

The Hall® *PowerPro*® Pneumatic Handpieces Instruction Manual (PRO6150, PRO6175, PRO6185)



PRO6150



PRO6175



PRO6185

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Record the Model and Serial Numbers of the handpiece(s), 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	_____

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1.0 INTRODUCTION

It is recommended that personnel study this manual before attempting to operate, clean, or sterilize *PowerPro*[®] Pneumatic Handpieces (PRO6150, PRO6175, PRO66185). The safe and effective use of this equipment requires the understanding of and compliance with all warnings, cautionary notices, and instructions marked on the product, and included in this manual.

1.1 Intended Use



The *PowerPro* Pneumatic Modular Handpiece, along with an assortment of modular attachments, is designed to perform bone cutting, reaming, drilling, driving screws, sawing, and pin driving functions common to small and large bone orthopedic surgical procedures. This handpiece uses the same attachments as the *PowerPro* Electric and Battery Systems handpieces.


The *PowerPro* Pneumatic Oscillator Handpiece is designed for sawing in small, large and transverse or longitudinal bone osteotomies, removal of the femoral head and neck, removal of the greater trochanter, resurfacing the tibial plateau and the distal end of the femur such as required in total knee or total hip arthroplasties.

The *PowerPro* Pneumatic Reciprocator Handpiece is designed for sawing in large bone total joint arthroplasties.











The fields of application for these handpieces include: Osteotomy, Trauma, Orthopedic and Total Joint Arthroplasty.



1.2 General Warnings

1. This equipment is designed for use by medical professionals completely familiar with the required techniques and instructions for use of the equipment. **Read and follow all warning and cautionary notices and instructions marked on the product and included in this manual.**
2. Handpieces are factory sealed. Do not disassemble or lubricate, as this may void your warranty. There are no user-serviceable parts inside. 
3. Eye protection is recommended when operating equipment. 
4. Use only associated Hall[®] Surgical and Linvatec accessories (saw blades, bits, etc.).
5. Handle all equipment carefully. If the handpiece is dropped or damaged in any way, return it immediately for service.
6. Prior to each use, perform the following:
 - Inspect all equipment for proper operation.
 - Ensure all attachments, accessories and hoses are correctly and completely attached to the handpiece.
 - Always inspect hoses for signs of wear or damage. Do not use worn or damaged hoses. Replace immediately.
 - Check all equipment for any air or nitrogen leakage. If leakage is noticed, return for service.

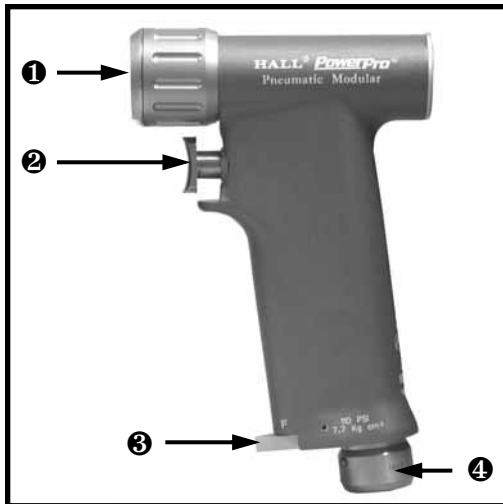
7. Always inspect for bent, dull or damaged blades or drill bits before each use. Do not attempt to straighten or sharpen. Do not use if damaged. After use, dispose of properly. 
8. Do not attach, insert or remove accessories or attachments while the handpiece is operating. **Place the handpiece in the safe position, if applicable, prior to installation or removal of items.** Accidental activation of the handpiece could cause injury.
9. Continually check handpiece and attachments for overheating. If overheating is noticed, discontinue use and return equipment for service.
10. Do not pressurize hoses until all fittings have been connected and checked.
11. Never operate the handpiece above 110 psi (7.7 kg/cm²) dynamic pressure unless an extension hose is added to the standard 10 foot hose. Excessive pressure may cause damage to instrument and exert unusual stress on the hose.
12. Do not bind drill bit or reamer during use. Over exertion may cause patient injury, user injury, and / or damage to the instrument.
13. The nitrogen regulator is for use with pneumatically powered surgical devices only.
14. After each use, thoroughly clean handpiece and attachments (See **“3.1 Cleaning and Sterilizing”** on page 15).

1.3 Symbol Definitions

	Attention, consult accompanying documents.
	Type B equipment.
	Single Use Only.
	No user service recommended. Refer servicing to qualified Livatec service personnel.
	Indicates handpiece should not be immersed in any fluid.
	Indicates product should not be oiled or lubricated.
	Eye Protection Required.
	Caution: Federal Law restricts this device to sale by or on the order of a physician.
	Indicates the reverse position for the PRO6150 Modular Handpiece or the run position for the PRO6175 Oscillator and PRO6185 Reciprocator Handpieces.
	Indicates the safe position for all handpieces.

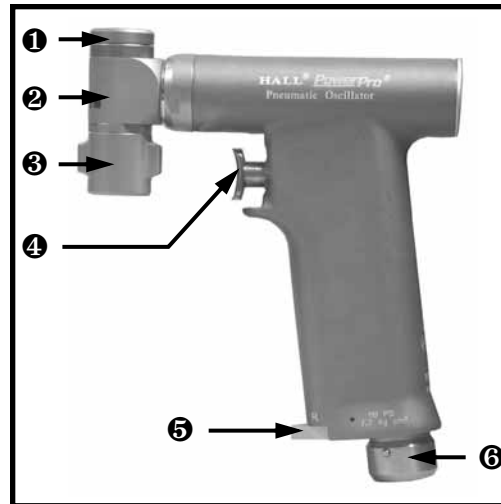
	Indicates the forward position for the PRO6150 Modular Handpiece.
	Indicates the “open” or “lock” direction for the PRO6175 Oscillator handpiece blade collet mechanism.

1.4 *PowerPro* Pneumatic Modular Handpiece (PRO6150)



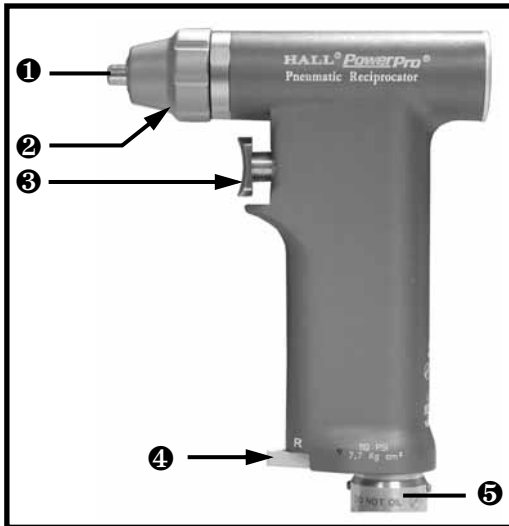
- ❶ **Attachment Collet-Lock** — Twist to release and remove attachments from the handpiece. It is not necessary to twist for insertion of attachment. Simply insert and push attachment to lock in place.
- ❷ **Activation Trigger** — Used to activate the handpiece. Depress when the safety/direction lever is in the forward or reverse position to operate.
- ❸ **Safety/Direction 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.
- ❹ **Hose Connector** — The pneumatic hose (5052-010) connects here.

1.5 *PowerPro* Pneumatic Oscillator Handpiece (PRO6175)



- ❶ **Blade Locking Collet** — Holds and locks the blade in place.
- ❷ **Rotating Head** — Rotates in 90° intervals for appropriate surgical access. To rotate the head, grasp the rotating head, pull it straight out from the handpiece body, and turn it to the desired position.
- ❸ **Blade Locking Knob** — Rotate to open or lock the blade locking collet to insert and lock the blade securely in place.
- ❹ **Activation Trigger** — Depress when the safety/direction lever is in the “run” position to operate the handpiece.
- ❺ **Safety/Direction 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.
- ❻ **Hose Connector** — The pneumatic hose (5052-010) connects here.

1.6 *PowerPro* Pneumatic Reciprocator Handpiece (PRO6185)



The *PowerPro* Battery Reciprocator Handpiece is designed to accept Hall 5052-058 through -061, -073, -179, -258 through -261, -273, -276 and -279 series blades. Refer to the Hall Catalog for specific blade information.

- ❶ **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.
- ❷ **Blade Locking Knob** — Rotate counterclockwise to open the collet to insert a blade. Rotate clockwise to lock the blade securely in place.

- ❸ **Activation Trigger** — Used to activate the handpiece. Depress when the safety/direction lever is in the “run” position to operate the handpiece.
- ❹ **Safety/Direction 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.
- ❺ **Hose Connector** — The pneumatic hose (5052-010) connects here.

2.0 INSTALLATION and OPERATION

NOTES:

1. **When not in use and prior to connecting or removing attachments and accessories, always place the handpiece in its safe position.**
2. **The connected attachment (drill or reaming) determines the speed and torque.**

2.1 Power Source and Regulator Installation and Operation

WARNING: Not for inhalation. Does not support life. For use with powered surgical devices only.

Research and experience have shown that water-pumped dry nitrogen is the ideal source for pneumatically-powered surgical instruments. Water-pumped dry nitrogen is 99.97% pure, and will not support combustion or corrosion. Compressed dry nitrogen is recommended as the pneumatic power source. It is available in standard cylinders.

Compressed dry nitrogen must meet the following specifications to ensure optimum safety for both patient and instrument.

Nitrogen Content: 99.97% pure, dry nitrogen.

Quality Assurance: To obtain the quality of gas needed, “water-pumped dry nitrogen, or liquid nitrogen, pumped dry” should be specified.

Nitrogen is readily available from gas supply houses in **H** cylinders holding slightly more than 300 cubic feet (8.50 cubic meters). Initial set-up costs are relatively inexpensive as compared to compressed air. Nitrogen can be placed in the operating room or in a storage area and piped into the operating room. Manifold systems are available to eliminate frequent tank changes.

CAUTION: Do not exceed 110 psi (7.7 kg/cm²) operating pressure unless a hose longer than the standard 10 ft. Universal Hose (5052-010) or extension hose is used. Add an additional 1 psi for every extra foot of hose.

The *PowerPro* Pneumatic handpiece should be operated at 110 psi (7.7 kg/cm²) for maximum operating efficiency, and should be monitored by the operating pressure gauge of the regulator. Lower pressure setting can be set for lower speed and torque requirements. Pressure must be set with the instrument running to ensure proper operating pressure.

Never start a procedure if the operating pressure gauge indicates less than 500 psi (35.1 kg/cm²) in the tank. Never run the tank pressure below 200 psi (14.0 kg/cm²).

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

1. Prior to set-up in the operating room, open the tank valve (counterclockwise) slowly and allow enough gas to escape to blow out any debris that may have accumulated in the valve. Stay clear of the opening and the back of the tank during this procedure. Return the valve to the closed position.



2. Install the regulator with a 1 1/8 inch wrench.



NOTE: The threaded adaptor of the nitrogen regulator is designed to fit nitrogen fittings only. Incompatibility of the regulator and tank indicates a gas source other than nitrogen or an improper regulator for use with a nitrogen tank.

3. Once the regulator is securely installed, ensure the regulator knob is in the full off position by turning the regulator control knob counterclockwise. **SUDDEN PRESSURE EXERTED TO THE REGULATOR MAY CAUSE INTERNAL DAMAGE.**



4. Slowly turn the tank valve fully open (counterclockwise). This will allow nitrogen to pressurize the regulator.



5. Insert the male Schrader end of the hose into the female Schrader on the regulator with an upward thrust.

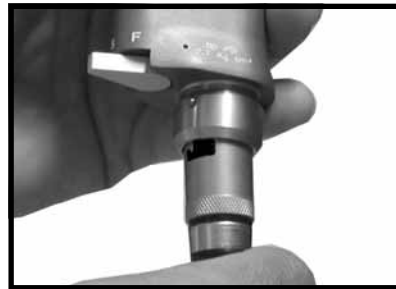


6. Operating pressure is established by gradually turning the regulator control knob clockwise. **ALWAYS establish the designated pressure on the operating pressure gauge with the instrument running.**



7. To connect the hose to the handpiece.

- (a) Place the handpiece in the safe position.
- (b) Insert the coupling end of the hose into the fitting on the bottom of the handpiece.

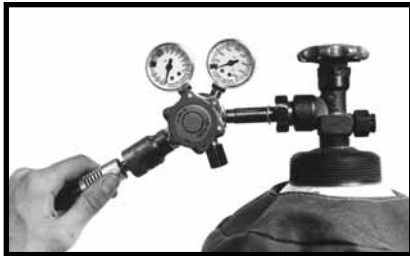


- (c) Twist the hose coupling to the right (clockwise) and slightly pull on the hose so the internal pins securely engage in the indentations.
- (d) Attached to the Universal Hose (5052-010) is the Hall Hose Handler. This clip allows fixation of the hose to the surgical drape, reducing the problem of the hose slipping off the patient.



- (e) The Velcro® strap allows the hose to be coiled, thus reducing excess hose length. In addition, the VELCRO strap may be used with any additional hose and/or cable.

8. Before removing the instrument from the regulator:
 - (a) Close the tank valve by turning it clockwise.
 - (b) Activate the instrument to bleed off line pressure.
 - (c) Turn the pressure regulator knob counterclockwise until it stops.
 - (d) Turn the female Schrader to the right to disengage the male Schrader fitting.
 - (e) The hose can then be removed from the connector. Hold the end of the hose securely when disengaging the male Schrader fitting to prevent possible damage to the diffuser.



9. If the Hall Pneumatic Connector* is being used:
 - (a) Locate the button marked "PRESS".
 - (b) Depress and hold the button until the audible release of residual gas is completed.

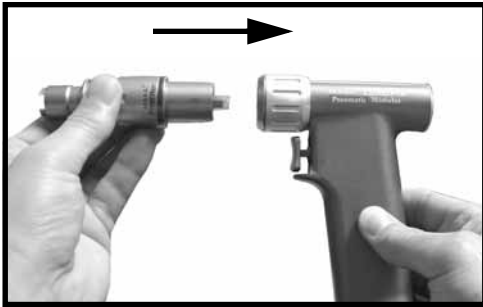


- (c) Release the button and remove the hose.
- (d) If the hose cannot be easily removed, depress the "PRESS" button again, release it and remove the hose.

2.2 Connecting and Removing Attachments

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

1. To connect an attachment:
 - (a) Place the safety/directional lever in the safe position.
 - (b) Orient the attachment shaft to the handpiece opening. Insert the shaft and press them until they snap together.



2. To disconnect an attachment, twist the attachment collet-locking ring in a clockwise direction and remove the attachment.

2.3 Handpiece Mode Selection and Operation

2.3.1 *PowerPro* Pneumatic Modular Handpiece (PRO6150) Operation

The *PowerPro* Pneumatic Modular handpiece, in conjunction with numerous attachments, is used for drilling, and wire and pin driving. It has a variable speed of 0-1250 rpm and a minimum torque of 20 in. lbs. with all drilling, and wire and pin driving attachments. A variable speed of 0-250 rpm and torque of 100 in. lbs. with the 5:1 ratio reaming attachment (identified with a blue-colored ring).

1. To operate the handpiece, place the handpiece safety/direction lever in either the forward or reverse position and depress the trigger.
 - (a) With the safety/direction 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 by the trigger.
 - (b) With the safety/direction 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 by the trigger.

2.3.2 *PowerPro* Pneumatic Oscillator Handpiece (PRO6175) Blade Installation and Operation

2.3.2.1 Blade Installation

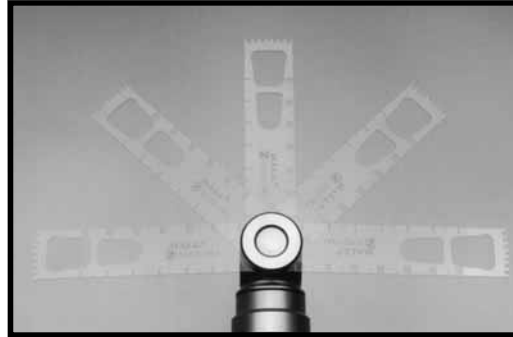
1. To attach a blade:
 - (a) Place the safety/direction lever in the safe position.
 - (b) Rotate the blade locking knob in the direction of the arrow to the open position. The blade locking collet will disengage.



- (c) Align the blade shank to the desired angle with the blade locking collet. Insert the blade.

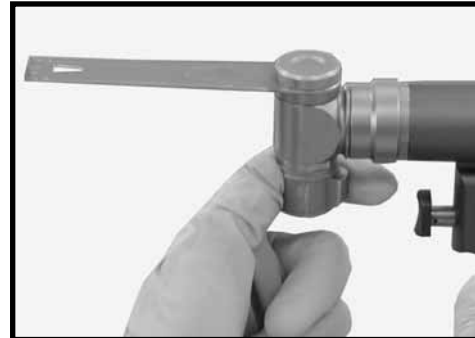


- (d) Blades can be positioned 45° off the center line in either direction.



- (e) Rotate the blade locking knob in the opposite direction of the arrow to lock the blade into place.

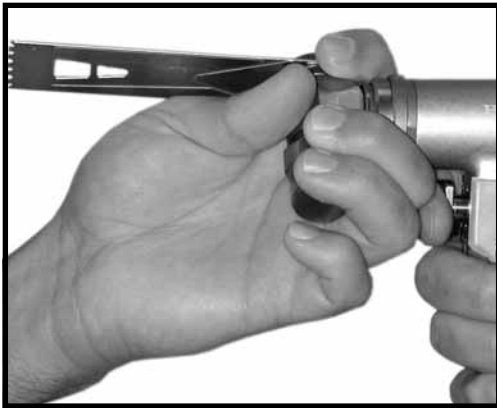
WARNING: The blade locking knob must be completely closed to hold the blade firmly in place.



2. To remove the blade:
 - (a) Ensure the safety/direction lever is in the safe position.
 - (b) Rotate the blade locking knob to the open position. The blade locking collet will disengage.
 - (c) Remove the blade.

2.3.2.2 Handpiece Operation

1. Position the rotating head to the desired position. The rotating head may be set in any of 4 positions at 90° intervals for the appropriate surgical access.
 - (a) Ensure the safety/direction lever is in the safe position.
 - (b) Pull the rotating head out and away from the handpiece body.



- (c) Twist the rotating head to the desired position and release the rotating head. Ensure it is locked into place and does not rotate.



2. Move the safety/direction lever to the “run” position.



3. To activate the handpiece, depress the trigger.

CAUTION: When operating the *PowerPro* Oscillator Handpiece, let the saw blade do the cutting. Too much force will bind the blade which can damage the handpiece.

2.3.3 *PowerPro* Pneumatic Reciprocator Handpiece (PRO6185) Blade Installation and Operation

2.3.3.1 Blade Installation

1. To attach a blade:
 - (a) Place the safety/direction lever in the safe position.
 - (b) Rotate the blade locking knob counterclockwise to open the blade collet.



-
-
- (c) Completely insert the blade shank.



-
-
-
- (d) 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.



-
-
-
-
- (e) Rotate the blade locking knob clockwise to lock the blade into place.

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

2. To operate the handpiece, move the safety/direction lever to the “run” position and depress the trigger.

CAUTION: Do not operate the Reciprocator Handpiece with the collet in the open position or without a blade locked in the collet. Damage will occur.

3. To remove the blade:
 - (a) Ensure the safety/direction lever is in the safe position.
 - (b) Rotate the blade locking knob counterclockwise. The blade locking collet will disengage. Remove the blade.

3.0 MAINTENANCE




Regular and proper maintenance of your *PowerPro* Handpieces are the best ways to protect your investment. It is essential that you have your powered surgical instruments serviced as scheduled in order to retain their optimum performance and reliability, which will reward you with safer, less problematic product performance over time. The recommended maintenance interval for service of your *PowerPro* Handpieces is every 12 months.

Recommended care and handling of the instruments include proper day-to-day operation, cleaning, and sterilization which are extremely important to ensure safe and efficient operation.

Your authorized Hall Surgical service department is the most knowledgeable about the *PowerPro* instruments and will provide competent and efficient service. Service at Linvatec/Hall Surgical 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 instruments or instrument failure.

3.1 Cleaning and Sterilizing

3.1.1 Cleaning Precautions

1. Follow universal precautions for protective apparel when handling and cleaning contaminated instruments.
2. Do not lubricate any handpieces. 
3. Never immerse handpieces or attachments. 
4. Never clean equipment in an automatic washer/sanitizer.
5. Never clean handpieces with bleach, chlorine-based detergents, liquid or chemical disinfectants, or any products containing sodium hydroxide (such as, INSTRUKLENZ or Buell Cleaner). They will degrade the anodized aluminum coating.
6. Never clean equipment in an ultrasonic cleaner.
7. Saw blades and bits are single-use only. Do not resterilize. Dispose of properly after use. 

3.1.2 Handpiece Cleaning Instructions

Clean handpieces and attachments as soon as possible after use.

1. Remove all attachments (chucks, saws) and accessories (saw blades, bits) from the handpiece prior to cleaning. Keep the handpiece hose attached.
2. Thoroughly scrub the handpiece, handpiece hose, and attachments with a clean, soft brush dampened with a mild, pH-balanced detergent. Ensure the blade locking collet on the oscillator handpiece is in the open position and all debris is removed from this area. Remove all traces of blood, debris and stains. **Do Not immerse** equipment in soap solution or rinse water.
3. To clean the cannulated section of the handpiece and attachment:
 - (a) Feed the wire end of a cleaning brush through the cannulation of the handpiece or attachment.
 - (b) Pull the brush completely through and repeat until all debris is removed.
4. Manipulate all moving parts of the handpiece and attachments 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 water to remove all traces of soap. Rinse all attachments likewise.
6. Flush all surfaces free of tap water with distilled water to prevent metal discoloration.
7. Gently shake the equipment free of water and wipe the surfaces with a clean, lint-free towel.

3.1.3 Sterilization Information

Steam sterilization is safe and effective and has no contraindications for its use in sterilizing powered surgical handpieces and attachments.

3.1.3.1 Sterilization Warnings, Precautions and Notes

WARNING: Use of disinfecting solutions for an exterior instrument wipe will not sterilize equipment and is not recommended.

1. Do not sterilize handpieces with Ethylene Oxide (EtO).
2. Never sterilize any handpiece in a STERIS System, STERRAD System, Abtox Plazlyte™ or comparable sterilization methods.
3. Do not sterilize handpieces in cold sterilants like CIDEX.
4. Do not “Peel Pack” handpieces or attachments for sterilization. Sterilization in a sealed pouch traps moisture which can cause damage.
5. Attachments with collet mechanisms must be sterilized with the collet **fully open**.
6. Remove the hose from the Handpiece prior to sterilization.
7. Do not use handpieces while warm. Allow adequate time for cooling prior to use. Do not immerse in liquid or cover with a damp cloth to cool. Cool by exposure to room temperature.

NOTES:

1. **The following guidelines do not guarantee that the device is sterile after the procedure. Your institution is still responsible for the normal sterility assurance validation.**
2. **Additional drying time may be required for complete heat and moisture dissipation. Operation of a handpiece that is not completely cool and dry may decrease performance and/or reliability.**
3. **Sterilization validation is based on AAMI guidelines (Association for the Advancement of Medical Instrumentation).**
4. ***PowerPro* handpieces have been validated to be completely sterile using “flash” sterilization techniques.**

Handpieces, attachments, and the hose may be processed in a pre-vacuum steam sterilizer (Steam Pre-vacuum) or in a gravity (downward) displacement sterilizer (Steam Gravity). Place handpiece(s), hose, and/or attachments in a *PowerPro* Sterilization Case (PRO5090) and follow the recommended minimum sterilization exposure times listed on the following page.

Minimum recommended sterilization exposure times are as follows:

Table 1: Sterilization Parameters

Sterilization Type	Minimum Temperature	Recommended Minimum Exposure Time	Dry Time
Sterilization Parameters for sterilizing the <i>PowerPro</i> Pneumatic Handpieces (PRO6150, PRO6175, PRO6185), Associated Attachments, and Hose, with or without the <i>PowerPro</i> PRO5090 Sterilization Case			
Steam Pre-vacuum	270°F (132°C)	4 minutes	8 minutes minimum
Steam Gravity	270°F (132°C)	10 minutes	8 minutes minimum
Steam Gravity	250°F (121°C)	40 minutes	8 minutes minimum
CAUTION: The recommended dry cycle must be run on all handpieces 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. Operation of a handpiece that is not completely cool and dry may decrease performance and/or reliability.			

3.2 Troubleshooting

Table 2: Troubleshooting Guide		
Symptom	Possible Cause	Corrective Action
Lack of handpiece power.	<ul style="list-style-type: none"> ◆ Regulator malfunction. ◆ Operating pressure incorrect. ◆ Hose not fully or properly seated in regulator and/or handpiece. ◆ Restrictions in hose. ◆ Tank pressure below 500 psi. ◆ Tank valve not completely open. ◆ Ensure nitrogen is being used. ◆ Mode lever is not in the proper position 	<ul style="list-style-type: none"> ◆ Run handpiece on another regulator to see if the problem is the handpiece or regulator. Replace appropriate piece of equipment. ◆ Set pressure to recommended operating pressure. ◆ If using a hose longer than 10 ft. or an extension hose is being used, add an additional one psi of pressure per each additional foot of hose. ◆ Check all hose connections and ensure they are completely seated. ◆ Remove any hose restrictions. ◆ Do not start procedure if tank pressure is below 500 psi. Replace tank. ◆ Completely open tank valve. ◆ Compressed air (especially if contaminated) may reduce performance. ◆ Assure the mode lever is in the proper operating position.
Handle gets hot during use.	<ul style="list-style-type: none"> ◆ Operating pressure incorrect. 	<ul style="list-style-type: none"> ◆ Set pressure to recommended operating pressure.

4.0 TECHNICAL SPECIFICATIONS

Linvatec Corporation is certified by TUV Product Service to EN ISO 9001 and EN 46001 and to the Medical Device Directive 93/42/EEC with certificates for Annex II, Clause 3; Annex II, section 4 and Annex V.

4.1 Handpiece Environmental Requirements

Operating:

Ambient Operating Temperature: + 50°F to 77°F (+ 10°C to + 25°C)

Relative Humidity: 30% to 75%

Atmospheric Pressure: 700 hPa to 1060 hPa

Transport and Storage:

Ambient Temperature: - 40°F to 158°F (- 40°C to + 70°C)

Relative Humidity: 10% to 100% including condensation

Atmospheric Pressure: 500 hPa to 1060 hPa

NOTE: There are no toxic components used in the manufacture of the *PowerPro* Pneumatic Handpieces. After the useful life of the product, dispose of components and service parts properly.

4.2 *PowerPro* Pneumatic Modular Handpiece (PRO6150)

Speed Range:	0 - 1250 rpm
Operating Speed (forward and reverse):	
Drill Position (FWD):	1250 ± 10% rpm
(REV):	1000 ± 10% rpm
Ream Position (with 5:1 attachment):	250 rpm (forward)
Average Output Torque (forward and reverse):	
Drill Position - Forward:	30 in. lbs.
Drill Position - Reverse:	20 in. lbs.
Ream Position (with 5:1 attachment):	100 in. lbs.
Height:	6.0 in. (15.2 cm)
Length:	3.85 in. (9.8 cm)
Weight:	1.5 lbs. (680 g)
Duty Cycle:	1 minute ON, 5 minutes OFF
Operating Pressure:	110 psi running (7.7 kg/cm ²)
Recommended Power Source:	Medical grade, water-pumped, compressed dry nitrogen
Consumption:	13.0 cfm, maximum (368 L/min)

4.3 *PowerPro* Pneumatic Oscillator Handpiece (PRO6175)

Speed Range:	0 - 14,000 cpm
Oscillation Range:	4.5°
Height:	6.0 in. (15.2 cm)
Length:	5.25 in. (13.3 cm)
Weight:	1.74 lbs. (790 kg)
Duty Cycle:	1 minute ON, 5 minutes OFF
Operating Pressure:	110 psi running (7.7 kg/cm ²)
Recommended Power Source:	Medical grade, water-pumped, compressed dry nitrogen
Consumption:	13.0 cfm, maximum (368 L/min)

4.4 *PowerPro* Pneumatic Reciprocator Handpiece (PRO6185)

Speed Range:	0 - 16,000 cpm
Stroke:	0.125" (3.2mm)
Height:	6.0 in. (15.2 cm)
Length:	4.5 in. (11.4 cm)
Weight:	1.5 lbs. (680 g)
Duty Cycle:	1 minute ON, 5 minutes OFF
Operating Pressure:	110 psi running (7.7 kg/cm ²)
Recommended Power Source:	Medical grade, water-pumped, compressed dry nitrogen
Consumption:	13.0 cfm, maximum (368 L/min)

4.5 Accessories

<u>REF</u>	<u>Description</u>
	<i>PowerPro Handpieces, Attachments and Accessories</i>
PRO6150	<i>PowerPro</i> Pneumatic Modular Handpiece
PRO6175	<i>PowerPro</i> Pneumatic Oscillator Handpiece
PRO6185	<i>PowerPro</i> Pneumatic Reciprocator Handpiece
PRO2029	<i>PowerPro</i> Trinkle/AO Attachment
PRO2030	<i>PowerPro</i> 5/32" (4.0 mm) Jacobs Chuck Attachment w/key
PRO2038	<i>PowerPro</i> AO Small Attachment
PRO2040	<i>PowerPro</i> AO Reamer Attachment
PRO2041	<i>PowerPro</i> 1/4" (6.5 mm) Jacobs Chuck Attachment
PRO2042	<i>PowerPro</i> 1/4" (6.5 mm) High Torque Jacobs Chuck Attachment
PRO2043	<i>PowerPro</i> Sagittal Saw Attachment
PRO2045	<i>PowerPro</i> Reciprocating Saw Attachment
PRO2046	<i>PowerPro</i> Zimmer/Hudson Drill Attachment
PRO2047	<i>PowerPro</i> Zimmer/Hudson Reamer Attachment
PRO6050	<i>PowerPro</i> 1/8" (3.175 mm) Keyless Chuck Attachment
PRO2250	<i>PowerPro</i> 1/4" (6.5 mm) Keyless Chuck Attachment
PRO2060	<i>PowerPro</i> Aesculap Reamer Attachment
PRO2070	<i>PowerPro</i> AO Drill Attachment
PRO2514	<i>PowerPro</i> Radiolucent Drive Adaptor Attachment
PRO6028	<i>PowerPro</i> Wire Driver Attachment (Intended for use with the PRO6100 Electric II and PRO6150 Pneumatic Modular Handpieces)
PRO6032	<i>PowerPro</i> Pin Driver Attachment (Intended for use with the PRO6100 Electric II and PRO6150 Pneumatic Modular Handpieces Modular Handpiece)
PRO6040	<i>PowerPro</i> 5:1 AO/ASIF Reamer Attachment (Intended for use with the PRO6100 Electric II and PRO6150 Pneumatic Modular Handpieces Modular Handpiece)
PRO6042	<i>PowerPro</i> 5:1 High Torque Jacobs Chuck Attachment, 1/4" (6.5 mm) (Intended for use with the PRO6100 Electric II and PRO6150 Pneumatic Modular Handpieces Modular Handpiece)
PRO6047	<i>PowerPro</i> 5:1 Zimmer/Hudson Reamer Attachment (Intended for use with the PRO6100 Electric II and PRO6150 Pneumatic Modular Handpieces Modular Handpiece)

REF

Description

PowerPro Handpieces, Attachments and Accessories

PRO6048	<i>PowerPro</i> 5:1 Hudson Reamer Attachment (Intended for use with the PRO6100 Electric II and PRO6150 Pneumatic Modular Handpieces Modular Handpiece)
PRO6060	<i>PowerPro</i> 5:1 Aesculap Reamer Attachment (Intended for use with the PRO6100 Electric II and PRO6150 Pneumatic Modular Handpieces Modular Handpiece)
PRO5090	<i>PowerPro</i> Sterilization Case
5052-010	Hose, 10 feet



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