Hall 50™ Battery Handpieces
Instruction Manual

(PRO7100B, PRO7200B, PRO7300B, PRO7400B and PRO7450B)

PRO7100B

PRO7200B

PRO7300B

PRO7400B

PRO7450B

ConMed Corporation

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Record the Model and Serial Numbers of all attachments, and date received. Retain for future reference.

Handpiece Model No.	_____	Serial No	_____	Date	_____
Handpiece Model No.	_____	Serial No	_____	Date	_____
Handpiece Model No.	_____	Serial No	_____	Date	_____
Handpiece Model No.	_____	Serial No	_____	Date	_____
Handpiece Model No.	_____	Serial No	_____	Date	_____
Handpiece Model No.	_____	Serial No	_____	Date	_____

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1.0 INTRODUCTION

It is recommended that personnel study this manual before attempting to operate, clean, or sterilize this or associated equipment. The safe and effective use of this equipment requires the understanding of and compliance with all warnings, precautionary notices, and instructions marked on the product, and included in this manual.

This equipment is designed for use by medical professionals completely familiar with the required techniques and instructions for use of the equipment.

Service intervals, as listed in Section **"3.4 Maintenance Schedule"**, are required to keep the equipment at its optimum operating performance.

1.1 Operating Principle

The Hall 50™ Battery Handpieces (PRO7100B, PRO7200B, PRO7300B, PRO7400B and PRO7450B) are powered by a detachable, rechargeable battery to provide rotary, reciprocating, or oscillating force to the accessory (drill bits, saw blades, reamers, drivers or other attachments) for bone cutting, drilling, driving and soft tissue resection. The handpieces are controlled by an activation trigger and mode lever on the handpiece. The handpieces and accessories (including the batteries) may come into physical contact with the patient (applied part).

1.2 Indications for Use

The PRO7100B Hall 50 Single Trigger Battery Handpiece, the PRO7200B Hall 50 Two-Trigger Modular Battery Handpiece, and their accessories, perform cutting of soft tissue and bone. The fields of application include: orthopedic, arthroscopic, hand and foot surgical procedures.

The PRO7300B Hall 50 Oscillating Saw Battery Handpiece and its accessories, perform cutting of soft tissue and bone. The fields of application include: orthopedic, arthroscopic, hand and foot surgical procedures.

The PRO7400B Hall 50 Reciprocating Saw Battery Handpiece and its accessories, perform cutting of soft tissue and bone. The fields of application include: orthopedic, and arthroscopic surgical procedures.

The PRO7450B Hall 50 Sternum Saw Battery Handpiece and its accessories, perform cutting of soft tissue and bone. The fields of application include: orthopedic, and arthroscopic surgical procedures.

1.3 Intended Use

Same as Indications for Use above.

1.4 Contraindication

The PRO7450B Hall 50 Sternum Saw Battery Handpiece is not intended for use in repeat sternotomy applications.

1.5 Warnings and Precautions

Do not bypass this section. It contains warnings and precautions that must be thoroughly understood before operating any of the equipment. Lack of understanding or adherence to these warnings and precautions may result in injury or even death to the patient and/or surgical staff.

The words **WARNING**, **PRECAUTION**, and **NOTE** carry special meanings and they must be read carefully.

WARNING: A warning contains critical information regarding serious adverse reactions and potential safety hazards that can occur in proper use or misuse of the equipment. Failure to observe the information or procedures presented in a Warning may result in injury or other serious adverse reactions to the patient and/or surgical staff.

PRECAUTION: A precaution contains instructions for any special care to be exercised by the practitioner for the safe and effective use of the equipment. Failure to observe the information or procedures presented in a Precaution may result in damage to the equipment.

NOTE: A note is added to provide additional focused information. This information has no critical effect on the patient or equipment.

1.5.1 Warnings

1. Eye protection is recommended when operating equipment. Eye injury may result.
2. It is the surgeon's responsibility to be familiar with the appropriate surgical techniques prior to use of the equipment and its associated accessories.
3. Do not use equipment if, upon receipt, package is opened, damaged, or shows any signs of tampering.
4. Do not use equipment in the presence of flammable anesthetics, gases, disinfecting agents, cleaning solutions, or any material susceptible to ignition due to electrical sparking.
5. Do not use sterile equipment beyond the expiration date listed on the label. Sterility of the product cannot be assured beyond the expiration date.
6. Handpieces and batteries are supplied non-sterile. Clean and sterilize prior to each use.
7. Do not contact the moving parts on the handpieces. Injury to the operator may occur.
8. Continually check handpiece for overheating. If overheating is sensed, immediately discontinue use and return equipment for service. Overheating of the blade or bur may cause damage to the blade or bur and may cause burns or thermal necrosis.
9. While handpiece is not in use do not place on patient/surgical drapes. Place handpiece on mayo stand or sterile table.
10. Failure to follow the specified service interval could result in reduced instrument performance or overheating of the handpiece. Overheating can lead to possible burn injury to the patient or medical personnel. Rotation of handpiece usage per day will assist with proper performance. (Refer to section **“3.4 Maintenance Schedule”**).

11. Do not attach, insert or remove accessories or attachments while the handpiece is operating. Injury to the operator and/or damage to the equipment may occur. Place the handpiece safety mechanism in the “safe” position prior to installation or removal of items.

12. Avoid contact with cutting tip of blade or bur when locking into handpiece. Tips are sharp and may cause injury.

13. After use, blades, burs and tubing sets may be a potential biohazard and should be handled and disposed in accordance with acceptable medical practice and applicable local and national requirements.

14. Do not use burs for plunge cutting. Injury or damage may occur.

15. Disposable blades and burs are supplied sterile and are for single-use only. Do not resterilize or reuse. The ability to effectively clean and re-sterilize these single use devices has not been established and subsequent re-use may adversely affect the performance, safety and/or sterility of the devices.

16. Do not operate the Oscillating, Reciprocating or Sternum Saws without a blade locked securely in place.

17. Always place the handpiece in the “safe” position when not in use, and prior to repositioning the rotating head on the Oscillating Saw, rotating the collet on the Reciprocating Saw, or connecting or removing attachments and accessories.

18. When using the PowerPro Sagittal Saw attachment (PRO2043), placing excessive bending or twisting force on the sagittal saw blade may cause the collet to open and release the saw blade.

19. Do not use saw blades to pry, remove bone grafts, or as a leverage point. Patient or user injury could occur.

20. Do not short circuit battery terminals, or allow them to contact metal objects. This could cause a shock or burn injury and also damage the battery.

21. Do not expose batteries to fire or incineration. Exposure may cause injuries.

22. Inspect battery pack for damage (e.g., cracks in battery case) prior to use. Do not use damaged battery packs. If battery pack is damaged and leakage or residue is noticed, do not allow it to come in contact with skin, eyes or clothing. Burns may result. If contact occurs, flush area with copious amounts of water and seek medical attention immediately. Dispose of or recycle properly.

23. Do not operate the Oscillating, Reciprocating or Sternum Saw with the collet in the “open” position or without a blade locked in the collet. Damage to the handpiece may occur.

1.5.2 Precautions

1. United States Federal law restricts sale of this device to or on the order of a physician.

2. This device should only be used in compliance with its intended use.

3. Handle all equipment carefully. If any equipment is dropped or damaged in any way, return it immediately for service.

4. Use only associated ConMed approved equipment and accessories. Using unapproved accessories may result in improper operation, and may result in non-compliance to medical standards.

5. The warranty becomes void and the manufacturer is not liable for direct or resulting damage if:

   - The device or the accessories are improperly used, prepared or maintained;
   - The instructions in the manual are not adhered to;
   - Non-authorized persons perform repairs, adjustments or alterations to the device or accessories.

6. There are no user-serviceable parts inside. No modification of this equipment is allowed.

7. Prior to each use, perform the following:

   - Ensure all accessories are correctly and completely attached. (Refer to section **"2.2 Assembly/Installation Instructions"**).
   - Perform the required Preoperative Functional Tests for the equipment and accessories. (Refer to section **"2.4 Preoperative Functional Test"**).

8. Clean and sterilize all equipment and associated accessories according to instructions for use. (Refer to section **"3.1 Cleaning Information"** and section **"3.2 Sterilization Information"**).

9. Handpieces are factory sealed. Do not disassemble or lubricate, as this may void the warranty.

10. Always inspect for bent, dull or damaged blades or burs before each use. Do not attempt to straighten or sharpen. Do not use if damaged.

11. After each use, thoroughly clean and inspect the handpiece, attachments and accessories (Refer to section **"3.0 MAINTENANCE"**).

12. Do not stall handpieces, damage can occur.

13. Do not operate the PRO2045 Reciprocating Saw attachment with the PRO7100B and PRO7200B Modular Battery Handpieces. Damage will occur to the attachment.

14. When using a saw attachment (Reciprocating Saw-PRO6045 or Sagittal Saw-PRO2043) or reaming attachment, do not operate in the screw, tap or oscillate mode. Handpieces should only be operated in the drill/ream mode when used with these attachments.

15. Depletion of the battery charge will result if the battery pack is attached to a handpiece while the handpiece is stored or is not being used.

16. Battery packs contain materials which must be recycled or disposed of properly. The disposal of nickel cadmium or nickel metal hydride batteries as municipal waste is prohibited. Dispose or recycle in accordance with your local, state and government regulations. In the U.S. call 1-800-925-4255 for additional information on battery pack disposal or recycling. Outside the U.S. contact your local ConMed representative.

17. Avoid contact of blades and burs with cutting blocks, retractors or other instrumentation. Damage to blade, bur or instrumentation may occur.

1.6 Environmental Directives

WEEE Directive [2002/96/EC] on Waste Electrical and Electronic Equipment. This statement only applies to European countries with regard to the Waste Electrical and Electric Equipment (WEEE) European Directive.

The WEEE symbol on the product or its packaging indicates that this product must not be disposed of with other waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of Waste Electrical and Electronic Equipment. The separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your medical equipment at the end of its useful life for recycling, please contact ConMed.

1.7 Product Photographs and Drawings

The pictures in this manual are for reference only. Items shown may not represent the actual product. However, procedural steps are identical, unless otherwise specified. When necessary, the actual pictures will be represented.

1.8 Symbol Definitions

1.8.1 Product Symbols

	"Safe" or "Off" position.		"Reverse" position of the PRO7100B handpiece.
	"Forward" position of the PRO7100B handpiece.		"Run" position of the PRO7400B and PRO7450B handpieces.
	"Run" position of the PRO7300B handpiece.		Screw/tap operating mode for the PRO7200B handpiece.
	Drill/ream operating mode for the PRO7200B handpiece.		Open direction for the collet for the PRO7300B handpiece.

1.8.2 Warnings and Information Symbols

REF	Catalog Number	SN	Serial Number
	Manufacturer		Date of Manufacture
	Consult Instructions for Use		Refer to Instruction Manual/Booklet (for critical safety instruction)
	Caution		DEHP Symbol
EC REP	Authorized Representative in the European Community	CE	CE Mark of Conformity
Rx ONLY	Prescription Only: Federal Law restricts this device to sale by or on the order of a physician		No User Service Recommended. Refer servicing to qualified ConMed service personnel
	Non Sterile	STERILE	Sterile
STERILE EO	Sterile - Sterilized Using EO	STERILE R	Sterile - Sterilized Using Irradiation
	Do Not Steam Sterilize		Do Not Sterilize
	Do Not Resterilize		Do Not Reuse (for Single Use Only)
	Do Not Use Oil		Do Not Use for Plunge Cutting
	Eye Protection Required		Biohazard Risk
	Do Not Immerse	QTY	Quantity
	Type B Applied Part		Type BF Applied Part

	UL Classification Mark		UL Recognized Components
	Rating Fuse		Fuse Location
	Alternating Current		Protective Earth Ground
	Equipotentiality (Equipment Potential)		Non-Ionizing Electromagnetic Radiation (RF Symbol)
	Temperature Limitation		Humidity Limitation
	Atmospheric Pressure Limitation		Use by Date
	Fragile		This Side Up
	Do Not Use if Package is Damaged		Keep Dry
	Warning: Corrosive Substance		Warning: Electrical Hazard/High Voltage
	Waste Electrical and Electronic Equipment (WEEE) Symbol. Regarding European Union end-of-life of product, indicating separate collection for electrical and electronic equipment		
	Recycle. Batteries contain materials which must be recycled or disposed of properly. The disposal of batteries as municipal waste is prohibited. Dispose or recycle in accordance with your local, state and governmental regulations. In the U.S. call 1-800-237-0169, or outside the U.S. contact your local ConMed representative for additional information on battery disposal or recycling.		

2.0 SYSTEM INSTALLATION AND OPERATION

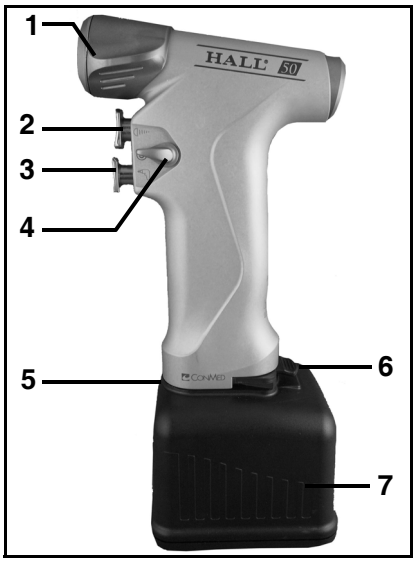
2.1 Product Description

2.1.1 PRO7100B Hall 50 Single Trigger Modular Battery Handpiece

The PRO7100B Hall 50 Single Trigger Modular Battery Handpiece is designed to be used as an all-purpose driver for reaming, drilling, wire and pin driving, and with the proper attachments (reciprocator and sagittal only) will perform sawing applications. This handpiece is designed to accept most PowerPro attachments.

1. **Attachment Collet-Lock** — Twist to unlock and remove attachments from the handpiece. It is not necessary to twist for insertion of attachment. Simply insert and push attachment to lock in place.
2. **Activation Trigger** — Used to activate the handpiece. Depress when the mode lever is in the "forward" or "reverse" position to operate.
3. **Mode Lever** — To operate the handpiece, place in either the "forward" or "reverse" position. Place in the "safe" position prior to connecting or removing any attachment or accessory and during non-use of the handpiece.
4. **Battery Receptacle** — The battery attaches here.
5. **Battery Release Lever** — Depress this lever to remove the battery from the handpiece.
6. **Battery Pack** — Refer to section **"4.3 Accessories"** for compatible batteries.

2.1.2 PRO7200B Hall 50 Two-Trigger Modular Battery Handpiece

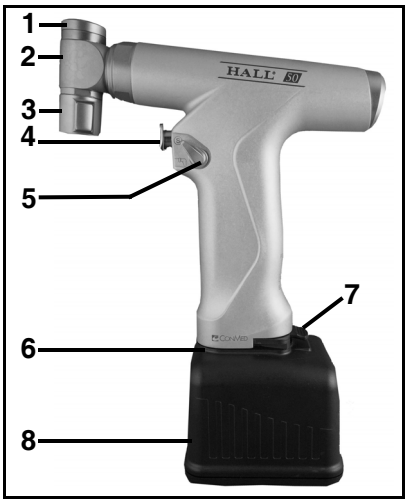


The PRO7200B Hall 50 Two-Trigger Modular Battery Handpiece is designed to be used as an all-purpose driver for reaming, drilling, wire and pin driving, and with proper attachments (reciprocator and sagittal only) will perform sawing applications. The Hall 50 Two-Trigger handpiece is also ideal for ACL and trauma procedures. This handpiece is designed to accept most PowerPro attachments.

1. **Attachment Collet-Lock** — Twist to unlock and remove attachments from the handpiece. It is not necessary to twist for insertion of attachment. Simply insert and push attachment to lock in place.
2. **Top Activation Trigger** — Refer to section **"2.3.2 PRO7200B Hall 50 Two-Trigger Modular Battery Handpiece Operation"** for detailed information on the functionality of this trigger.
3. **Bottom Activation Trigger** — Refer to section **"2.3.2 PRO7200B Hall 50 Two-Trigger Modular Battery Handpiece Operation"** for detailed information on the functionality of this trigger.
4. **Mode Lever** — To operate the handpiece, place in either the "drill/ream" or "screw/tap" position. Place in the "safe" position prior to connecting or removing any attachment or accessory and during non-use of the handpiece.

5. **Battery Receptacle** — The battery attaches here.
6. **Battery Release Lever** — Depress this lever to remove the battery from the handpiece.
7. **Battery Pack** — Refer to section **"4.3 Accessories"** for compatible batteries.

2.1.3 PRO7300B Hall 50 Oscillating Saw Battery Handpiece



The PRO7300B Hall 50 Oscillating Saw Battery Handpiece is designed for sawing in transverse or longitudinal bone osteotomies, removal of the femoral head and neck, removal of the greater trochanter, repeat sternotomies, resurfacing the tibial plateau and the distal end of the femur, and for other bone cuts as required in large bone procedures.

1. **Blade Locking Collet** — Holds and locks the blade in place.
2. **Rotating Head** — The rotating head gives the surgeon the ability to position the cutting blade for appropriate surgical access. The oscillator handpiece contains an 8 position, 45° indexing head. To position the rotating head, grasp the rotating head, pull it out from the handpiece body, and turn it to the desired position.
3. **Blade Locking Knob** — Rotate to the "open" position to insert a blade. Rotate in the opposite direction to lock the blade securely in place.

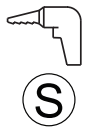
4. **Activation Trigger** — Used to activate the handpiece. Depress when the mode lever is in the "run" position to operate the handpiece.
5. **Mode Lever** — To operate the handpiece, place in the "run" position. Place in the "safe" position prior to connecting or removing an accessory and during non-use of the handpiece.

6. **Battery Receptacle** — The battery attaches here.
7. **Battery Release Lever** — Depress this lever to remove the battery from the handpiece.
8. **Battery Pack** — Refer to section **"4.3 Accessories"** for compatible batteries.

2.1.4 PRO7400B Hall 50 Reciprocating Saw Battery Handpiece

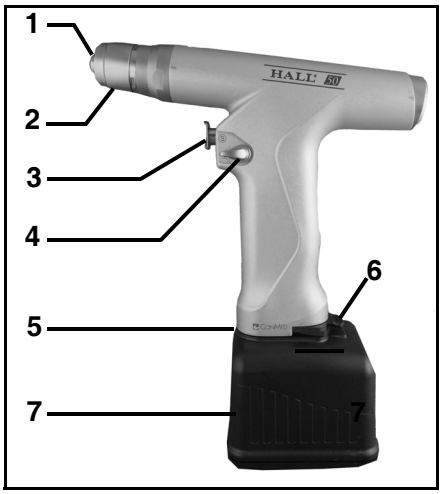
The PRO7400B Hall 50 Reciprocating Saw Battery Handpiece is designed for sawing in large bone total arthroplasties.

1. **Blade Collet —** Insert a blade here. Also used to rotate the blade to any of four (4) positions at 90° intervals for appropriate surgical access. Blade positioning must be done prior to locking the blade in the collet. To rotate, grasp the blade at the base of the collet and rotate to the desired position.
2. **Blade Locking Knob** — Rotate counterclockwise to open the collet to insert a blade. Rotate clockwise to lock the blade securely in place.
3. **Activation Trigger** — Used to activate the handpiece. Depress when the mode lever is in the “run” position to operate the handpiece.
4. **Mode Lever** — To operate the handpiece, place in the “run” position. Place in the “safe” position prior to connecting or removing an accessory and during non-use of the handpiece.



5. **Battery Receptacle** — The battery attaches here.
6. **Battery Release Lever** - Depress this lever to remove the battery from the handpiece.
7. **Battery Pack** — Refer to section **“4.3 Accessories”** for compatible batteries.

2.1.5 PRO7450B Hall 50 Sternum Saw Battery Handpiece



The PRO7450 Hall 50 Sternum Saw Battery Handpiece is designed to be used for primary sternotomies.

The Hall 50 PRO7450B is designed to accept 5059-532 and 5059-531 blades, and to be used with 5059-006, 5059-011, and 5059-006-03 blade guards.

1. **Collet Nut** — Accepts and locks a blade into the handpiece.
2. **Blade Guard Locking Sleeve** — Used to lock the sternum saw blade guard to the handpiece.
3. **Activation Trigger** — Used to activate the handpiece. Depress when the mode lever is in the "run" position to operate.
4. **Mode Lever** — To operate the handpiece, place in the "run" position. Place in the "safe" position prior to connecting or removing any attachment or blade and during non-use of the handpiece.

5. **Battery Receptacle** — The battery attaches here.
6. **Battery Release Lever** — Depress this lever to remove the battery from the handpiece.
7. **Battery Pack** — Refer to section **"4.3 Accessories"** for compatible batteries.

2.2 Assembly/Installation Instructions

2.2.1 Battery Installation

To attach the desired battery pack to the handpiece:

1. Align the contacts on the top of the battery pack with the connector on the handpiece.
2. Slide the battery pack until it snaps into place.

To remove the battery pack from the handpiece:

1. Depress the release lever and pull the battery pack from the handpiece.

2.2.2 Connecting and Removing Attachments to the Modular Handpiece (PRO7100B/PRO7200B)

All attachments for the Hall 50 Modular Handpieces connect/disconnect in the same manner. For more information, refer to the PowerPro Attachment Instruction Manual or the Information Insert supplied with each attachment.

To connect an attachment:

1. Place the mode lever in the “safe” position.
2. Orient the attachment shaft to the handpiece opening. Insert the shaft and press them until they snap together.

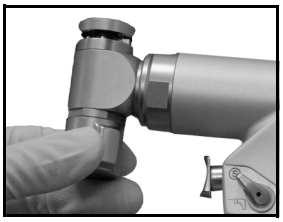
To disconnect an attachment:

1. Place the mode lever in the “safe” position.
2. Twist the attachment collet-lock. Remove the attachment.

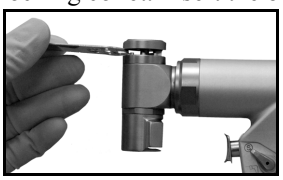
2.2.3 Connecting and Removing Blades to the Oscillator Handpiece (PRO7300B)

To attach a blade:

1. Place the mode lever in the “safe” position.
2. Rotate the blade locking knob in the direction of the arrow to the “open” position. The blade locking collet will disengage.

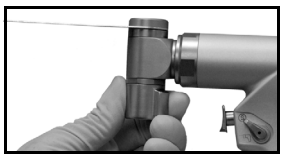


3. Align the blade shank with the blade locking collet. Insert the blade.



4. Rotate the blade locking knob in the opposite direction of the arrow to lock the blade into place.
5. Carefully pull on the blade to ensure it is securely in place.

WARNING: The blade locking knob must be completely closed to hold the blade firmly in place.



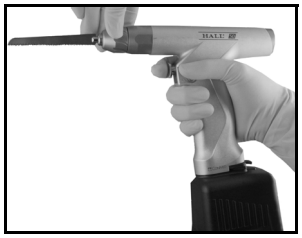
To remove the blade:

1. Ensure the mode lever is in the “safe” position.
2. Rotate the blade locking knob to the “open” position. The blade locking collet will disengage.
3. Remove the blade.

2.2.4 Connecting and Removing Blades to the Reciprocator Handpiece (PRO7400B)

To attach a blade:

1. Place the mode lever in the “safe” position.
2. Rotate the blade locking knob counterclockwise to open the blade collet.



3. Completely insert the blade shank.

4. The rotating head may be set in any of 4 positions at 90° intervals for the appropriate surgical access. Position the blade to the desired position by grasping the blade at the base of the collet and rotating it to the desired position.

5. Rotate the blade locking knob clockwise to lock the blade into place.
6. Carefully pull on the blade to ensure it is securely in place.

WARNING: The blade locking knob must be completely closed to hold the blade firmly in place.

To operate the handpiece, move the mode lever to the “run” position and depress the trigger.

To remove the blade:

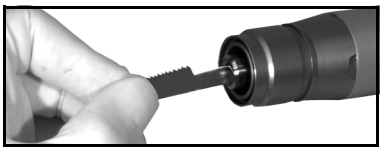
1. Ensure the mode lever is in the “safe” position.
2. Rotate the blade locking knob counterclockwise. The blade locking collet will disengage. Remove the blade.

2.2.5 Connecting and Removing Blade and Blade Guard to the Sternum Saw (PRO7450B)

WARNING: Never operate the Sternum Saw without the saw blade, collet nut, and blade guard locked securely in place.

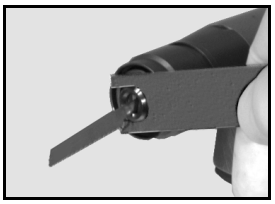
To install a blade:

1. Place the handpiece in the “safe” position.
2. Using the Locking Wrench (5059-007), loosen the collet nut by placing the locking wrench over the flats of the collet and turning counterclockwise one or two revolutions.
3. Completely insert the flat blade shank into the collet.



4. The blade may be inserted in either of two positions to allow cutting in a push (blade teeth pointing upwards - photo above) or pull direction (blade teeth pointing downwards - photo below).

5. Place the opening of the locking wrench over the flats on the collet nut. Turn in a clockwise direction and tighten the collet nut securely.

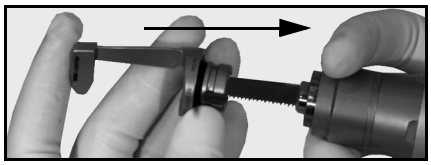


6. After the blade has been completely seated and locked, move the mode lever to the “run” position.
7. Briefly activate the handpiece by depressing the trigger. Return the mode lever to the “safe” position.
8. Carefully pull on the blade to ensure there is no movement in the blade. If there is movement, tighten the collet nut more securely.

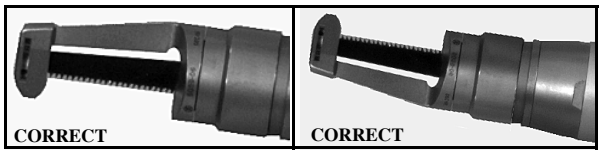
To attach the sternum saw blade guard:

NOTE: Ensure the O-Ring is present on the blade guard prior to installing.

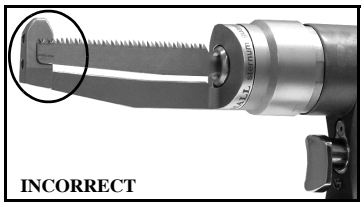
1. Carefully slide the sternum saw blade guard over the blade. Always align the support strut on the blade guard with the non-cutting side of the blade.



2. Align the slots on the connecting portion of the blade guard with the pins inside the blade guard locking sleeve. Pull the locking sleeve back (see above picture) and insert the blade guard completely into the blade guard locking sleeve.
3. With the blade guard in the proper position, release the locking sleeve. It will snap into place, locking the blade guard to the handpiece.

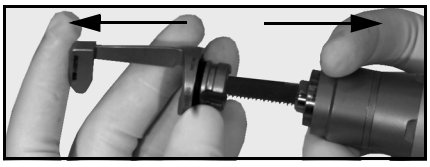


WARNING: Make sure the blade is inserted inside the slot of the blade guard, not outside. Otherwise damage or injury may occur.

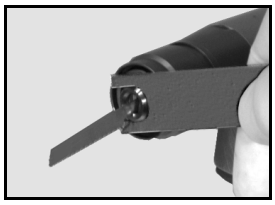


To remove the sternum saw blade guard and blade:

1. Place the handpiece in the “safe” position.
2. Slide the locking sleeve towards the back of the handpiece.



3. Pull the blade guard out and away from the handpiece. Release the locking sleeve.
4. Place the opening of the locking wrench over the flats on the collet nut. Turn the wrench in a counterclockwise direction and loosen the collet nut. Do not turn the collet nut more than two or three revolutions.



5. Remove the blade and dispose of blade properly.

2.3 Operating Instructions

NOTE: The connected attachment (drill or reamer) determines the speed and torque of the Hall 50 Modular handpiece.

2.3.1 PRO7100B Hall 50 Single Trigger Modular Battery Handpiece Operation

To operate the handpiece, place the handpiece mode lever in either the "forward" or "reverse" position and depress the trigger.

1. With the mode lever in the "forward" position, depressing the trigger operates the handpiece in the clockwise direction as viewed from the rear of the handpiece.The speed is variably controlled with the trigger.

2. With the mode lever in the "reverse" position, depressing the trigger operates the handpiece in the counter-clockwise direction as viewed from the rear of the handpiece. The speed is variably controlled with the trigger.

2.3.2 PRO7200B Hall 50 Two-Trigger Modular Battery Handpiece Operation

A matrix that describes the functionality of the two triggers, alone or in combination, is located below.

DRILL/REAM Position

Place the handpiece mode lever in the "drill/ream" position. The handpiece operates as follows:

1. Depress the bottom trigger only to operate in the forward, or clockwise direction as viewed from the rear of the handpiece. The speed is variably controlled with the trigger.
2. Depress the top trigger only to operate in the reverse, or counterclockwise direction as viewed from the rear of the handpiece. The speed is variably controlled with the trigger.
3. Depress both triggers simultaneously to operate in oscillate mode (1 turn clockwise,1 turn counterclockwise). The speed is variably controlled with the bottom trigger.

SCREW/TAP Position

NOTE: Do not use reaming attachments in the SCREW mode.

Place the handpiece mode lever in the "screw/tap" position. The handpiece operates as follows:

1. Depress the bottom trigger only to operate in the forward screw direction to drive screws. The speed is variably controlled with the trigger and torque is limited to approximately 20 in. lbs. (2.26 Nm).
2. Depress the top trigger only to operate in the reverse screw direction for removing screws. The speed is variably controlled with the trigger. Torque is not limited.
3. Depress both triggers to operate in tap mode. The handpiece will rotate 720° clockwise, then 360° counterclockwise (2 turns CW, 1 turn CCW). The speed is variably controlled with the bottom trigger.

Table 1: PRO7200B Hall 50 Two-Trigger Modular Battery Handpiece Operating Matrix

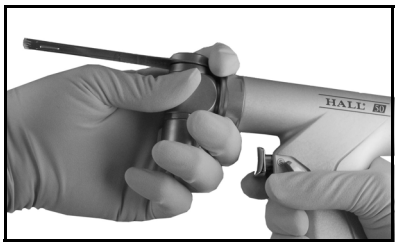
Lever Position	Operating Mode	Top Trigger Position	Bottom Trigger Position	Handpiece Action
	Drill/Ream	Not Pressed	Pressed	Forward
		Pressed	Not Pressed	Reverse
		Pressed	Pressed	Oscillating mode*
	Screw/Tap	Not Pressed	Pressed	Screw Forward *
		Pressed	Not Pressed	Screw Reverse*
		Pressed	Pressed	Tap Mode*
*** NOTE: Do not operate any saw attachment (Sagittal Saw - PRO2043, Reciprocating Saw - PRO6045) or reaming attachment in the screw, tap or oscillate mode. They are only to be operated in the drill/ream mode.**				

2.3.3 PRO7300B Hall 50 Oscillating Saw Battery Handpiece Operation

Position the rotating head to the desired position for the appropriate surgical access.

1. Ensure the mode lever is in the “safe” position.

2. Carefully pull the rotating head out and away from the handpiece body.



3. Twist the rotating head to the desired position and release the rotating head. Ensure it is locked into place and does not rotate.

4. Move the mode lever to the “run” position.

5. To activate the handpiece, depress the trigger.

2.3.4 PRO7400B Hall 50 Reciprocating Saw Battery Handpiece Operation

1. Move the mode lever to the “run” position.

2. To activate the handpiece, depress the trigger.

2.3.5 PRO7450B Hall 50 Sternum Saw Battery Handpiece Operation

1. Move the mode lever to the “run” position.

2. To activate the handpiece, depress the trigger.

2.4 Preoperative Functional Test

Prior to each use, perform the following preoperative functional test:

1. Attach battery to handpiece.
2. Insert an attachment or blade into the handpiece. Gently pull on the attachment or cutting accessory to ensure it is properly seated.
3. Run the handpiece for less than 5 seconds to observe any abnormal noises, vibrations or heat rise.
4. If any operating difficulties occur, return the handpiece for service.

3.0 MAINTENANCE

3.1 Cleaning Information

3.1.1 Warnings, Precautions and Notes

1. Follow universal precautions for protective apparel when handling and cleaning contaminated instruments.
2. Clean instruments within 30 minutes after use to minimize the potential of blood and debris drying.
3. Never clean equipment in an ultrasonic cleaner.
4. Always detach accessories from equipment prior to cleaning.
5. Never clean handpieces with bleach, chlorine-based detergents, liquid or chemical disinfectants, or any products containing sodium hydroxide. These products degrade the anodized aluminum coating and may result in reduced handpiece reliability.
6. For aluminum surfaces, a neutral-pH agent should be used. To prevent corrosion, avoid contact with strong alkaline solutions (pH over 10.5) or agents containing iodine or chlorine.
7. Prior to using a washer/sanitizer, consult product labeling on all washer/sanitizer cleaning solutions for compatibility with aluminum.

Refer also to Section **"1.5 Warnings and Precautions"**.

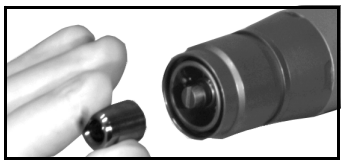
NOTE: For battery cleaning information refer to the corresponding battery charger instruction manual or the associated information insert supplied with the battery.

3.1.2 Manual Cleaning Instructions (PRO7100B, PRO7200B, PRO7300B, PRO7400B)

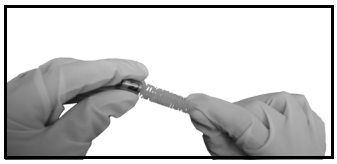
1. Thoroughly scrub the handpiece and attachments with a clean, soft brush dampened with a mild, pH-balanced detergent. Remove all traces of blood, debris and stains.
2. Using a low-velocity spray of water, spray into the collet. Ensure the collet operates smoothly and that no debris is binding the internal mechanism of the collet. Clean until all debris is removed.
3. To clean the cannulated section of the handpiece and attachment, feed the wire end of a cleaning brush through the cannulation of the handpiece or attachment. Pull the brush completely through and repeat until all debris is removed.
4. Manipulate all moving parts of the handpiece to ensure all debris is removed. If not, clean again until all debris is removed.
5. Keeping the nose of the handpiece pointed downward, rinse under running tap water (minimum temperature of 25°C/77°F) for a minimum of 30 seconds using a minimum of 6 liters of rinse water.
6. Rinse the handpiece under running deionized water (minimum temperature of 25°C/77°F) for a minimum of 30 seconds using a minimum of 3 liters of deionized water. Ensure handpiece is visibly free of detergent or cleaning residues.
7. Gently shake the equipment free of water and wipe the surfaces with a clean, lint-free towel.
8. Visually inspection handpiece and accessories under good light conditions to check for visible soil and/or corrosion.
9. Perform functional checks according to Section **"2.4 Preoperative Functional Test"**. Check mating accessories closely for proper assembly.
10. Repeat Manual Cleaning Instructions as necessary

3.1.3 Manual Cleaning Instructions (PRO7450B)

1. Thoroughly scrub the handpiece and attachments with a clean, soft brush dampened with a mild, pH-balanced detergent. Remove all traces of blood, debris and stains. Do not immerse equipment in cleaning solution.
2. Remove the collet nut from the handpiece using the locking wrench and rotating counterclockwise.



3. Clean the collet nut with a small brush to remove all traces of blood and debris.



4. Clean the collet shaft area thoroughly with a small brush to remove all traces of blood and debris.
5. After the collet nut and collet shaft area have been cleaned and rinsed thoroughly, replace the collet nut. Using the locking wrench, turn the collet nut clockwise until it is tight, then loosen it 1-2 turns. This will assure the collet mechanism is ready to accept a blade.
6. Clean the sternum saw blade guard thoroughly with a small brush to remove all traces of blood and debris. Particular attention should be paid to the area that locks into the handpiece and the slot in the foot of the blade guard.

7. Manipulate all moving parts of the handpiece to ensure all debris is removed. If debris is detected, continue cleaning until it is removed.
8. Keeping the nose of the handpiece pointed downward, rinse under running tap water (minimum temperature of 25°C/77°F) for a minimum of 30 seconds using a minimum of 6 liters of rinse water.
9. Rinse the handpiece under running deionized water (minimum temperature of 25°C/77°F) for a minimum of 30 seconds using a minimum of 3 liters of deionized water. Ensure handpiece is visibly free of detergent or cleaning residues.
10. Gently shake the equipment free of water and wipe the surfaces with a clean, lint-free towel.
11. Visually inspection handpiece and accessories under good light conditions to check for visible soil and/or corrosion.
12. Perform functional checks according to Section **"2.4 Preoperative Functional Test"**. Check mating accessories closely for proper assembly.
13. Repeat Manual Cleaning Instructions as necessary

3.1.4 Automated Cleaning Instructions

Hall 50 handpieces are suitable for use in washer/sanitizers. They are designed with advanced materials and sealing technologies and are individually tested to ensure the prevention of ingress of fluids during use and cleaning.

Hall 50 has an Ingress Protection rating of IPX6 and IPX8, ensuring they are suitably protected against water intrusion when exposed to water jets and immersion.

1. Under running water, remove all traces of blood and debris.
2. Load handpiece in washer/sanitizer and operate according to machine manufacturer's instructions. It is recommended to use a neutral pH cleaner. Only use approved solutions for cleaning powered instruments according to the manufacturer’s recommendations. Ensure all collet mechanisms are in the open position.
3. Run washer/sanitizer according to the manufacturer’s specifications. A dry cycle is recommended but not required.

3.1.5 Inspection Recommendations

1. Inspect Device Prior to Sterilization.
2. Generally, unmagnified visual inspection under good light conditions is sufficient. All parts of the devices should be checked for visible soil and/or corrosion.
3. Functional checks should be performed where possible.
4. Mating devices should be checked for proper assembly.
5. Remove and replace damaged instruments/containers.

3.2 Sterilization Information

3.2.1 Warnings, Precautions and Notes

1. The use of disinfecting solutions for an exterior instrument wipe will not sterilize the equipment and is not recommended.
2. Do not sterilize equipment or accessories using Ethylene Oxide (EtO).
3. Do not sterilize equipment or accessories in cold sterilants like CIDEX.
4. Always detach accessories from equipment prior to sterilization.
5. Do not “Peel Pack” handpieces for sterilization. Sterilization in a sealed pouch traps moisture which can cause damage.
6. The suction control valve, if one exists, must be in the fully open position during sterilization.
7. Attachments with collet mechanisms must be sterilized with the collet fully open.

8. Do not use equipment while warm. Allow adequate time for cooling prior to use. Cool by exposure to room temperature. Operation of equipment that is not completely cool or dry may decrease performance and/or reliability.

9. An eight (8) minute minimum dry cycle must be run on all equipment and attachments every time the product is sterilized. Failure to use a dry cycle on the products may lead to reduced product performance or premature product failure.

Refer also to Section **"1.5 Warnings and Precautions"**.

3.2.2 Sterilization Instructions

Steam sterilization is safe and effective and has no contraindications for sterilizing this equipment. Handpieces and attachments may be processed in a pre-vacuum steam sterilizer (Steam Pre-vacuum) or in a gravity (downward) displacement sterilizer (Steam Gravity).

1. Individually wrap handpiece and accessories. In the United States, use FDA-cleared sterilization wrap.

2. When sterilizing handpieces and attachments in a system sterilization tray, refer to the sterilization parameters in the system sterilization tray instruction manual.

3. For battery sterilization information refer to the associated information insert supplied with the PowerPro Battery Charger Instruction Manual or the associated information insert supplied with the battery.

4. The instructions provided have been validated as being capable of preparing the Hall 50 handpieces for re-use. It remains the responsibility of the processor to ensure that the processing as actually performed using equipment, materials and personnel in the processing facility achieve the desired result. This requires validation and routine monitoring of the process. Likewise, any deviation by the processor from the instructions provided should be properly evaluated for effectiveness and potential adverse consequences.

Recommended sterilization cycles in the United States:

Table 2: Sterilization Parameters for Hall 50 Battery Handpieces without a System Sterilization Tray in the United States

Method	Cycle	Temperature	Exposure	Dry Cycle
Steam (wrapped)	Pre-vacuum	270°F (132°C)	3 minutes	40 minutes
Steam (wrapped)	Gravity	250°F (121°C)	30 minutes	15 minutes

Recommended sterilization cycles outside the United States:

Table 3: Sterilization Parameters for Hall 50 Battery Handpieces without a System Sterilization Tray Outside the United States

Method	Cycle	Minimum Temperature	Maximum Temperature	Minimum Exposure	Maximum Exposure	Minimum Dry Cycle	Maximum Dry Cycle
Steam (wrapped)	Pre-vacuum	273°F (134°C)	278°F (137°C)	3 minutes	18 minutes	40 minutes	No maximum
Steam (wrapped)	Gravity	250°F (121°C)	-	30 minutes	-	15 minutes	No maximum

The PRO7450B Sternum Saw can be sterilized with the blade pre-installed in the saw collet. Pre-installing the blade prior to sterilization reduces assembly time and may allow the saw to be used more quickly during an emergency situation.

Follow these instructions to sterilize the saw with blade pre-installed:

1. Clean the handpiece and blade guard thoroughly following the instructions in section **"3.1.3 Manual Cleaning Instructions (PRO7450B)"** of this manual.
2. Insert a sternum saw blade in the desired orientation by following the instructions in section **"2.2.5 Connecting and Removing Blade and Blade Guard to the Sternum Saw (PRO7450B)"** of this manual. Be sure to lock the blade tightly in the collet and ensure that it is secure.

PRECAUTION: Do not install the sternum saw blade guard prior to sterilization. The sternum saw blade guard should be autoclaved separately and installed in the sterile field prior to use.

In the United States, sterilize the sternum saw with the blade inserted using the following parameters:

Table 4: Sterilization Parameters for Hall 50 PRO7450B Sternum Saw Handpiece with blade without a System Sterilization Tray in the United States

Method	Cycle	Temperature	Exposure	Dry Cycle
Steam (wrapped)	Pre-vacuum	270°F (132°C)	3 minutes	40 minutes

Outside the United States, sterilize the sternum saw with the blade inserted using the following parameters:

Table 5: Sterilization Parameters for Hall 50 PRO7450B Sternum Saw Handpiece with blade without a System Sterilization Tray Outside the United States

Method	Cycle	Minimum Temperature	Maximum Temperature	Minimum Exposure	Maximum Exposure	Minimum Dry Cycle	Maximum Dry Cycle
Steam (wrapped)	Pre-vacuum	273°F (134°C)	278°F (137°C)	3 minutes	18 minutes	40 minutes	No maximum

Once the saw has been unwrapped in the sterile field, place the blade guard on the saw by following the instructions in section **"2.2.5 Connecting and Removing Blade and Blade Guard to the Sternum Saw (PRO7450B)"**. The saw is now ready to use.

WARNING: Do not loosen the collet nut or remove/reposition the blade in the sternum saw once it is sterilized. Doing so may compromise sterility.

3.3 Troubleshooting

Table 6: Troubleshooting Guide

Symptoms	Possible Cause	Corrective Action
Handpiece does not operate.	• Handpiece mode lever in "safe" position.	• Move handpiece mode lever to an operating position.
	• Battery pack not charged.	• Replace with a charged battery pack.
	• Battery pack faulty.	• Connect another, fully charged battery pack to the handpiece. If handpiece works, battery pack was either not charged or faulty. Recharge battery pack and reconnect to handpiece. If handpiece still does not operate, the battery pack is faulty. Discard battery pack.
Excessive vibration, noise or heat	• Handpiece faulty.	• Return handpiece for service.
Blade does not insert easily.	• Collet contains debris.	• Thoroughly clean collet to remove all debris.
	• Blade is bent.	• Do not use. Replace blade.
Sternum saw blade guard does not fit onto handpiece.	• Blade guard is bent or damaged.	• Replace blade guard.
	• The blade has not been properly installed or is bent.	• Remove blade and reinstall. If blade is bent, replace it immediately.
	• Blade guard locking sleeve contains debris.	• Thoroughly clean the blade guard locking area to remove all debris.
Collet stuck in the open position or difficult to turn.	• Debris in collet.	• Thoroughly clean collet to remove all debris.
Attachment does not fit into handpiece.	• Debris in cannulation.	• Thoroughly clean cannulation to remove all debris.

3.4 Maintenance Schedule

Regular and proper maintenance of your equipment is the best way to protect your investment. It is essential that you have your equipment serviced as scheduled in order to retain its optimum performance and reliability, which will reward you with safer, less problematic product performance over time.

The equipment is not field repairable. Your ConMed authorized service department is the most knowledgeable about this equipment and its accessories and will provide competent and efficient services. Service at ConMed at the recommended service interval is mandatory to keep your product warranties in effect. Any services and/or repairs done by any unauthorized repair facility may result in reduced performance of the equipment or equipment failure. (Refer to section **"5.0 CUSTOMER SERVICE"**).

The Hall 50 Handpieces shall be returned every 12 months for servicing.

4.0 TECHNICAL SPECIFICATIONS

Medical electrical equipment complies with and was tested with respect to electric shock, fire, electromagnetic compatibility, mechanical and other specified hazards only, in accordance with UL60601-1, CAN/CSA C22.2 No. 601.1-M90, IEC60601-1:1988 +A1:1991 +A2:1995, ES60601-1:2005 +A1: 2009 +A2: 2010, CAN/CSA C22.2 No.60601-1-1-08 and IEC60601-1:2005 +C1:2006 +C2:2009.

Tested to IEC60601-1-2:2007 and Part 15 of the FCC Rules as follows: 1) The system may not cause harmful interference: 2) The system will accept interference, including interference that might cause undesired operation. If interference occurs, separate the instruments. For more information, contact customer service.

4.1 Product Technical Specifications

4.1.1 PRO7100B Hall 50 Single Trigger Modular Battery Handpiece

I.E.C Classification:	Internally Powered, Applied Part Type BF.
Protection Ingress of Fluids:	IPX6 and IPX8
Mode of Operation:	Intermittent Loading
Height:	6.2 in. (16 cm)
Length:	4.1 in. (10.4 cm)
Weight (Handpiece only):	1.58 lbs. (717 g)
Acoustic Noise:	80 dB
Maximum Power (Typical):	0.37 hp (275 W) with L3000LG battery (13.2 Volt)
	0.31 hp (230 W) with PRO3011 battery (12 Volt)
	0.22 hp (165 W) with PRO3010 and PRO3115 battery (9.6 Volt)
	0.19 hp (140 W) with PRO3520 battery (12 Volt)
	0.18 hp (130 W) with PRO3020 battery (12 Volt)
Duty Cycle (once daily):	12 seconds ON, 12 seconds OFF (4 x) 1 minute OFF 12 seconds ON, 12 seconds OFF (4 x) 8 minute OFF 30 seconds ON 1 minute OFF 1 minute ON

Attachment Specifications:	With L3000LG (13.2V) Battery, With PRO3011 and PRO3520 (12V) Batteries	With PRO3010 and PRO3115 (9.6V) Batteries	With PRO3020 (12V) Battery
Drill Attachments:			
Nominal Speed Range:	0 - 1500 rpm	0 - 1250 rpm	0 - 1500 rpm
Torque:	33 in-lbs. (3.7 Nm)	33 in-lbs. (3.7 Nm)	22 in-lbs. (2.5 Nm)
3:1 Reaming Attachments:			
Nominal Speed Range:	0 - 500 rpm	0 - 417 rpm	0 - 500 rpm
Torque:	90 in-lbs. (10.2 Nm)	90 in-lbs. (10.2 Nm)	60 in-lbs. (6.8 Nm)
5:1 Reaming Attachments:			
Nominal Speed Range:	0 - 300 rpm	0 - 250 rpm	0 - 300 rpm
Torque:	145 in-lbs. (16.4 Nm)	145 in-lbs. (16.4 Nm)	100 in-lbs. (11.3 Nm)

4.1.2 PRO7200B Hall 50 Two-Trigger Modular Battery Handpiece

I.E.C Classification:	Internally Powered, Applied Part Type BF.
Protection Ingress of Fluids:	IPX6 and IPX8
Mode of Operation:	Intermittent Loading
Height:	6.2 in. (16 cm)
Length:	4.1 in. (10.4 cm)
Weight (handpiece only):	1.63 lbs. (739 g)
Acoustic Noise:	80 dB
Maximum Power (Typical):	0.37 hp (275 W) with L3000LG battery (13.2 Volt)
	0.31 hp (230 W) with PRO3011 battery (12 Volt)
	0.22 hp (165 W) with PRO3010 and PRO3115 battery (9.6 Volt)
	0.19 hp (140 W) with PRO3520 battery (12 Volt)
	0.18 hp (130 W) with PRO3020 battery (12 Volt)
Duty Cycle (once daily):	12 seconds ON, 12 seconds OFF (4 x) 1 minute OFF 12 seconds ON, 12 seconds OFF (4 x) 8 minute OFF 30 seconds ON 1 minute OFF 1 minute ON

Attachment Specifications:	With L3000LG (13.2V) Battery, With PRO3011 and PRO3520 (12V) Batteries	With PRO3010 and PRO3115 (9.6V) Batteries	With PRO3020 (12V) Battery
Drill Mode:			
Drill Attachments:			
Nominal Speed Range:	0 - 1500 rpm	0 - 1250 rpm	0 - 1500 rpm
Torque:	33 in-lbs. (3.7 Nm)	33 in-lbs. (3.7 Nm)	22 in-lbs. (2.5 Nm)
3:1 Reaming Attachments:			
Nominal Speed Range:	0 - 500 rpm	0 - 417 rpm	0 - 500 rpm
Torque:	90 in-lbs. (10.2 Nm)	90 in-lbs. (10.2 Nm)	60 in-lbs. (6.8 Nm)
5:1 Reaming Attachments:			
Nominal Speed Range:	0 - 300 rpm	0 - 250 rpm	0 - 300 rpm
Torque:	145 in-lbs. (16.4 Nm)	145 in-lbs. (16.4 Nm)	100 in-lbs. (11.3 Nm)
Screw Mode:			
Speed Range:	0 - 250 rpm	0 - 250 rpm	0 - 250 rpm
Torque (forward):	14 - 22 in-lbs. (1.6 - 2.5 Nm)	14 - 22 in-lbs. (1.6 - 2.5 Nm)	14 - 22 in-lbs. (1.6 - 2.5 Nm)
Torque (reverse):	33 in-lbs. (3.7 Nm)	33 in-lbs. (3.7 Nm)	22 in-lbs. (2.5 Nm)
Tap Mode:			
Speed Range:	0 - 250 rpm	0 - 250 rpm	0 - 250 rpm
Oscillating Drill Mode:			
Speed Range:	0 - 750 rpm	0 - 750 rpm	0 - 750 rpm
Oscillation Range:	0 - 270°	0 - 270°	0 - 270°

4.1.3 PRO7300B Hall 50 Oscillating Saw Battery Handpiece

I.E.C Classification:	Internally Powered, Applied Part Type BF.
Protection Ingress of Fluids:	IPX6 and IPX8
Mode of Operation:	Intermittent Loading
Speed Range:	0 - 11,000 cpm with all batteries
Oscillation Range:	4.5°
Height:	6.4 in. (16.3 cm)
Length:	6.7 in. (17 cm)
Weight (handpiece only):	2.18 lbs. (990 g)
Acoustic Noise:	85 dB
Duty Cycle (once daily):	40 seconds ON, 10 minutes OFF (3x)

4.1.4 PRO7400B Hall 50 Reciprocating Saw Battery Handpiece

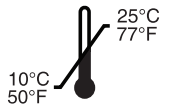
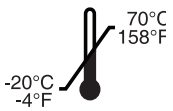
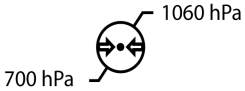
I.E.C Classification:	Internally Powered, Applied Part Type BF.
Protection Ingress of Fluids:	IPX6 and IPX8
Mode of Operation:	Intermittent Loading
Speed Range:	0 - 14,500 cpm with PRO3011, PRO3020, PRO3520 (12V) and L3000LG (13.2V) batteries 0 - 13,500 cpm with PRO3010 and PRO3115 (9.6V) batteries
Stroke:	0.125 in. (3.2 mm)
Height:	6.4 in. (16.3 cm)
Length:	7.7 in. (19.6 cm)
Weight (handpiece only):	2.23 lbs. (1013 g)
Acoustic Noise:	92 dB
Duty Cycle (once daily):	15 seconds ON

4.1.5 PRO7450B Hall 50 Sternum Saw Battery Handpiece

I.E.C Classification:	Internally Powered, Applied Part Type BF.
Protection Ingress of Fluids:	IPX6 and IPX8
Mode of Operation:	Intermittent Loading
Speed Range:	0 - 14,500 cpm with PRO3011, PRO3020, PRO3520 (12V) and L3000LG (13.2V) batteries 0 - 13,500 cpm with PRO3010 and PRO3115 (9.6V) batteries
Stroke:	0.125 in. (3.2 mm)
Height:	6.4 in. (16.3 cm)
Length:	7.3 in. (18.5 cm)
Weight (handpiece only):	2.08 lbs. (943 g)
Acoustic Noise:	92 dB
Duty Cycle (once daily):	20 seconds ON

4.2 Product Environmental Requirements

4.2.1 Environmental Technical Specifications

Environmental Conditions	Operating	Storage and Transport
Temperature:		
Relative Humidity:		
Atmospheric Pressure:		

4.2.2 Electromagnetic Requirements

Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Use of accessories other than those recommended may result in non-compliance with electromagnetic compatibility and immunity standards.

Table 7: Guidance and Manufacturer's Declaration - Electromagnetic Emissions

Hall 50 Handpieces are intended for use in the electromagnetic environment specified below. The customer or the user of the Hall 50 Handpieces should assure that they are used in such an environment		
Emissions test	**Compliance**	**Electromagnetic environment - guidance**
RF Emissions CISPR 11	Group 1	Hall 50 Handpieces use RF energy only for internal functions; therefore, RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF Emissions CISPR 11	Class A	The Hall 50 Handpieces are intended for use by healthcare professionals only and is suitable for use in all establishments other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic Emissions IEC 61000-3-2	N/A	Not Applicable
Voltage Fluctuations/Flicker Emissions IEC 61000-3-3	N/A	Not Applicable

Table 8: Guidance and Manufacturer's Declaration - Electromagnetic Immunity

The Hall 50 Handpieces are intended for use in the electromagnetic environment specified below. The customer or the user of the Hall 50 Handpieces should assure that it is used in such an environment.			
Immunity Test	**IEC 60601 Test Level**	**Compliance Level**	**Electromagnetic Environment Guidance**
Electrostatic discharge (ESD) IEC 61000-4-2	± 6 kV contact ± 8 kV air	± 6 kV contact ± 8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transients/bursts IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/output lines	± 2 kV for power supply lines ± 1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV line to line ± 2 kV lines to earth	± 1 kV line to line ± 2 kV lines to earth	Mains power quality should be that of a typical commercial or hospital environment.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5% *Ut* (>95% dip in *Ut*) for 0.5 cycle 40% *Ut* (60% dip in *Ut*) for 5 cycles 70% *Ut* (30% dip in *Ut*) for 25 cycles <5% *Ut* (>95% dip in *Ut*) for 5 seconds	<5% *Ut* (>95% dip in *Ut*) for 0.5 cycle 40% *Ut* (60% dip in *Ut*) for 5 cycles 70% *Ut* (30% dip in *Ut*) for 25 cycles <5% *Ut* (>95% dip in *Ut*) for 5 seconds	Mains power quality should be that of a typical commercial or hospital environment. If the user of the Hall 50 Handpieces requires continued operation during power mains interruptions, it is recommended that the Hall 50 Handpieces be powered from an uninterruptable power supply or battery.
NOTE: Ut is the a.c. mains voltage prior to application of the test level.			
Portable and mobile RF communications equipment should be no closer to any part of the Hall 50 Handpieces, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.			

Table 8: Guidance and Manufacturer's Declaration - Electromagnetic Immunity (Continued)

The Hall 50 Handpieces are intended for use in the electromagnetic environment specified below. The customer or the user of the Hall 50 Handpieces should assure that it is used in such an environment.

Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment Guidance
Conducted RF IEC 61000-4-6	150 kHz to 80 MHz	3 Vrms	**Recommended Separation Distance** $d = 1.2 \sqrt{P}$
Radiated RF IEC 61000-4-3	80 MHz to 2.5 GHz	3 V/m	$d = 1.2 \sqrt{P}$ 80 MHz to 800 MHz $d = 2.3 \sqrt{P}$ 800 MHz to 2.5 GHz

Where P is the maximum output where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey [a], should be less than the compliance level in each frequency range [b].
Interference may occur in the vicinity of equipment marked with the following symbol:

NOTE 1: At 80 MHz and 800 MHz, the higher frequency range applies.

NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and/or people.

a. Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the Hall 50 Handpieces is used exceeds the applicable RF compliance level above, Hall 50 Handpieces should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the Hall 50 Handpieces.

b. Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Table 9: Recommended Separation Distances Between Portable and Mobile RF Communications Equipment and the Hall 50 Handpieces @ 3Vrms

Hall 50 Handpieces are intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of Hall 50 Handpieces can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the Hall 50 Handpieces as recommended below, according to the maximum output power of the communications equipment.

	Separation Distance According to Frequency of Transmitter (meters)		
Rated Maximum Output Power of Transmitter (Watts)	m		
	150 kHz to 80 MHz $d = \left[\frac{3.5}{v_1}\right]\sqrt{P}$	80 MHz to 800 MHz $d = \left[\frac{3.5}{E_1}\right]\sqrt{P}$	800 MHz to 2.5 GHz $d = \left[\frac{7}{E_1}\right]\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.34	0.34	0.74
1	1.7	1.7	2.3
10	3.7	3.7	7.4
100	11.7	11.7	23.3

For transmitters rated at a maximum output power not listed above, the recommended separation distances *d* in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where *P* is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

Note 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

Note 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.

4.3 Accessories

REF	Description
	Attachments
PRO1540	AO Drill/Ream Attachment
PRO1541	1/4 in. Chuck Drill/Ream Attachment
PRO1547	Zimmer/Hudson Drill/Ream Attachment
PRO1548	DePuy/Hudson Drill/Ream Attachment
PRO2029	Trinkle/AO Attachment
PRO2030	5/32 in. (4.0 mm) Chuck Attachment w/key
PRO2033	High Speed Drill Attachment
PRO2038	AO Small Attachment
PRO2040	AO Reamer Attachment
PRO2041	1/4 in. (6.5 mm) Chuck Attachment
PRO2042	1/4 in. (6.5 mm) High Torque Chuck Attachment
PRO2043	Sagittal Saw Attachment
PRO2046	Zimmer/Hudson Drill Attachment
PRO2047	3:1 Zimmer/Hudson Reamer Attachment
PRO2060	Aesculap Reamer Attachment
PRO2065	Hudson Reamer Attachment
PRO2070	AO Drill Attachment
PRO2075	Standard Hudson Drill Attachment
PRO2250	1/4 in.(6.5 mm) Keyless Chuck Attachment
PRO2514	Radiolucent Drive Adaptor Attachment
PRO6040	5:1 AO Reamer Attachment
PRO6042	5:1 Reamer Attachment
PRO6045	Reciprocating Saw Attachment
PRO6047	5:1 Zimmer/Hudson Reamer Attachment
PRO6048	5:1 Hudson Reamer Attachment
PRO6050	1/8 in. (3.175 mm) Keyless Chuck Attachment
PRO6060	5:1 Aesculap Reamer Attachment
PRO6128	Single-Trigger Wiredriver Attachment
PRO6140	Single-Trigger Pin Driver Attachment (1.8 mm - 4 mm)
PRO6228	Two-Trigger Wire Driver Attachment
PRO6240	Two-Trigger Pin Driver Attachment (1.8 mm - 4 mm)
PRO7020	High Speed Attachment

	Batteries
L3000LG	Large Lithium Battery, 13.2 Volt
PRO3010	Large PowerPro Standard Battery, 9.6 Volt
PRO3011	Large PowerProMAX Standard Battery, 12 Volt
PRO3020	Small PowerPro Standard Battery, 12 Volt
PRO3115	Large Sterile Transfer Battery, 9.6 Volt
PRO3520	Small Sterile Transfer Battery, 12 Volt
	Blades
5059-531	Extended Sternum Saw Blade
5059-532	Sternum Saw Blade
	Guards
5059-006	Sternum Saw Blade Guard
5059-006-03	Sternum Saw Extended Blade Guard with Dura Guard
5059-011	Sternum Saw Extended Blade Guard
	Miscellaneous
5059-007	Sternum Saw Wrench
5059-009	Sternum Saw Collet Nut
PRO2039	Mini AO Drill
PRO3205	SureCharge Disposable Filters (50/pkg)
	Cases/Shrouds
PRO3110	Large Sterile Transfer Battery Case
PRO3130	Large Sterile Transfer Shroud
PRO3200	SureCharge® Sterilization/Charging Case
PRO3521	Small Sterile Transfer Battery Case
PRO3531	Small Sterile Transfer Shroud
	Platforms
L3000	Lithium Battery Charger
PRO3135	Large Sterile Transfer Platform
PRO3535	Small Sterile Transfer Platform
PRO3600	PowerPro Battery Charger
	Reamers
PRO2080	DHS Reamer
PRO2329	Trinkle Reamer

5.0 CUSTOMER SERVICE

5.1 Assistance and Repair

If you need technical assistance regarding the use or application of this product, or you encounter a problem that requires servicing or repair, contact ConMed Customer Service at 800-237-0169 or your ConMed Sales Representative. Outside the U.S. contact your local ConMed Representative or your local ConMed Service Center (refer to www.conmed.com for the proper contact information).

Report any events involving injuries or malfunctions to the ConMed Regulatory Product Support.

Products returned for repair must have an authorized Service Request (SR) number prominently displayed on the box and included on all paperwork. Refer to this number if making inquiries about the repair status. Please call ConMed Customer Service and provide the following information to obtain an S.R. number prior to returning any product for repair:

- Product Number
- Serial/Lot Number
- Reason for Return
- Original Invoice Number
- Date of Purchase
- Detailed description of the problem

ConMed Corporation
Attn.: Customer Service Dept.
11311 Concept Boulevard
Largo, Florida 33773-4908 USA

Customer Service		
(within U.S.)	**Phone:**	**1-800-237-0169**
	FAX:	**727-399-5256**
(outside U.S.)	**Phone:**	**+1 (727) 392-6464**
	FAX:	**+1 (727) 397-4540**
ConMed Regulatory Product Support		
(within U.S.)	**Phone:**	**1-800-325-5900**
(outside U.S.)	**Phone:**	**+1 (727) 392-6464**

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