Dyonics® Power System
Powered Instrumentation

Operations Manual
Bedienungsanleitung
Manual del Usuario
Manuel d’utilisation
Manuale operativo
Driftshandleiding
Bedieningshandleiding

ACUFEX®
DYONICS®
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PREFACE
This manual provides the information you need to operate and maintain the Dynics Power Endoscopic Powered Instrumentation. It is essential that you read and understand all the information in this manual before using or maintaining the equipment.

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INDICATIONS
The Dynics drills, wire/pin drivers, sagittal saw, and other accessories, when used in conjunction with the Dynics Power Control Unit (REF 7205841), are indicated for drilling and cutting bone.
WARNINGS AND CAUTIONS

Prior to use, this Operations Manual should be read and understood by all operating room staff handling the equipment. As with any surgical instrument, there are important health and safety considerations. These are listed below and highlighted within the text.

Note: All personnel should become familiar with the powered instruments before they are set up for use in any procedure. Personnel in-service should include, but not be limited to central processing personnel, members of the surgical team, and bioengineering department.

⚠️ WARNINGS

PRIOR TO USE, ALL SYSTEM COMPONENTS SHOULD BE INSPECTED AND OPERATED TO DETERMINE IF THERE IS PRODUCT DAMAGE AND/OR MALFUNCTION. DO NOT USE IF PRODUCT IS DAMAGED AND/OR MALFUNCTIONING; RETURN IMMEDIATELY AFTER CONTACTING SMITH & NEPHEW INC. CUSTOMER SUPPORT: 1-800-343-5717.

CHECK SAGITTAL SAW BLADES AND DRILLS. ENSURE THAT SAGITTAL SAW BLADES, WIRES, PINS, AND DRILLS, ARE NOT DULL OR BENT, AND THAT THEY LOCK CORRECTLY INTO THE HANDPIECE.

INSPECT AND TEST THE HANDPIECES:

- INSPECT THE HANDPIECES FOR DAMAGE, CORROSION, OR EXCESSIVE WEAR.
- ENSURE THAT THE SAFETY LOCK OF HANDPIECES IS ON "SAFE," IT PREVENTS ACTIVATION OF THE MOTOR. ENSURE THAT THE ACTIVATION TRIGGER AND THROTTLE LEVER DO NOT STICK IN THE FULL "RUN" POSITION.

PRIOR TO INSTALLING OR REMOVING SAGITTAL SAW BLADES, DRILLS, OR ANY OTHER ATTACHMENTS, ENSURE THAT THE HANDPIECE IS IN "SAFE" MODE.

THE SAFETY LOCK SHOULD BE IN THE "SAFE" POSITION WHEN EITHER HANDPIECE IS NOT IN USE OR WHEN INSERTING OR REMOVING MODULE, BLADES, DRILLS OR ANY OTHER ATTACHMENTS.

THE SAGITTAL SAW AND THE PISTOL GRIP DRILL WILL BE ACTIVATED VIA THE FOOT SWITCH EVEN WHEN IN THE "SAFE" POSITION.

THE TRIGGER/THROTTLE LEVER IS ACTIVE AS THE HANDPIECE CABLE IS BEING PLUGGED INTO EITHER THE HANDPIECE OR THE CONTROL UNIT. KEEP HANDPIECES IN THE "SAFE" MODE TO AVOID INACCIDENTAL ACTIVATION, FOOTSWITCHES WILL ACTIVATE THE DRILL AND SAGITTAL SAW EVEN WHEN THEY ARE IN THE "SAFE" POSITION.

AVOID USING A SAGITTAL SAW BLADE AS A LEVER. EXCESSIVE FORCE MAY LEAD TO FRACTURE OF THE SAW BLADE.

IF USING A FOOTSWITCH, ENSURE THAT THE FOOTSWITCH IS NOT ACCIDENTALLY ACTIVATED WHILE INSERTING THE BLADE.

SAGITTAL SAW BLADES ARE SINGLE USE, DISPOSABLE DEVICES. DO NOT REUSE.

⚠️ CAUTIONS

U.S. FEDERAL LAW RESTRICTS THIS DEVICE TO SALE BY OR ON THE ORDER OF A PHYSICIAN.

Standard operating conditions eventually may cause overheating or total failure of the instrument. With the blade or drill bit attached, test run the handpiece in the sterile field for three 10-second intervals, checking for any indication of irregular speed, noise, excessive heat, or vibration. Irregular grinding noises may indicate impending failure or overheating of the handpiece.

Periodically monitor the temperature of the nose section. The temperature should not exceed 115°F and should not become uncomfortable to touch with gloved fingers.

Only Smith & Nephew sagittal saw blades are compatible with the Sagittal Saw Module or Handpiece.

Dull saw blades are major contributors to problems with powered surgical instruments. They require the surgeon to exert greater force, which increases stress, heat, and wear on gears, bearings, and other mechanisms. Use of excessive force also increases the risk of thermal necrosis and overheating of handpieces.

It is difficult to determine when a drill bit is dull. Simply counting the number of uses is not adequate. While certain procedures cause relatively little wear on a drill bit, other procedures, especially when the drill scours against metal templates or retractors, produce immediate wear or damage to the drill bit.

Ensure that cable connector pins are dry at both ends prior to use.

DO NOT immerse the handpieces in saline, disinfectant, or any other liquid.

DO NOT use an ultrasonic cleaner or any other automated/sterilizing cleaning equipment. Ultrasonic cleaning can damage the bearings in the handpieces, potentially resulting in overheating or seizure.

DO NOT lubricate or oil the handpieces. Lubrication will clog the motor and prevent it from starting. Also take special precautions to avoid the use of cleaners which contain lubricants.

Soaking the Handpiece cable may cause damage or corrosion to the connector pins inside, the control unit, and/or the handpiece itself.

The handpiece cable should be sterilized in the same manner and location as the Pistol Grip Drill and Sagittal Saw.

DO NOT run instruments while warm. Cool by exposure to room temperature.

DO NOT immerse handpiece(s) in liquid to cool.

DO NOT process powered surgical instruments in a washer/sterilizer. The washer cycle will damage the motor and other internal components.
INTRODUCTION/SYSTEM COMPONENTS

INTRODUCTION
The following Powered Instruments can be used with the Dyonics Power Control Unit (REF 7205841):

- **Pistol Grip Drill Handpiece**
  - Jacobs Chuck—5/32”
  - Jacobs Chuck—1/4”
  - Keyless Jacobs Chuck—1/8”
  - Keyless Jacobs Chuck—1/4”
  - Sagittal Saw Module:
  - Wire Driver
  - Pin Driver

- **Cable Assembly**
- **Sterilization Tray**
- **Inline Sagittal Saw Handpiece**

**Saw Blades—STERILE, with Markings:**

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*Fine Teeth

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SYSTEM COMPONENTS

**HANDPIECES (DRILL, REF 7205785 OR SAGITTAL SAW, REF 7205786)**

The Inline Sagittal Saw is activated by pressing a *throttle lever* and the Pistol Grip Drill is activated by pressing a *trigger.* These are variable speed devices and can also be activated via a foot-switch. The *throttle lever* and *trigger* have two positions: “SAFE” and “RUN.” When in the “SAFE” position, the *throttle lever* or *trigger* is inactive.

⚠️ **WARNING:** THE SAFETY LOCK SHOULD BE IN THE “SAFE” POSITION WHEN EITHER HANDPIECE IS NOT IN USE OR WHEN INSERTING OR REMOVING MODULES, BLADES, DRILLS OR ANY OTHER ATTACHMENTS.

⚠️ **WARNING:** THE SAGITTAL SAW AND THE PISTOL GRIP DRILL WILL BE ACTIVATED VIA THE FOOT-SWITCH EVEN WHEN IN THE “SAFE” POSITION.
SYSTEM COMPONENTS

SAGITTAL SAW BLADES, DRILL BITS, AND K-WIRES

The Pistol Grip Handpiece will accept a Sagittal Saw Module, a variety of drill chucks, a Pin Driver, or a K-Wire Driver. The In-line Sagittal Saw Handpiece will accept a variety of saw blades. All carbide or stainless steel saw blades and drills have sharp, precision ground teeth or flutes designed to provide optimum cutting performance.

Note: Use a new sagittal saw blade or drill for each procedure. Using disposable accessories reduces handpiece wear, improves surgical cutting, and ensures quality patient care.

Caution: Dull saw blades are major contributors to problems with powered surgical instruments. They require the surgeon to exert greater force, which increases stress, heat, and wear on gears, bearings, and other mechanisms. Use of excessive force also increases the risk of thermal necrosis and overheating of handpieces.

Caution: Sagittal Saw blades are provided as sterile, single use products. Do not repackage or reuse sagittal saw blades.

Caution: Only Smith & Nephew sagittal saw blades are compatible with the Sagittal Saw Module or Handpiece.

Caution: It is difficult to determine when a drill bit is dull. Simply counting the number of uses is not adequate. While certain procedures cause relatively little wear on a drill bit, other procedures, especially where the drill scrapes against metal templates or retractor, produce immediate wear or damage to the drill bit.

FOOT CONTROL

When the footswitch is plugged into the Dyonics Power Control Unit the green LED light (lower left corner of the control unit) is illuminated and active. All standard Dyonics footswitches will operate the Drill, Sagittal Saw Module, or Sagittal Saw. The sagittal saw (and module) runs in one direction when activated. The drill runs in either the forward or reverse mode.

Note: If the trigger/throttle lever is active and then the footswitch is depressed, the footswitch will NOT activate. BOTH lever AND footswitch must be released for one second, and then only one depressed, to activate the handpiece.

Note: The oscillate function from the footswitch is inoperable for the drill and sagittal saw.

⚠️ WARNING: THE TRIGGER/THROTTLE LEVER IS ACTIVE AS THE HANDPIECE CABLE IS BEING PLUGGED INTO EITHER THE HANDPIECE OR THE CONTROL UNIT. KEEP HANDPIECES IN THE "SAFE" MODE TO AVOID INADVERTENT ACTIVATION. FOOTSWITCHES WILL ACTIVATE THE DRILL AND SAGITTAL SAW EVEN WHEN THEY ARE IN THE "SAFE" POSITION.
CUTTING TECHNIQUE

WARNING: AVOID USING A SAGITTAL SAW BLADE AS A LEVER. EXCESSIVE FORCE MAY LEAD TO FRACTURE OF THE SAW BLADE.

Caution—Take the following precautions to avoid damaging the handpiece:

- Avoid excessive pressure on the sagittal saw or saw module when cutting. Use a light “pencil grip” and let the instrument do the work. Heavy force will rapidly wear components.
- Avoid plunging and “burying” a sagittal saw blade straight into bone. This will lock the blade and prevent it from completing its stroke, damaging or possibly breaking the oscillating mechanism. Use a slight “back and forth” or “side to side” motion when cutting. This will keep the cut wide enough to permit the blade to complete its stroke and maintain speed. Continuous stalling of the motor will cause rapid heating of the handpieces.
- Take special care when making curved cuts to avoid locking the blade. Always keep the blade free to complete its stroke.
- The sagittal saw blade may flex or whip at the tip when running at full speed in free air. This occurs due to the thinness of the blade which is also a key to its fast cutting ability. Always begin the cut with the throttle set for moderate speed. After establishing the cut in the bone, advance the throttle to full speed. The blade will not flex once in the bone.

SETUP AND OPERATION

SETTING-UP THE DYONICS POWERED INSTRUMENTS FOR USE IN SURGICAL PROCEDURES

1. Place the Control Unit on a cart, turn power switch on front panel to the OFF position, plug the unit’s power cord into the rear panel power connector and the other end into a grounded AC power source (wall).
   Note: “OFF” position is designated by “O” and the “ON” position “I.”

2. Push the Power switch to the On “I” position.

3. Connect the powered instrument handpiece cable (REF 7205788) into either Handpiece A or B receptacle on the Front Panel of the Control Unit. Select the A or B channel by pressing the A or B button on the Front Panel.
   Caution: Ensure that cable connector pins are dry at both ends prior to use.

   Note: Be sure to align the pins in the cable with the holes in the Control Unit receptacle before inserting.

4. Firmly hold the handpiece and insert the instrument cable into the handpiece receptacle.
   Note: Avoid pressing the trigger, throttle lever or footswitch while attaching the instrument cable. If this occurs, the handpiece will not run until trigger or throttle lever is released for one second and then activated.

5. If using a footswitch, connect it to the appropriate receptacle on the left side of the control unit front panel. Ensure that pins in cable are aligned with the holes in the receptacle before inserting.
SETUP AND OPERATION

DRILL HANDPIECE (REF 7205785)
The Pistol Grip Drill is a modular device with attachments for a wire driver, pin driver, sagittal saw module, and a variety of drill chucks. The system includes a handpiece, an automatic wire collet for K-wires up to .062" (1.6 mm), an automatic pin collet which accepts pins up to .125" (3.2 mm), and a selection of Jacobs chucks.

To insert a K-wire or Steinmann pin into the Pistol Grip Drill:

1. Attach handpiece cable from control unit to drill handpiece receptacle and set safety lock to ON by rotating the trigger button to either side.

2. Snap wire or pin collet into the nose of the drill.

3. Screw the wire guard into the back of the handpiece to protect the operator from the point of the wire or pin.

4. Insert wire or pin into the front or back of the handpiece.

5. Select Forward ("FWD") or Reverse ("REV") on the bottom of the handpiece.

6. Move the trigger button out of the “SAFE” position by rotating it straight up and down.

7. Squeeze the wire/pin advance lever and hold it down.

8. Depress the trigger to drive the wire/pin. The trigger is pressure sensitive providing for variable speed operation.

9. To obtain additional wire or pin length, release the wire/pin advance lever and trigger then pull back on the instrument. Then squeeze the wire/pin advance lever and depress trigger to drive the wire.

10. To remove threaded wires or pins, put the drill in “Reverse,” squeeze the wire/pin advance lever and then depress the trigger.

11. To release the wire or pin collet, put the trigger in the “SAFE” position.

12. Depress the release button on the top of the handpiece and pull the collet out.
To use the Jacobs Chucks:
1. Set safety lock to "ON" position by rotating the trigger button to either side.

WARNING: IF USING A FOOTSWITCH, ENSURE THAT THE FOOTSWITCH IS NOT ACCIDENTALLY ACTIVATED WHILE INSERTING THE BLADE.

2. Snap Jacobs keyed or keyless chuck into nose of drill.

3. Open keyed chuck (via key)
   or
   keyless chuck (by rotating rings in opposite direction).

4. Insert drill bit or wire/pin into nose of chuck.

5. Use Jacobs chuck key to close drill bit or wire/pin into place.
   or
   if using keyless chuck, rotate rings in opposite direction.

6. Select Forward ("FWD") or Reverse ("REV") on the bottom of the drill.

7. Move the trigger button out of the "SAFE" position by rotating it straight up and down.

8. Depress the trigger.

To remove the chuck:
1. Place handpiece trigger in "SAFE" position.

2. Remove drill bit, wire or pin.

3. Ensure trigger is in "SAFE" position, then depress release button on top of drill and pull out chuck.
To use the Sagittal Saw Module (REF 7205791) with the Pistol Grip Drill:

1. Set safety lock on the drill to “ON” by rotating the trigger button to either side.

   **WARNING:** IF USING A FOOTSWITCH, ENSURE THAT THE FOOTSWITCH IS NOT ACCIDENTALLY ACTIVATED WHILE INSERTING THE BLADE.

2. Snap Sagittal Saw Module into nose of drill.

3. Press pin on the side of the module to open blade retention jaws; insert saw blade making sure that the blade is fully seated, then release pin to secure the blade.

4. Select Forward (“FWD”) or Reverse (“REV”) on the bottom of the handpiece.

5. Move trigger button from the “SAFE” position by rotating it straight up and down.

6. Depress the trigger to activate the handpiece.

7. To remove the blade, move trigger to the “Safe” position, then press pin to release jaws and remove blade.

8. To remove the Sagittal Saw Module from the drill, ensure trigger is in the “SAFE” position, then depress release button on top of handpiece and remove the Sagittal Saw Module.

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**PENCIL GRIP SAGITTAL SAW HANDPIECE** (REF 7205786)

To insert a blade into the Pencil Grip Sagittal Saw:

1. Move the safety lock on the throttle lever to “SAFE”.

   **WARNING:** IF USING A FOOTSWITCH, ENSURE THAT THE FOOTSWITCH IS NOT ACCIDENTALLY ACTIVATED WHILE INSERTING THE BLADE.

2. Press pin on the side of the module to open blade retention jaws; insert saw blade making sure that the blade is fully seated, then release pin to secure the blade.

   **Note:** The blade may be located in one of five positions.

3. Move the safety lock out of the “SAFE” position.

4. Depress the throttle lever to activate the instrument.

To remove a blade from the Pencil Grip Sagittal Saw:

1. To remove the blade, return lever to the “SAFE” position.

2. Press pin to release retention jaws and remove blade.

   **Caution:** Standard operating conditions eventually may cause overheating or total failure of the instrument. Periodically monitor the temperature of the nose section. The temperature should not rise above 115° F and should not become uncomfortable to touch with gloved fingers.
CLEANING AND STERILIZATION

Dried blood, saline, and other deposits inside the handpieces are a major cause of equipment malfunction.

**Caution:** DO NOT immerse the handpieces in saline, disinfectant, or any other liquid.

**Caution:** DO NOT use an ultrasonic cleaner or any other automated/sterilizing cleaning equipment. Ultrasonic cleaning can damage the bearings in the handpieces, potentially resulting in overheating or seizure.

**Caution:** DO NOT lubricate or oil the handpieces. Lubrication will clog the motor and prevent it from starting. Also take special precautions to avoid the use of cleaners which contain lubricants.

### CLEANING

1. Disassemble and transport to the decontamination area.
   a. If using the Sagittal Saw, slide the safety lock to the "SAFE" position. If using the Drill, rotate the trigger to the "SAFE" position. Unplug the footswitch cable from the control unit.
   b. Turn the power on the control unit to "OFF"; unplug the power cord from the wall outlet.
   c. Disconnect all handpiece cables from the control unit (not from the handpiece).
   d. Remove and discard used saw blades and drills after use, handling them as any contaminated sharp instrument.

**WARNING:** SAGITTAL SAW BLADES ARE SINGLE USE, DISPOSABLE DEVICES. DO NOT REUSE.

2. Clean the device immediately, using an appropriate detergent solution.

   **Caution:** Soaking the Handpiece cable may cause damage or corrosion to the connector pins inside, the control unit, and/or the handpiece itself.

3. Ensure that the handpiece is connected to the handpiece cable to keep detergent solution and water out of the motor.

4. Clean the handpiece cable thoroughly with warm water, mild detergent, and a soft brush. Pay vigorous attention to crevices.

5. Use a cannulation brush on cannulated components (i.e., drills, wire and pin drivers).
   a. Clean the cannulated shaft with a small cannulation brush.
   b. Clean inside drill and wire collets.

6. Flush under pressure the noses of drills and wire drivers to remove blood, debris, and saline deposits.

7. Rinse, with the handpiece cable connected, components under running water to remove all traces of detergent solution. If possible, use distilled water for the final rinse.

8. Dry and disconnect the handpiece cable from the handpiece, grasping it firmly on the grooved or knurled area of the plug. Be sure to pull straight back and DO NOT pull on the strain relief immediately behind it.

   **Note:** The handpiece cable has a mechanical snap-lock mechanism. To disconnect, pull on the grooved or knurled area of the plug (not on the strain relief immediately behind it).

### STERILIZATION

**Caution:** The handpiece cable should be sterilized in the same manner and location as the Pistol Grip Drill and Sagittal Saw.

1. **Sterilization parameters:** Smith & Nephew's powered surgical instruments (including handpieces, handpiece cable, and reusable accessories), are sterilized by steam, using either a gravity displacement or prevacuum sterilization ONLY.
CLEANING AND STERILIZATION/TROUBLESHOOTING

First Choice: Pre-vacuum steam sterilization for 4 minutes at 270° F (132° C), 8 minutes drying time.

Second Choice: Gravity displacement steam sterilization for 35 minutes at 270° F (132° C), 8 minutes drying time.

Note: These parameters have been validated to ensure sterility. Sterilizer functioning should be monitored at regular intervals with biological indicators to ensure products have been subjected to sterilization conditions.

Caution: DO NOT run instruments while warm. Cool by exposure to room temperature.

Caution: DO NOT immerse handpiece(s) in liquid to cool.

Caution: DO NOT process powered surgical instruments in a washer/sterilizer. The washer cycle will damage the motor and other internal components.

2. Accidental immersion:
   If a handpiece is accidentally immersed in saline, disinfectant, cleaning fluid, or any other corrosive substance, take the following steps:
   a. Totally immerse the handpiece in distilled water for one minute to dilute the corrosive fluid. DO NOT allow the water to dry in the handpiece.
   b. Immediately after soaking, steam sterilize in a pre-vacuum sterilizer at 270° F (132° C) for 4 minutes followed by an 8 minute drying time. Sterilizing will dry out the handpiece, avoid rusting and prevent contamination from collecting in the motor.

TROUBLESHOOTING

1. Handpiece cable (REF 7205788) is difficult to insert into handpiece or control unit.
   a. Ensure that the pins on the handpiece cable are aligned with the matching holes or RED DOT’s on the Control Unit and/or handpiece receptacle. This connection is a tight fit to keep particles from moving inside the handpiece.
   b. Ensure that each end of the plug is fully engaged via the “snap lock.”

   Note: The termination connectors should retract into the plug while pulling back on the notched portion of the plug sleeve. If the connector sleeves do not retract, send the handpiece cable to the factory for inspection, and use an alternate handpiece cable.

2. Handpiece will not start.
   a. Ensure that the Control Unit is “ON” (the main power switch is in the “1” position) and the display panel and power switch are illuminated.
   b. Ensure that either the throttle lever or trigger is in the “RUN” not “SAFE” position.
   c. If using the footswitch, ensure that the connector is fully inserted into the receptacle.
   d. Test handpiece in the other handpiece receptacle (A or B).
   e. Test the handpiece with another handpiece cable. If new handpiece cable starts the handpiece, return first handpiece cable for repair.
   f. Test a different handpiece in both handpiece receptacles (A and B). If the new handpiece runs properly, return the faulty handpiece for repair.
g. If using a footswitch, disconnect it and plug handpiece into the Control Unit. If the handpiece runs properly, return the footswitch for repair.

h. If the above steps do not cause the handpiece to run properly, return the Dyonics Power system for repair.

Note: Pressing either the trigger or throttle lever too slowly may prevent the handpiece from starting.

3. Handpiece runs slowly.
   a. Ensure that the safety lock is in the “RUN” position.
   b. Repeat steps “b-h” above under “Handpiece will not start.”
   c. Pressing the throttle lever or trigger too slowly may prevent handpiece from achieving the maximum set speed. Release trigger or lever and press again after one second.

   a. Turn the handpiece off and let it cool down. When the handpiece has cooled, check to see that the blade is properly seated and locked.
   b. If the handpiece overheats again, send it to Smith & Nephew for repair.

5. Trigger or Throttle Lever sticks.
   a. Repeat cleaning and sterilization procedures.
   b. If problem persists, return product to Smith & Nephew.
NEW PRODUCT WARRANTY
The Dynics Power drill, sagittal saw, handpieces, handpiece cables, footswitches, and accessories are warranted to be free from defects in material and workmanship for one year from the date of original invoice unless otherwise provided by local law. In the event of a defect in material or workmanship, the sole obligation of Smith & Nephew shall be the repair or replacement of these products. In no event shall Smith & Nephew be liable for any actual or consequential damages incurred as a result of the purchase, repair, or use of these products/equipment. In no event shall Smith & Nephew be liable for repair or replacement if damage to these products occurs during use other than that for which these products are designed or sold by Smith & Nephew, Inc.

NO OTHER WARRANTY, EXPRESSED OR IMPLIED, IS GIVEN.

SERVICE REPLACEMENT UNITS WARRANTY
The Dynics Power drill, sagittal saw, handpieces, handpiece cables, and accessories are warranted to be free from defects in material and workmanship for 90 days from the date of original invoice unless otherwise provided by local law.

European CE Mark Representative:
Smith & Nephew, York Science Park, Heslington, York, YO15 6F, United Kingdom.

Europa-Vertretung für CE Mark:
Smith & Nephew, York Science Park, Heslington, York, YO15 6F, Großbritannien

Representante europeo de la marca CE:
Smith & Nephew, York Science Park, Heslington, York, YO15 6F, Reino Unido.

Représentant européen pour la marque CE:
Smith & Nephew, York Science Park, Heslington, York, YO15 6F, Royaume Uni.

Rappresentante europeo per il marchio CE:
Smith & Nephew, York Science Park, Heslington, York, YO15 6F, Regno Unito.

Representant für CE Mark in Europa:
Smith & Nephew, York Science Park, Heslington, York, YO1 5DF, Storbritannien.

Europese vertegenwoordiger CE-merk:
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