ERC	Nozzle	Steam autoclave at 132°C (270°F) for 15 minutes.
	Body	Can be sterilized by using an FDA-approved liquid chemical sterilant in accordance with the manufacturer's instructions.

INSTALLATION

The MicroEtcher ERC requires compressed air of 40 to 100 psi (2.6 to 6.6 bars) at 1 cfm (30 ccm/minute). There is a significant reduction in sandblasting action as the pressure is reduced below 60 psi. Bottled gas such as CO_2 or highly compressed air can be used with a regulator. Oxygen, flammable, or toxic gases must not be used.

Dehydrated air is not required; however, large particles in the air line can plug up the MicroEtcher ERC. A water trap filter is recommended. Do not use Teflon tape to seal pipe joints.

HOOK UP KITS

- **Laboratory Quick Disconnect Kits:**
  These kits allow multiple connections in operatory and in the lab with a common connector. They are the preferred connection method due to the greater pressures generally available.
- **High Speed Hand Piece Line Adaptors:**
  Allow easy connection to 4-Hole, 2-Hole, Kavo & Dentsply-Sirona Quick Couplers and EMS. Please note that pressures provided may be low without readjusting.

INSTALLATION IN LAB

A laboratory stopcock may be used for the compressed air connection. The valve or cone assembly may be unscrewed so a tee may be installed. Adapters are available with a female quick disconnect fitting or without a quick disconnect.

WARNINGS AND PRECAUTIONS

- Do not connect MicroEtcher ERC to Oxygen, flammable, or toxic gases.

- Do not spray into gingival sulcus due to risk of air embolism.
- Protect eyes, nose & optical equipment.
- Not intended for intraoral use.
- A plastic sleeve can be placed over the MicroEtcher ERC, piercing only the nozzle through the sleeve to limit exposure to nozzle and MicroEtcher ERC body.
- Clinical use which is not in accordance with the indicated uses listed in this manual should be avoided.

INSTRUCTIONS FOR USE

The MicroEtcher ERC was designed to be held almost like a pencil, allowing the thumb to activate the finger button control. Hold the nozzle 2 mm to 10 mm from the surface.

Sandblasting is most effective using continuous, overlapping sweeps rather than fast, erratic movements. A surface should appear evenly etched with a dull texture for optimal results. Excessive sandblasting will actually erode some surfaces such as porcelain.

Experiment on metal and glass. These will simulate both precious and nonprecious alloys and porcelain. Nozzle assembly may be rotated 180 degrees in either direction. Additional rotation will kink internal tubing.

TROUBLESHOOTING / MAINTENANCE

IMPORTANT: A loose collar will cause the MicroEtcher ERC to malfunction and can result in the abrasive jar bursting or popping off. Always reassemble fully after maintenance.

Problem	**Recommended Corrective Action**
Air is flowing, but there is no abrasive flow (or low or sporadic abrasive flow)	• Back-flush by placing finger over the nozzle and depressing the finger button very briefly. • Check abrasive fill level, or for moist or lumpy abrasive. • Tighten nozzle assembly; check for worn or missing O-rings. • Check for worn nozzle; replace nozzle assembly.
Limited air flow	• Check air pressure. • Remove nozzle; clear possible plugs by blowing air backwards into carbide nozzle.

Problem	Recommended Corrective Action
Carbide Nozzle replacement	Worn carbide nozzle results in greatly reduced performance (annual replacement with normal use is recommended). Unscrew with soft jaw pliers. Replacement nozzle must be fully screwed in.
Filter replacement	Filter pushes in and out of jar cap.

STORAGE

MicroEtcher ERC components in their undamaged, original packaging are not subject to any special considerations for storage or handling (during transport and storage).

DISPOSAL

Dispose of used devices which pose a risk of infection according to facility clinical waste procedures and applicable local and state regulations. To dispose of unused powder, replace cap and dispose of in accordance with local and state regulations (refer to SDS as appropriate).

NOTICE TO USERS IN THE EUROPEAN UNION

Any serious incident that has occurred in relation to the device(s) to which this Instructions for Use applies should be reported to the manufacturer identified in this Instructions for Use and the competent authority of the Member State in which the user and/or patient is established.

DEFINITIONS OF SYMBOLS

The following symbols may appear on the product packaging or labeling.

SYMBOL TITLE	EXPLANATORY TEXT	STANDARD REFERENCE
Manufacturer	Indicates the medical device manufacturer	ISO 15223-1 5.1.1

SYMBOL TITLE	EXPLANATORY TEXT	STANDARD REFERENCE
Authorized Representative in the European Community/European Union	Indicates the authorized representative in the European Community/European Union	ISO 15223-1 5.1.2
Catalogue Number	Indicates the manufacturer's catalogue number so that the medical device can be identified	EN ISO 15223-1 5.1.6
Batch Code	Indicates the manufacturer's batch code so that the batch or lot can be identified	EN ISO 15223-1 5.1.5
Consult Instructions for Use	Indicates the need for the user to consult the instructions for use	EN ISO 15223-1 5.4.3
European Mark of Conformity	Indicates device is in conformance with Medical Device Regulation EU 2017/745	MDR EU 2017/745 Annex V
Rx only	Caution: U.S. Federal law restricts this device to sale by or on the order of a dentist	US CFR Title 21 801.15(c)(1)(i)(F)
Date of Manufacture	Indicates the date when the medical device was manufactured	EN ISO 15223-1 5.1.3
Medical Device	Indicates the item is a medical device	ISO 15223-1 5.7.7
Unique Device Identifier	Indicates a barcode containing Unique Device Identifier information	ISO 15223-1 5.7.10
QTY Quantity	Indicates the number of items within the package	N/A