

**BSP** MICRO™  
SMALL BONE POWER SYSTEM

## Instructions for Use



RX ONLY

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## TABLE OF CONTENTS

Introduction	<b>PAGE 3</b>	Dual Air/Nitrogen Hose: A90-200 and KM-A90-500 Series	<b>PAGE 28-29</b>
Intended Use	<b>PAGE 3</b>	Troubleshooting	<b>PAGE 30-33</b>
General Instructions, Cautions	<b>PAGE 4-5</b>	Cleaning Recommendations	<b>PAGE 34-35</b>
Explanation of Symbols	<b>PAGE 6</b>	Accidental Immersion	<b>PAGE 36</b>
Power Source and Regulator Installation and Operation	<b>PAGE 7-9</b>	Sterilization Recommendations	<b>PAGE 37</b>
High Speed Drill: PM-M09 Series	<b>PAGE 10-12</b>	Repair Service	<b>PAGE 38-39</b>
Medium Speed Drill: PM-M10 Series	<b>PAGE 13-15</b>	Warranty	<b>PAGE 39</b>
Wiredriver: PM-M11-200	<b>PAGE 16-21</b>	Return Goods Policy	<b>PAGE 40-41</b>
Sagittal Saw: PM-M12 Series	<b>PAGE 22-23</b>	Product Disposal	<b>PAGE 42</b>
Oscillating Saw: PM-M13 Series	<b>PAGE 24-25</b>	Product Ordering Information	<b>PAGE 42-43</b>
Reciprocating Saw: PM-M14 Series	<b>PAGE 26-27</b>		

## INTRODUCTION

Thank you for choosing Brasseler USA® Surgical Power and Accessories as supplier of your small bone power system.

The information and procedures described in this manual are intended to assist healthcare professionals in the safe and effective use, care, cleaning, sterilization and long-term maintenance of BSPMICRO™ Small Bone Power System.

## INTENDED USE

The BSPMICRO™ Small Bone Power System handpieces consist of two drills, a high speed drill and medium speed drill, three saws, a sagittal saw, oscillating saw and a reciprocating saw and a wiredriver. The system also includes three bur guards, dual air/nitrogen hoses, and a wiredriver 5/32" Jacobs® chuck.  
Applications: Neurosurgical, Orthopaedic, Oral/Maxillofacial and Plastic Reconstructive.

## GENERAL INSTRUCTIONS, CAUTIONS

- Only medical professionals who are thoroughly familiar with the handpiece's function, application and instructions for use should operate any Brasseler USA® Surgical Power and Accessories powered surgical handpiece.
- BSPMICRO™ handpieces are recommended to be powered by medical grade air or nitrogen.
- Always use the recommended operating pressure and verify it at the regulator pressure gauge. The recommended operating pressure setting for optimum performance is 90 - 110 psi (6.3 - 7.7 kg/cm<sup>2</sup> ; 6.2 - 7.6 Bar). Lower settings can be used for slower speed requirements, if necessary. Do not exceed 110 psi (7.7 kg/cm<sup>2</sup>; 7.6 Bar) operating pressure for BSPMICRO™ handpieces.

Note: For optimum performance, when using a dual air/nitrogen hose longer than 10 feet (3 m), increase pressure by 1 psi for each additional foot of hose.









- Use of eye, face protection device(s) recommended while operating powered handpieces.
- When handpiece is connected to air/nitrogen supply and not being used, or loading cutting accessories (burs, saw blades/rasps, K-wires, Steinman pins and twist drills) into the handpiece, the throttle/trigger or activation / directional lever must be in the SAFE position to avoid unintended activation of the handpiece.
- Handpieces are factory sealed. Do not disassemble or lubricate handpieces, as this may void warranty. There are no service requirements expected of the medical or bio-med staff.
- Application of excessive force to handpiece may cause damage to handpiece and/or cutting accessory or injury to patient and/or operator.

- Use new cutting accessories for every procedure. Check cutting accessories for damage before and during use.
- If cutting accessory seems to be damaged, discontinue its use.
- Test the handpiece before each use. With face protected and appropriate cutting accessory fully inserted and locked into the handpiece, activate the handpiece for 30 seconds. Check for rapid temperature rise, unusual noise(s) and other visible malfunctions.

Note: Always have proper bur guard installed for testing drills.

- Never use a malfunctioning, damaged or suspected-to- be-damaged handpiece. Return it to Brasseler U.S.A. Medical, LLC for prompt service.
- Do not drop, throw or hit handpiece against any surface.
- Do not immerse handpiece. Never clean a powered handpiece in an automated disinfecting washer or an ultrasonic cleaner.
- Do not start a surgical procedure if the nitrogen tank pressure is less than 500 psi (35.2 kg/cm<sup>2</sup>; 34.5 Bar).
- Do not pinch, clamp or crimp the dual air/nitrogen hose.
- To assure safety and optimum results, use only Brasseler USA® Surgical Power and Accessories handpieces, attachments, accessories, and cutting accessories.
- **WARNING:** Overheating may occur if the bearing in the tip of the bur guard is worn, or contaminated, possibly causing serious burning of the patient's tissue.
- Do not lubricate BSPMICRO™ handpieces, attachments or accessories.
- Under certain classifications of risk, the World Health Organization (WHO), or local regulatory authorities recommend special CJD (Creutzfeldt-Jakob Disease) inactivation processing procedures. Consult WHO and local regulations for further information.

## EXPLANATION OF SYMBOLS

-  Catalog number
-  Caution
-  Date of manufacture
-  Do not immerse
-  Indicates product should not be oiled or lubricated
-  Manufacturer
-  Serial Number
-  Steam sterilizable

## POWER SOURCE AND REGULATOR INSTALLATION AND OPERATION

BSPMICRO™ handpieces are recommended to be powered by compressed medical grade air or nitrogen.

**CAUTION:** Do not exceed 110 psi (7.7 kg/cm<sup>2</sup>; 7.6 Bar) operating pressure unless a dual air/nitrogen hose longer than the standard 10 ft. dual air/nitrogen hose or single air/nitrogen extension hose is used. Add an additional 1 psi for every extra foot of air/nitrogen hose.

The BSPMICRO™ handpieces should be operated at 90 - 110 psi (6.3 - 7.7 kg/cm<sup>2</sup>; 6.2 - 7.6 Bar) for maximum operating efficiency. Pressure must be set while handpiece is running. Frequent monitoring of the pressure gauge of the regulator will ensure proper operating pressure is maintained through the procedure. Lower pressure setting can be set for lower speed and torque requirements.

Never start a procedure if the operating pressure gauge indicates less than 500 psi (35.2 kg/cm<sup>2</sup>; 34.5 Bar) in the tank. Never run the tank pressure below 200 psi (14.1 kg/cm<sup>2</sup>; 13.8 Bar).

The tank should be thoroughly wiped off with disinfectant and draped prior to placement in the operating room. Always have the tank securely fastened to a stable object.

## Procedures:

1. Before setting up the BSPMICRO™ Small Bone Power System in the surgical suite, slowly open the tank valve turning it counterclockwise until sufficient gas has escaped and blown out any existing debris in the valve. During this procedure, stay away from valve opening of the tank. Tighten valve to the closed/off position.
2. Using a 1 1/8 in. or adjustable wrench, install the nitrogen regulator (Figure 1).

Note: The threaded portion of the nitrogen regulator is designed for nitrogen fittings only.

3. After installing the nitrogen regulator to the tank, turn the regulator control valve counterclockwise to the closed/off position. Damage to the regulator could result with sudden pressure (Figure 2).
4. Slowly turn the nitrogen tank valve counterclockwise to the fully open/on position. This will allow pressurization of the regulator (Figure 3).

Note: Not opening the tank valve fully may result in an inadequate flow of nitrogen to the handpiece.





5. Insert the male Schrader end of the dual air/nitrogen hose into the female Schrader on the nitrogen regulator with force (Figure 4) or thread on DISS female connector to DISS male fitting on the regulator (Figure 5). Connect a handpiece with the throttle slide to the SAFE position.
6. Slowly turn the regulator control valve clockwise. Set the desired pressure on the operating pressure gauge while running a handpiece (Figure 6).
7. Before removing the dual air/nitrogen hose from the regulator (Figure 7):
  - a) Close the tank valve by turning clockwise.
  - b) Operate a handpiece to relieve the residual pressure in the dual air/nitrogen hose.
  - c) Disengage the male Schrader adaptor from the female Schrader adaptor by rotating the outer sleeve on the female Schrader fitting clockwise.
  - d) Remove the dual air/nitrogen hose male Schrader end from the female Schrader connector on the nitrogen regulator.
8. To release the DISS connector, follow steps 7a and 7b:
  - a) Unscrew the DISS connector from the regulator by rotating the male DISS knob counter clockwise.
  - b) Remove the dual air/nitrogen hose from the DISS connector by rotating the female Schrader connector.



## HIGH SPEED DRILL PM-M09 SERIES

### TECHNICAL DESCRIPTION:

- Speed Range: 0 - 95,000 rpm
- Torque: 1.75 in-oz (1.24 N-cm)
- Operating Pressure: 90 - 110 psi (6.3 - 7.7 kg/cm<sup>2</sup>; 6.2 - 7.6 Bar)
- Size (L x W x H): 6.63 x 0.70 x 1.0 in (168.4 x 17.8 x 25.4 mm)
- Weight: 0.45 lb (0.2 kg)



The **BSPMICRO™ PM-M09 Series High Speed Drill** operates at throttle controlled speeds with ample power for cutting and sculpting bone and enamel. The compact and lightweight design allows access to the smallest of surgical sites.

The bur collet accepts a wide range of medium, long and extra long burs with shank diameters of 0.0919 in to 0.0929 in (2.33 to 2.36 mm). Bur guards are available and must be used with medium, long and extra long burs (See page 15/Figure 1).

## Operating Procedure

When handpiece is not in use but connected to medical grade air or nitrogen supply, the throttle safety slide must be placed in the SAFE position (fully forward) to avoid accidental activation of handpiece (Figure 1).

1. Safety On: Move the throttle safety slide to the SAFE position (fully forward).
2. System Set Up: Connect the handpiece to the dual air/nitrogen hose. Confirm by checking the regulator pressure gauge that operating pressure does not exceed 110 psi (7.7 kg/cm<sup>2</sup>; 7.6 Bar) Install proper bur guard and bur.
3. Bur Guard Use: In general the bur head should extend no more than 1 inch (2.5 cm) from the end of the bur guard. Select the proper bur guard for length of the bur to be used (Page 15 / Figure 1) (for medium burs Brasseler USA® Surgical Power and Accessories catalog # PM-M10-901, for long burs Brasseler USA® Surgical Power and Accessories catalog # PM-M10-902, for extra long burs Brasseler USA® Surgical Power and Accessories catalog # PM-M10-903). Fully seat the bur guard onto nose of drill (Figure 3).
4. Open Collet: Unlock the bur locking mechanism by rotating the locking collar into the “open” position (a click can be felt as the collet fully opens).
5. Insert Bur: Insert the bur into the bur guard and seat it fully into the locking mechanism. The fully inserted bur should not extend more than 1 inch (2.5 cm) from the tip of the bur guard.

Note: Do not use burs without bur guard for medium, long and x-long burs.



**CAUTION:** THE BSPMICRO™ PM-M09 SERIES HIGH SPEED DRILL MAY HEAT UP RAPIDLY IF THE LOCKING COLLAR IS NOT FULLY ROTATED INTO THE "LOCK" POSITION. EXCESSIVE HEAT MAY RESULT IN DAMAGE TO HANDPIECE OR INJURY TO THE PATIENT AND OR OPERATOR.

6. Lock Bur: Lock the bur by twisting the bur lock clockwise until indicator dots are aligned (a click can be felt when fully secure). Tug on bur to ensure it is fully locked in place.

7. Move throttle safety slide to the ON position (fully backward) to activate handpiece (Page 11/ Figure 2). Your BSPMICRO™ High Speed Drill is ready for use.

8. Operate Handpiece: Operate the handpiece for at least 30 seconds. Stop the handpiece and carefully feel the tip end of the bur guard for overheating. If overheating is noticed, do not use guard and return the guard for service.

**CAUTION:** The BSPMICRO™ PM-M09 series High Speed Drill should not be operated unless the proper bur guard is installed and a bur is fully inserted and the locking collar is in the locked position.

**WARNING:** Overheating may occur if the bearing in the tip of the bur guard is worn or contaminated, possibly causing serious burning of the patient's tissue.

To reduce the risk of injury, prior to surgery, spin the bur guard on a bur. If the bur guard spins freely, the bearing is still good. Otherwise, the bur guard must be sent for repair immediately. DO NOT USE.

The speed of the handpiece is controlled by the throttle lever and will depend on the operating air or nitrogen pressure. Do not exceed the recommended maximum operating pressure of 110 psi (7.6 kg/cm<sup>2</sup>). Lower pressure setting will achieve lower maximum speed.

## MEDIUM SPEED DRILL PM-M10 SERIES

### TECHNICAL DESCRIPTION:

- Speed Range: 0 - 25,000 rpm
- Torque: 6.0 in-oz (4.24 N-cm)
- Operating Pressure: 90 - 110 psi (6.3 - 7.7 kg/cm<sup>2</sup>; 6.2 - 7.6 Bar)
- Size (L x W x H): 6.63 x 0.70 x 1.0 in (168.4 x 17.8 x 25.4 mm)
- Weight: 0.45 lb (0.2 kg)



The BSPMICRO™ PM-M10 Series Medium Speed Drill operates at throttle controlled speeds with ample power for cutting and sculpting bone and enamel. The compact and lightweight design allows access to the smallest of surgical sites.

The bur collet accepts a wide range of medium, long and extra long burs with shank diameters of 0.0919 in to 0.0929 in (2.33 to 2.36 mm). Bur guards are available and must be used with medium, long and extra long burs (Page 15/Figure 1).

## Operating Procedure

When handpiece is not in use but connected to medical grade air or nitrogen supply, the throttle safety slide must be placed in the SAFE position (fully forward) to avoid accidental activation of handpiece (Page 11/Figure 1).

1. Safety On: Move the throttle safety slide to the SAFE position (fully forward).
2. System Set Up: Connect the handpiece to the dual air/nitrogen hose. Confirm by checking the regulator pressure gauge that operating pressure does not exceed 110 psi (7.7 kg/cm<sup>2</sup>; 6.2 - 7.6 Bar). Install proper bur guard and bur.
3. Bur Guard Use: In general the bur head should extend no more than 1 inch (2.5 cm) from the end of the bur guard. Select the proper bur guard for length of the bur to be used (Page 15 / Figure 1) (for medium burs Brasseler USA® Surgical Power and Accessories catalog # PM-M10-901, for long burs Brasseler USA® Surgical Power and Accessories catalog # PM-M10-902, for extra long burs Brasseler USA® Surgical Power and Accessories catalog # PM-M10-903). Fully seat the bur guard onto nose of drill (Page 11/Figure 3).
4. Open Collet: Unlock the bur locking mechanism by rotating the locking collar into the “open” position (a click can be felt as the collet fully opens).
5. Insert Bur: Insert the bur into the bur guard and seat it fully into the locking mechanism. The fully inserted bur should not extend more than 1 inch (2.5 cm) from the tip of the bur guard.

Note: Do not use burs without bur guard for medium, long and x-long burs.

**CAUTION:** THE BSPMICRO™ PM-M10 SERIES MEDIUM SPEED DRILL MAY HEAT UP RAPIDLY IF THE LOCKING COLLAR IS NOT FULLY ROTATED INTO THE “LOCK” POSITION. EXCESSIVE HEAT MAY RESULT IN DAMAGE TO HANDPIECE OR INJURY TO THE PATIENT AND OR OPERATOR.

6. Lock Bur: Lock the bur by twisting the bur lock clockwise until indicator dots are aligned (a click can be felt when fully secure). Tug on bur to ensure it is fully locked in place.

7. Move throttle safety slide to the ON position (fully backward) to activate handpiece (Page 11/ Figure 2). Your BSPMICRO™ Medium Speed Drill is ready for use.
8. Operate Handpiece: Operate the handpiece for at least 30 seconds. Stop the handpiece and carefully feel the tip end of the bur guard for overheating. If overheating is noticed, do not use guard and return the guard for service.

**CAUTION:** The BSPMICRO™ PM-M10 series Medium Speed Drill should not be operated unless the proper bur guard is installed and a bur is fully inserted and the locking collar is in the locked position.

**WARNING:** Overheating may occur if the bearing in the tip of the bur guard is worn or contaminated, possibly causing serious burning of the patient's tissue.

To reduce the risk of injury, prior to surgery, spin the bur guard on a bur. If the bur guard spins freely, the bearing is still good. Otherwise, the bur guard must be sent for repair immediately, DO NOT USE.

The speed of the handpiece is controlled by the throttle lever and will depend on the operating air or nitrogen pressure. Do not exceed the recommended maximum operating pressure of 110 psi (7.6 kg/cm<sup>2</sup>). Lower pressure setting will achieve lower maximum speed.

## ATTACHMENTS-BUR GUARDS

### PM-M10-901

Medium

Brasseler USA® Surgical Power and Accessories Bur Catalog Series 03\*, 04\*, 06, 07 & 08

Recommended Bur Length: 44.5 - 69 mm



### PM-M10-902

Long

Brasseler USA® Surgical Power and Accessories Bur Catalog Series 09, 10 & 11

Recommended Bur Length: 70 - 94 mm



### PM-M10-903

Extra-Long

Brasseler USA® Surgical Power and Accessories Bur Catalog Series 12



\*Do not use the dermabrader bur with high speed drill.

## WIREDRIVER PM-MII-200

### TECHNICAL DESCRIPTION:

- Speed Range: 0 - 2,100 rpm
- Torque: 56 in-oz (39.5 N-cm)
- Operating Pressure: 90 - 110 psi (6.3 - 7.7 kg/cm<sup>2</sup>; 6.2 - 7.6 Bar)
- Wire/Pin
  - Diameter Range: 0.028 - 0.078 in (0.7 - 2.0 mm)
- Size (L x W x H): 5.5 x 1.0 x 5.5 in (139.7 x 25.4 x 139.7 mm)
- Weight: 1.43 lb (0.65 kg)

The BSPMICRO™ PM-MII-200 Wiredriver, with its ergonomically designed pistol-grip handle, operates at throttle controlled speeds with ample power for small bone fixation. The compact and lightweight design allows access to the smallest of surgical sites.

The Wiredriver collet accepts both smooth/plain and threaded K-Wires and Steinman Pins in a wide range of diameter sizes.

Note: Brasseler USA® Surgical Power and Accessories K-Wire Catalog Series KMI72 & 173; Brasseler USA® Surgical Power and Accessories Steinmann Pin 2.0mm Catalog Series KMI68 & KMI69.





## Operating Procedure

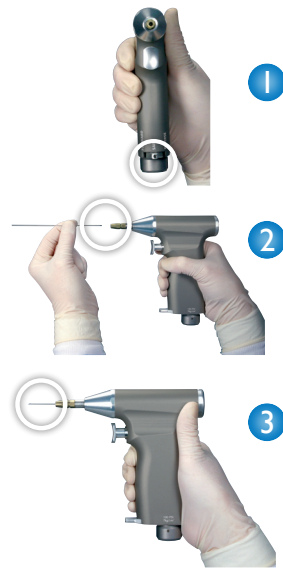
When handpiece is not in use but connected to medical grade air or nitrogen supply, the activation/directional lever must be placed in the SAFE position (center) to avoid accidental activation of handpiece (Figure 1).

1. Safety On: Move the activation/directional lever to the SAFE position (center).

2. System Set Up: Connect the handpiece to the dual air/nitrogen hose. Confirm by checking the regulator pressure gauge that operating pressure does not exceed 110 psi (7.7 kg/cm<sup>2</sup>; 7.6 Bar). Assure the activation/directional lever on the handpiece is in the SAFE position. Your BSPMICRO™ Wiredriver is ready for use.

3. Insert Wire: Insert the wire six inches or Longer (152.4mm / 15.2cm) either through the front or back of the cannulated handpiece (Figure 2). If inserting a wire through the front of the wiredriver, care must be taken to align the wire with the collet opening to avoid jamming in the collet. Wires shorter than six inches must be loaded through the front of the handpiece. Insert the wire until the desired length is protruding from the collet/nose of the handpiece. The inserted wire should protrude approximately 1/2 in (13 mm) from the tip of the collet/nose (Figure 3). The cannulated wiredriver guard (Brasseler USA® Surgical Power and Accessories catalog #PM-M11-201) may be used to prevent bending of longer wires. Attach the wiredriver guard by threading the guard into the back of the handpiece (Page 18 / Figure 4).

**WARNING:** Working exposed length amount varies with bone density and wire diameter. If exposed length is too long, the wire/pin may bend.



Note: The wiredriver guard (PM-MI I-201) should be attached to the rear of the handpiece to keep long wires from bending and for operator safety. Simply thread the wiredriver guard into the threaded receptacle on the back of the handpiece.

4. Clamp Wire: For wires greater than 6" long always insert from the rear of the handpiece. For shorter wires, or wires that are being removed, place the wiredriver valve in the safe position and pull the trigger which will cause the clamping shaft (the external shaft with the gold tip) to move into the handpiece closing the jaws of the internal collet. While in this clamped position insert the wire or pin into the drill until it stops (the tip of the internal collet has a concave conical surface on the tip of the collet allowing the wire to be centered) then release the trigger which allows insertion of the wire straight or centered into the collet jaws.

5. Drive Wire: To advance the wire, the collet end of the handpiece should be at least 1/4 to 1/2 in (6 to 13 mm) away from the bone. Place the activation/directional lever in the desired position (FORWARD or REVERSE) and depress the trigger. To expose more wire, completely release the trigger and pull the handpiece back along the wire. Slightly depress the trigger again to lock the collet. Depress the trigger to activate the handpiece for further insertion of the wire.

**CAUTION:** The handpiece must be in the REVERSE position to remove threaded wires and pins.

Handpiece Speed: The variable speed of the handpiece is controlled by the handpiece trigger and depends on the operating air or nitrogen pressure. Do not exceed the recommended maximum operating pressure of 110 psi (7.7 kg/cm<sup>2</sup>; 7.6 Bar).

If the handpiece lever is in FORWARD or REVERSE position, the handpiece will start at maximum speed if the trigger is depressed fully. A slow activation of the handpiece trigger is recommended.



## Wiredriver Accessories



PM-M11-201\* Wiredriver Guard

\*Included with handpiece or can be purchased separately



PM-M11-202\* Wiredriver cleaning Brush

## ATTACHMENT - 5/32" JACOBS® CHUCK WITH KEY PM-M11-935

Note: Not compatible with Linvatec® Hall® Wiredriver 5053-013



### TECHNICAL DESCRIPTION:

- Chuck Capacity: 0 - .157 in (0 – 4.0 mm)
- Chuck Size (L x W): 2.5 x 0.9 diameter (64mm x 22mm diameter)
- Chuck Weight: 0.15 lb (0.08 kg)

The BSPMICRO™ PM-M11-935 5/32" Jacobs® Chuck w/Key is intended for use with the BSPMICRO™ Wiredriver PM-M11-200 and is designed for drilling.

**WARNING:** The chuck is not intended for tapping, driving or removing screws.

The 5/32" Jacobs® Chuck w/Key accepts both smooth shank drills and AO® shank drills.

### Attachment - 5/32" Jacobs® Chuck Installation:

- Move the wiredriver activation / direction lever to the SAFE position (center).
- Attach 5/32" Jacobs® chuck to the wiredriver by sliding fully onto the collet/nose.

Note: Partially depressing the wiredriver trigger without causing chuck rotation, locks the 5/32" Jacobs chuck in place.

### Attachment - 5/32" Jacobs® Chuck Removal:

- Move the wiredriver activation / direction lever to the SAFE position (center).
- Remove 5/32" Jacobs® chuck from the wiredriver by sliding the chuck off the collet / nose.

### Drilling Cutting Accessory – Insertion & Removal

#### Drilling Cutting Accessory – Insertion

- Open fully the chuck jaws by turning counter clockwise.
- Insert the cutting accessory into the center of the open jaws.
- Close and tighten the chuck jaws by turning the chuck key clockwise.
- Tug firmly on the cutting accessory to ensure it is installed securely.

**CAUTION:** Be certain that cutting accessory is centered between the 3-chuck jaws prior to final tightening. Do not chuck on flat surfaces of the cutting accessory.

Note: Installation of cutting accessory should be done prior to installing on wiredriver.



### Drilling Cutting Accessory – Removal

- Remove chuck with cutting accessory from wiredriver
- Open the chuck jaws by turning the chuck key counter clockwise and remove cutting accessory.

**Warning:** Remove chuck key from attachment prior to activation of handpiece.

Note: Placing the chuck key into one or both of the remaining key holes and applying additional securing force will help ensure cutting accessory is secured in place.

**Caution:** The maximum drill diameter that can be used will depend on the bone density and drilling depth to be determined by the end user.

## SAGITTAL SAW PM-MI2 SERIES

### TECHNICAL DESCRIPTION:

- Speed Range: 0 - 18,000 cpm
- Blade Travel: 4° arc
- Operating Pressure: 90 - 110 psi (6.3 - 7.7 kg/cm<sup>2</sup>; 6.2 - 7.6 Bar)
- Size (L x W x H): 6.75 x 0.7 x 1.0 in (171.5 x 17.8 x 25.4 mm)
- Weight: 0.42 lb (0.19 kg)



The BSPMICRO™ PM-MI2 Series Sagittal Saw has the power and precision needed for cutting both wedge and transverse osteotomies while allowing excellent visibility to the surgical site. Smooth cutting and easy to control, the handpiece's saw blade may be positioned anywhere within a 180° arc as blade holes are not used with our device.

The saw blade collet accepts a wide variety of 0.010 in (0.25 mm) and 0.025 in (0.6 mm) thick Brasseler USA® Surgical Power and Accessories straight and angled sagittal saw blades.

Note: Brasseler USA® Surgical Power and Accessories Sagittal Saw Blade Catalog Series KM-3100, KM-3200 and KM-3400.

## Operating Procedure

When handpiece is not in use but connected to medical grade air or nitrogen supply, the throttle safety slide must be placed in the SAFE position (fully forward) to avoid accidental activation of handpiece (Page 11 / Figure 1).

1. Safety On: Move the throttle safety slide to the SAFE position (fully forward).
2. System Set Up: Connect the handpiece to the dual air/nitrogen hose. Confirm by checking the regulator pressure gauge that operating pressure does not exceed 110 psi (7.7 kg/cm<sup>2</sup>; 7.6 Bar).
3. Open Collet: Open/loosen the blade locking screw with the blade wrench only as far as to accept the blade thickness ( Brasseler USA<sup>®</sup> Surgical Power and Accessories catalog # PM-M12-001) by turning it counterclockwise (Figure 1).

**Caution:** only open the collet enough to accept the blade. If the collet is opened fully a thin blade may be inserted beyond the proper seating surface which may cause damage to the blade as well as inadequately securing the blade.

4. Insert Saw Blade: Insert the saw blade between the two washers, forming a slot. The saw blade must be fully inserted for proper engagement. Lock/tighten the blade locking screw hand-tight with the blade wrench by turning it clockwise (Figure 1). The saw blade may be positioned anywhere within a 180° arc. Confirm that the saw blade is secure by tugging slightly. Activate the handpiece briefly, and then re-tighten the blade locking screw to ensure saw blade is fully locked in place. The speed of the handpiece is controlled by the throttle lever and will depend on the operating air or nitrogen pressure. Do not exceed the recommended maximum operating pressure of 110 psi (7.6 kg/cm<sup>2</sup>). Lower pressure setting will achieve lower maximum speed.
5. Move throttle safety slide to the ON position (fully backward) to activate handpiece (Page 11 / Figure 2). Your BSPMICRO™ Sagittal Saw is ready for use.

## BLADE WRENCH

PM-M12-001\*

\*Included with handpiece or can be purchased separately



## Blade Installation



## OSCILLATING SAW PM-M13 SERIES

### TECHNICAL DESCRIPTION:

- Speed Range: 0 - 22,000 cpm
- Blade Travel: 7° arc
- Operating Pressure: 90 - 110 psi (6.3 - 7.7 kg/cm<sup>2</sup>; 6.2 - 7.6 Bar)
- Size (L x W x H): 7.5 x 0.7 x 1.38 in (190.5 x 17.8 x 35.0 mm)
- Weight: 0.49 lb (0.22 kg)



The BSPMICRO™ PM-M13 Series Oscillating Saw has a long, narrow nose design for accessing restricted areas and to provide excellent visibility of the surgical site. The saw delivers the power necessary for accurate cutting of both curved and straight osteotomies. The handpiece's saw blade may be positioned anywhere within a 360° arc.

The saw blade collet accepts a wide selection of the Brasseler USA® Surgical Power and Accessories straight and angle-shaped oscillating saw blades.

Note: Brasseler USA® Surgical Power and Accessories Oscillating Saw Blade Catalog Series KM-3000 and KM-3170 Crescentic Blades.



## Operating Procedure

When handpiece is not in use but connected to medical grade air or nitrogen supply, the throttle safety slide must be placed in the SAFE position (fully forward) to avoid accidental activation of handpiece (Page 11 / Figure 1).

1. Safety On: Move the throttle safety slide to the SAFE position (fully forward).
2. System Set Up: Connect the handpiece to the dual air/nitrogen hose. Confirm by checking the regulator pressure gauge that operating pressure does not exceed 110 psi (7.7 kg/cm<sup>2</sup>; 7.6 Bar).
3. Open Collet: Open/loosen the blade locking screw with the blade wrench ( Brasseler USA® Surgical Power and Accessories catalog # PM-M12-001) by turning it counterclockwise (Figure 1).
4. Insert Saw Blade: Insert the saw blade between the compression washer and handpiece shoulder. The saw blade must be fully inserted for proper engagement. Lock/tighten the blade locking screw hand-tight with the blade wrench by turning it clockwise (Figure 1). The saw blade may be positioned anywhere within a 360° arc. Confirm that the saw blade is secure by tugging slightly on the saw blade. Activate the handpiece briefly, and then retighten the blade locking screw to ensure that the saw blade is fully locked in place.

**Caution:** Do not place the blade between the washer and head of the screw or the blade may vibrate loose.

5. Move throttle safety slide to the ON position (fully backward) to activate handpiece (Page 11 / Figure 2). Your BSPMICRO™ Oscillating saw is ready for use.

The speed of the handpiece is controlled by the throttle lever and will depend on the operating air or nitrogen pressure. Do not exceed the recommended maximum operating pressure of 110 psi (7.7 kg/cm<sup>2</sup>; 7.6 Bar). Lower pressure setting will achieve lower maximum speed.

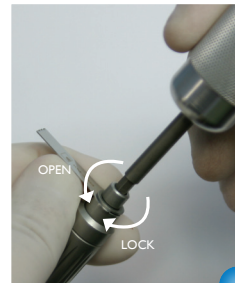
## BLADE WRENCH

PM-M12-001\*

\*Included with handpiece or can be purchased separately



## Blade Installation



## RECIPROCATING SAW PM-MI4 SERIES

### TECHNICAL DESCRIPTION:

- Speed Range: 0 - 18,000 cpm
- Blade Travel: 0.100 inch (2.54 mm)
- Operating Pressure: 90 - 110 psi (6.3 - 7.7 kg/cm<sup>2</sup>; 6.2 - 7.6 Bar)
- Size (L x W x H): 7.25 x 0.7 x 1.0 in (184.2 x 17.78 x 25.4 mm)
- Weight: 0.43 lb (0.2 kg)



The BSPMICRO™ PM-MI4 Series Reciprocating Saw is an extremely versatile handpiece and an outstanding performer for many of the deep-access osteotomies. Rasps are available for shaping and contouring bone.

The sawblade/rasp collet accepts flat shank saw blades from 0.014 in to 0.020 in (0.35 mm to 0.51 mm) thick, as well as rasps and round shank saw blades with standard diameters of 0.125 in (3.18 mm).

Note: Brasseler USA® Surgical Power and Accessories Reciprocating Saw Blade/Rasp Catalog KM-50 Series, KM-80 Series rasps and KM-060 & KM-070.

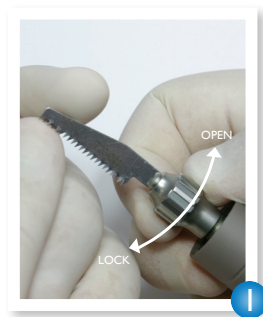
### Operating Procedure

When handpiece is not in use but connected to medical grade air or nitrogen supply, the throttle safety slide must be placed in the SAFE position (fully forward) to avoid accidental activation of handpiece (Page 11 / Figure 1).

1. Safety On: Move the throttle safety slide to SAFE position (fully forward).
2. System Set Up: Connect the handpiece to the dual air/nitrogen hose. Confirm by checking the regulator pressure gauge that operating pressure does not exceed 110 psi (7.7 kg/cm<sup>2</sup>; 7.6 Bar).
3. Open Collet: Open/loosen the blade/rasp locking nut by turning it counterclockwise (Figure 1). Do not remove the locking nut from the tip.
4. Insert Saw Blade/Rasp: Insert the saw blade/rasp fully into the locking mechanism. The saw blade/rasp must be fully inserted for proper engagement. Lock/tighten the blade/rasp locking nut finger-tight by turning it clockwise (Figure 1). Confirm that the saw blade/rasp is secure by tugging slightly on the saw blade/rasp. Activate the handpiece briefly, and then re-tighten the blade/rasp locking nut to ensure saw blade/rasp is fully locked in place.
5. Move throttle safety slide to the ON position (fully backward) to activate the handpiece (Page 11 / Figure 2). Your BSPMICRO™ Reciprocating Saw is ready for use.

The speed of the handpiece is controlled by the throttle lever and will depend on the operating air or nitrogen pressure. Do not exceed the recommended maximum operating pressure of 110 psi (7.7 kg/cm<sup>2</sup>; 7.6 Bar). Lower pressure setting will achieve lower maximum speed.

### Blade Installation



## DUAL AIR / NITROGEN HOSE A90-200 AND KM-A90-500 SERIES

### Operating Procedure

1. Supply Side Connection: Connect the male Schrader connector on the end of the dual air/nitrogen hose by pushing it into the female Schrader connector fitting of the regulator or the regulated air/nitrogen source.

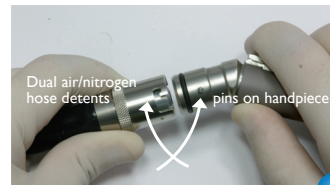
Note: A DISS to Schrader Adapter (Brasseler USA® Surgical Power and Accessories MI-121-001) is available when a female DISS connector is required at the regulator or the regulated air or nitrogen supply source.

Note: For optimum performance, when using a dual air/nitrogen hose longer than 10 feet (3 m), increase pressure by 1 psi for each additional foot of hose.

Insert the male Schrader connector on the dual air/nitrogen hose into the female Schrader connector on the Adapter; and then attach the female DISS connector on the Adapter to the male DISS connector at the regulator or regulated air or nitrogen source.

2. Connecting handpiece: Hold securely in one hand the hose connector end of the handpiece. Hold firmly in the other hand the connector of the dual air/nitrogen hose and align the pins on the handpiece hose connector with the slots in the dual air/nitrogen hose connector (Figure 1). Push both together and twist the connector so the pins slide into the slots and seat in the detents for positive locking. Release the dual air/nitrogen hose, it will stay attached to the handpiece if connection is correct.

### Connecting Hose to Handpiece



3. Operation: Turn on supply valve and adjust operating pressure from 90 to 110 psi; or 6.3 - 7.7 kg/cm<sup>2</sup>; 6.2 - 7.6 Bar). The dual air/nitrogen hose is operational at this time.
4. Disconnecting Dual Air/Nitrogen Hose From Supply Source: Release the hose from the supply source by firmly holding the dual air/nitrogen hose connector, and then twist the supply source Schrader connector sleeve.

Note: To prevent sudden ejection of dual air/nitrogen hose from the supply source, hold the hose connector firmly.

5. Disconnecting Dual Air/Nitrogen Hose From the Handpiece: Hold handpiece dual air/nitrogen hose connector end and connector on dual air/nitrogen hose firmly and push them slightly together to remove the pins from the detents of the slots. After twisting the dual air/nitrogen hose connector, slowly move it away from the handpiece.

## TROUBLESHOOTING

Symptom	Potential Cause (All Handpieces)	Solution
Handpiece lacks power or does not operate.	Internal Malfunction.	Send handpiece to Brasseler U.S.A. Medical, LLC, for service.
	Incorrect operating pressure.	Set pressure to correct operating pressure for length of air/nitrogen hose - See instructions on page 7.
	Tank pressure low - below 500 psi.	Replace tank before using handpieces.
	Throttle safety slide/directional lever is in safe position.	Ensure throttle safety slide/directional lever is in operating position.
	Dual air/nitrogen hose not installed properly.	Check all dual air/nitrogen hose connections for proper installation.
	Tank valve not opened fully.	Completely open tank valve.
	Regulator malfunction.	Replace regulator and retest handpiece. If symptom continues, send handpiece to Brasseler U.S.A. Medical, LLC, for service.
	Dual air/nitrogen hose pinched.	Inspect dual air/nitrogen hose and remove restriction.

Symptom	Potential Cause (Drills)	Solution
Bur is not retained in handpiece.	Bur is not locked in handpiece.	Ensure locking ring is in the lock position.
	Bur is not fully inserted into collet.	Insert bur completely into collet and lock collet See instructions on pages 11 and 14.
	Wrong style bur.	Use only round standard bur shanks 2.35 mm (0.092").
Handpiece overheats.	Bur guard bearings worn.	Send bur guard to Brasseler U.S.A. Medical, LLC, for service.
	Collet not fully closed.	Ensure locking ring is in the lock position.
	Internal malfunction.	Send handpiece to Brasseler U.S.A. Medical, LLC, for service.
	Incorrect operating pressure.	Set pressure to correct operating pressure for length of air/nitrogen hose - See instructions on page 7.
	No bur in collet.	Install proper bur and proper bur guard.

Symptom	Potential Cause (Saws)	Solution
Blade vibrates loose.	Blade is not fully seated.	Ensure blade is fully secured in handpiece collet.
	Blade is not locked in collet.	Make sure blade is properly inserted between the clamping surfaces and retighten blade. Briefly activate handpiece and retighten blade locking screw / nut.
	Blade not seated between handpiece and washer.	Reposition blade and tighten screw.
	Blade locking screw is worn.	Send handpiece to Brasseler U.S.A. Medical, LLC, for service.
	Wrench is worn.	Replace.
	Potential Cause (Wiredriver)	
Wire will not insert into collet.	Wire / pin not in size range of collet.	Check size to ensure it is between 0.028 in and 0.078 in.
	Wire / pin not being inserted straight.	Take care to assure wire / pin is inserted centered into collet.
	Potential Cause (Wiredriver Chuck)	
Attachment will not install onto wiredriver.	Debris inside receptacle.	See cleaning recommendations.
	Drive pin damaged or damaged handpiece.	Send attachment and or handpiece to Brasseler U.S.A. Medical, LLC, for service.



Symptom	Potential Cause (Wiredriver Chuck cont.)	Solution
Attachment will not accept cutting accessory.	Debris inside attachment.	See Cleaning recommendations.
	Attachment damaged.	Send attachment to Brasseler U.S.A. Medical, LLC, for service.
	Cutting accessory damaged.	Replace cutting accessory.
Cutting accessory slips in attachment.	Re-secure using chuck key.	See drilling cutting accessory insertion and removal.
	Worn or damaged attachment.	Send attachment to Brasseler U.S.A. Medical, LLC, for service.
	Damaged or worn cutting accessory.	Replace cutting accessory.
Attachment falls off of handpiece.	Damaged attachment.	Send attachment to Brasseler U.S.A. Medical, LLC, for service.

## CLEANING RECOMMENDATIONS

Leave dual air/nitrogen hose attached or insert the cleaning plug/cap into the hose connector of the handpiece. Remove attachments (bur guards and wiredriver chuck), accessory (wire guard) and cutting accessories (burs, saw blades/rasps, K-wires, Steinman pins and twist drills) prior to cleaning.

1. Scrub, using a nylon brush, the handpieces, attachments (bur guards and wiredriver chuck) and accessories thoroughly with neutral pH detergent and water. Remove all traces of blood and debris.
2. Wiredriver Cannulation Cleaning - Insert the Wire end of the wiredriver cleaning brush (Brasseler USA® Surgical Power and Accessories catalog #PM-M11-202) through the back of handpiece (Page 35/Figure 1). Pull the brush through the handpiece. Repeat the process until all debris is removed (Page 35/Figure 1).

Note: The cannulation of both the Wiredriver and Wiredriver Guard must be cleaned after each use to ensure proper functioning of the Wiredriver.

3. With the dual air/nitrogen hose or cleaning plug/cap still attached, rinse all traces of contaminants and detergent under running water.

**DO NOT IMMERGE.** If accidental immersion of the handpiece occurs please refer to section: Accidental Immersion.

4. Disconnect the dual air/nitrogen hose or remove the cleaning plug/cap. Shake the handpiece and any attachment free of excess water. Wipe the surfaces with a clean lint-free towel.

Note: The PM-M09 and PM-M10 series drills cannot be operated without inserting proper bur guard and locking a bur into the collet.

5. Drills and Saws - Move throttle control safety slide to SAFE (full forward) position (Page 11 / Figure 1). Connect dual air/nitrogen hose to medical grade air or nitrogen supply (regulated to 90 - 110 psi; or 6.3 - 7.7 kg/cm<sup>2</sup>; 6.2 - 7.6 Bar). Move throttle safety slide to ON position (full backward), activate handpiece for 30 seconds (Page 11 / Figure 2). Check for rapid temperature rise, unusual noise(s) and other visible malfunctions.
6. Wiredriver - Move lever to SAFE (center) position (Page 17 / Figure 1). Connect dual air/nitrogen hose to medical grade air or nitrogen supply (regulated to 90 - 110 psi or 6.3 - 7.7 kg/cm<sup>2</sup>; 6.2 - 7.6 Bar). Move lever to FORWARD position (left), activate handpiece for 5-10 seconds. Repeat with lever in REVERSE.
7. Move throttle/lever to the SAFE position, and disconnect dual air/nitrogen hose from handpiece.
8. Do not lubricate handpieces.

Note: Remove attachments (bur guard and wiredriver chuck) and accessories (dual air/nitrogen hose or cleaning plug/cap) prior to sterilization.



## ACCIDENTAL IMMERSION

If accidental immersion of the handpiece occurs, please follow these recommended procedures:

1. Immediately wash, rinse handpiece under running water.
2. Immerse handpiece in clean rinse water (preferably de-ionized or distilled) for 1 - 3 minutes. The goal is to rinse away any corrosive fluids and precipitates.
3. Attach the handpiece to medical grade air or nitrogen (Page 35 / #5) and operate the handpiece for a minimum of 30 seconds.
4. Autoclave and dry handpiece within 30 minutes of cleaning and running.

## STERILIZATION RECOMMENDATIONS

Steam sterilization has been found both safe and effective for the sterilization of BSPMICRO™ Small Bone Power System. The handpieces are capable of withstanding the recommended exposure times and temperatures of steam sterilization.

- Do not sterilize handpieces or dual air/nitrogen hoses in: Ethylene Oxide, Sterrad® System, Steris® System or comparable systems. Do not use Cidex® to sterilize handpieces or dual air/nitrogen hoses.
- Do not place handpieces in a peel pouch for sterilization.
- Dual air/nitrogen hose or cleaning plug/cap must be removed from handpiece.
- Handpieces require being individually wrapped. Two double thick #140 thread count wrappers (or equivalent) should be utilized.

Note: The sterilizer manufacturer's written instruction for cycle parameters, load configuration and AAMI guidelines for steam sterilization should be followed.

### Parameters for sterilizing BSPMICRO™ handpieces, attachments and accessories.

Steam Sterilization Type	Minimum Temperature	Minimum Exposure Time	Minimum Dry Time
Gravity(wrapped)	270° F/ 132°C	35 Minutes	30 Minutes
Pre-Vacuum(wrapped)	270° F/ 132°C	4 Minutes	30 Minutes
Pre-Vacuum(wrapped)	273° F/ 134°C	3 Minutes	30 Minutes

## REPAIR SERVICE

Brasseler USA® Surgical Power and Accessories, recommends that all BSPMICRO™ handpieces and accessories (excluding dual air/nitrogen hoses) be returned to Brasseler U.S.A. Medical, LLC, Service Department for routine preventive maintenance every twelve (12) months. BSPMICRO™ attachments and dual air/nitrogen hoses are recommended to be returned to Brasseler U.S.A. Medical, LLC, Service Department for routine preventive maintenance every six (6) months. Follow a regular care regimen that includes routine cleaning after each use, strict adherence to sterilization recommendations and a thorough inspection for damage of all devices after each use. Routine preventive maintenance performed by the Brasseler U.S.A. Medical, LLC, Service Department can increase the reliability and extend the life of your BSPMICRO™ Small Bone Power System.

Brasseler USA® Surgical Power and Accessories, warrants any service or repair work performed will be free from defects in material or workmanship for the period of ninety (90) days from date of service or repair. This warranty applies to the actual work performed.

Products must be decontaminated and sterilized before returning.

Note: It is unlawful to ship contaminated non-sterilized products.

Contact a Customer Service Representative at Brasseler USA® Surgical Power and Accessories at 877-834-7133 to request repair, preventive maintenance, or a loaner instrument. If available, loaner instruments will be supplied in accordance with the Brasseler USA® Surgical Power and Accessories, Loaner Program.

Please include the following information with the returned product(s):

- Indicate on the paperwork or the box the designated call ID number.
- Catalog number; serial number and lot number (if applicable) of device.
- Customer name, address and account number.
- Itemized packing list.
- Brief statement describing reason for product repair or requesting preventive maintenance.

Return to:  
Brasseler U.S.A. Medical, LLC  
4837 McGrath Street  
Ventura, CA 93003

## WARRANTY

### BSPMICRO™

Brasseler USA® Surgical Power & Accessories, warrants all BSPMICRO™ Handpieces and Accessories (cleaning plug/cap, adapter - DISS to Schrader, wiredriver guard, wiredriver cleaning brush, blade wrench and 5/32" Jacobs® Chuck Key) to be free from defects in material and workmanship for a period of one (1) year from the invoice date. Brasseler USA® Surgical Power & Accessories, warrants all BSPMICRO™ Attachments (bur guards and 5/32" Jacobs® chuck) and dual air/nitrogen hoses to be free from defects in material and workmanship for a period of six (6) months from the invoice date. The warranty is limited to the repair of the product without charge. This warranty is nontransferable. In addition, this warranty is void in the event of any of the following: abuse, misuse, neglect or use in other than normal surgery environment, disassembly, alteration or unauthorized repair, or in the event that the product has not been used in reasonable manner and in compliance with the written instructions provided by Brasseler USA® Surgical Power & Accessories.

## RETURN GOODS POLICY

If product needs to be returned, the following applies:

### Consumable / Disposable Product:

Any unused consumable/disposable product may be returned for credit within ninety (90) days of invoice date if it qualifies for resale (unopened and unmarked package). Products may be subject to a restocking fee. Credit will not be issued for products that do not qualify for resale.

### Capital Equipment:

Any unused capital equipment may be returned for credit within thirty (30) days of invoice date if it qualifies for resale (unopened and unmarked package). Products may be subject to a restocking fee. Credit will not be issued for products that do not qualify for resale.

### Packaging and Shipping:

Returned items should be packaged in original packaging. Credit will not be issued for items damaged in return shipment due to packaging inadequacy.

*Note: It is unlawful to ship contaminated non-sterilized products.*

Contact a Brasseler USA® Surgical Power & Accessories Customer Service Representative at 800.535.6638 to obtain a "Return Merchandise Authorization" (RMA) number.



Please include the following information with the returned product(s):

- Catalog number, serial number and lot number (if applicable) of device.
- Return Merchandise Authorization (RMA) number noted with the return.
- Original invoice number or copy of original invoice.
- Original invoice date.
- Customer name, address and account number.
- Itemized packing list.
- Brief statement describing reason for product return.

Return to:  
Brasseler U.S.A. Medical, LLC  
4837 McGrath Street  
Ventura, CA 93003

## PRODUCT DISPOSAL

Dispose of product or recycle in accordance with local laws and regulations.

## PRODUCT ORDERING INFORMATION

HANDPIECES	
PM-M09-200*	High Speed Drill for Linvatec® Hose Connection
PM-M10-200*	Medium Speed Drill for Linvatec® Hose Connection
PM-M11-200	Wiredriver for Linvatec® Hose Connection
PM-M12-200*	Sagittal Saw for Linvatec® Hose Connection
PM-M13-200*	Oscillating Saw for Linvatec® Hose Connection
PM-M14-200*	Reciprocating Saw for Linvatec® Hose Connection

ATTACHMENTS	
PM-M10-901	Bur Guard - Medium
PM-M10-902	Bur Guard - Long
PM-M10-903	Bur Guard - Extra Long
PM-M11-935	5/32" Jacobs® Chuck with Key

\* Note: products available for DePuy® Synthes® hose connection - 500 series. (For example, to order the BSPMICRO™ High Speed Drill, use part number PM-M09-500)

ACCESSORIES	
KM-A90-200	Dual Air/Nitrogen Hose for Linvatec® Hose Connection - 10 Ft.
KM-A90-200-15	Dual Air/Nitrogen Hose for Linvatec® Hose Connection - 15 Ft.
KM-A90-201	Cleaning Plug/Cap for Linvatec® Hose Connection
KM-A90-500	Dual Air/Nitrogen Hose for DePuy® Synthes® Hose Connection - 10Ft.
KM-A90-500-15	Dual Air/Nitrogen Hose for DePuy® Synthes® Hose Connection - 15Ft.
MI-121-001	Adapter - DISS to Schrader

PM-A90-501	Cleaning Plug/Cap for DePuy® Synthes® Hose Connection
PM-M11-201	Wiredriver Guard
PM-M11-202	Wiredriver Cleaning Brush
PM-M12-001	Blade Wrench
PM-X08-001	5/32" Jacobs® Chuck Key

Brasseler USA® Surgical Power and Accessories, offers a complete line of BSPMICRO™ cutting accessories (burs, saw blades/rasps, K-wires, Steinman pins and twist drills).



Brasseler U.S.A. Medical, LLC

One Brasseler Boulevard • Savannah, GA 31419

800-535-6638 • 912-921-7578 (fax)

BrasselerUSAMedical.com

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