

OPERATION and MAINTENANCE INSTRUCTION MANUAL



AEU-925 *Versatile Control Technology*™





AEU-925 Versatile Control Technology

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SPECIFICATIONS:

Console Size: 3.75" x 9.5" x 8.25"
 (9.5 cm x 24 cm x 21 cm)
 Console Weight: 7.2 lbs (3.24 kg)
 Power Source: Dual Voltage
 115V or 230V AC
 Power Rating: 115V/60Hz 1.6A
 230V/50Hz 0.8A

Note: For reliable grounding, connect to receptacle marked "Hospital Grade".

Classifications in accordance with UL-2601-1:

Class I
 Type B Applied Parts
 Ordinary Protection

Not suitable for use in the presence of a flammable anaesthetic mixture with air or with oxygen or nitrous oxide.

Intermittent Use – Duty cycle:
 With water: 2 minutes on, 1.5 minute off.
 Without water: 1 minute on, 5 minutes off

Note: The power supply cord is the mains appliance disconnect means.



MEDICAL EQUIPMENT WITH RESPECT TO ELECTRIC SHOCK, FIRE AND MECHANICAL HAZARDS ONLY IN ACCORDANCE WITH UL 2601-1 CAN/CSA C22.2 No. 601.1

To prevent injury to people and damage to property, please heed relevant warnings and remarks. They are marked as follows:

WARNING: Serious injury or death may result if ignored.

CAUTION: Damage to property or the environment may result if ignored.

NOTE: Important additional information and hints.

Caution: This device has been tested and found to comply with the limits for medical devices to the IEC 60601-1-2:1993, EN 60601-1-2:1994, Medical Device Directive 93/42/EEC.

These limits are designed to provide reasonable protection against harmful interference in a typical medical installation. However, because of the proliferation of radio-frequency transmitting equipment and other sources of electrical noise in healthcare environments (for example, electrosurgical units, cellular phones, mobile two-way radios, electrical appliances, and high-definition television), it is possible that high levels of such interference due to close proximity or strength of a source, may result in disruption of performance of this device.



Your new Aseptico VCT is one of the most advanced units available to the dental profession. This system features advanced digital torque control technology with an integrated dynamometer calibration system, an integrated irrigation pump, auto-stop reverse to help prevent file breakage in the canal, six programmable memory buttons with an onboard file library, and the versatility of an autoclavable 30,000 RPM brushless micro motor. These features combine to make the perfect rotary file system for implantology, oral surgery, endodontics and other dental procedures.

Congratulations

The AEU-925 is engineered to provide many years of reliable service. Please read the instructions provided in this manual to receive years of reliable service from your Aseptico equipment.

Separate manuals may be provided to cover the operation and maintenance of handpieces or other accessories for your unit.

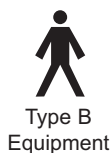
PACKAGE CONTENTS

- AEU-925 Electronic Control Console
- AE-210-30 Autoclavable, Brushless Motor/Cable Assembly
- AE-7P On/Off Foot Switch (or optional AE-19A Variable Speed Foot Control)
- AE-26 Autoclavable Irrigation Tubing Set
- AE-5FG Autoclavable Motor Holder
- Power Cord
- Serial Cable
- Irrigation Solution Stand
- Operation and Maintenance Instruction Manual

Suggested Options:

- AHP-85 1/20 Reduction Contra Angle Handpiece
- AE-19 Variable Speed Foot Control
- AHP-07 Cannula Clip Set (for internal irrigation)

SYMBOL DEFINITIONS:





Preparing the Unit

1. Unpack the console and check that the Voltage Selector is at the proper setting. Use "115v" for 110-120 VAC/60Hz voltages or "230v" for 220-250 VAC/50Hz voltages. To change the Voltage Selector, refer to page # 13. NOTE: The appliance inlet is the mains disconnect means.
2. Attach the female end of the power cord to the male power connector in rear of the console. Plug the male end of the power cord into a hospital-grade, grounded electrical outlet.
3. Remove the red autoclaving cap from the AE-210-30 motor. Connect it to the connector marked "Motor", which is located on the right side of the lower front panel of the console.
4. Attach the appropriate "E" Type handpiece to the AE-210-30 motor.
5. Attach the foot control to the connector on the rear of the unit, located beneath the power cord receptacle.
6. Place the dynamometer attachment onto the dynamometer pin, located on the right side of the console. Tighten the hex screw using the supplied Allen Wrench (*see image on pg.5*).
7. When using the VCT for implant or oral surgery where irrigation is required, install the AE-26 Irrigation Tubing Set into the peristaltic irrigation pump by threading the silicone tubing through the pump as shown in the diagram (page 5) and as described in the following steps (a-m):
 - a. Remove the clear irrigation pump cover by removing the thumbscrew.
 - b. Grasp the in-line metal connector and tubing, stretching the tubing slightly. Insert the tubing into the slot on the top of the pump block, making sure to position the in-line metal connector on the outside edge of the block as shown.
 - c. While maintaining slight tension on the tubing, guide the tubing around the rollers and insert into bottom slot on the pump block. Do not compress the tubing, as this will affect the irrigant flow during operation.
 - d. While maintaining slight tension on the tubing, check that it is centered on the rollers and is completely tucked into (or flush with) the slots on top and bottom of the pump block.
 - e. Replace the clear pump cover by sliding it into position from front to back and then secure it with the thumbscrew.
 - f. Attach the remaining length of tubing to the irrigation barb located on the end of the AE-210-30 motor cable assembly, near to where it connects to the console.

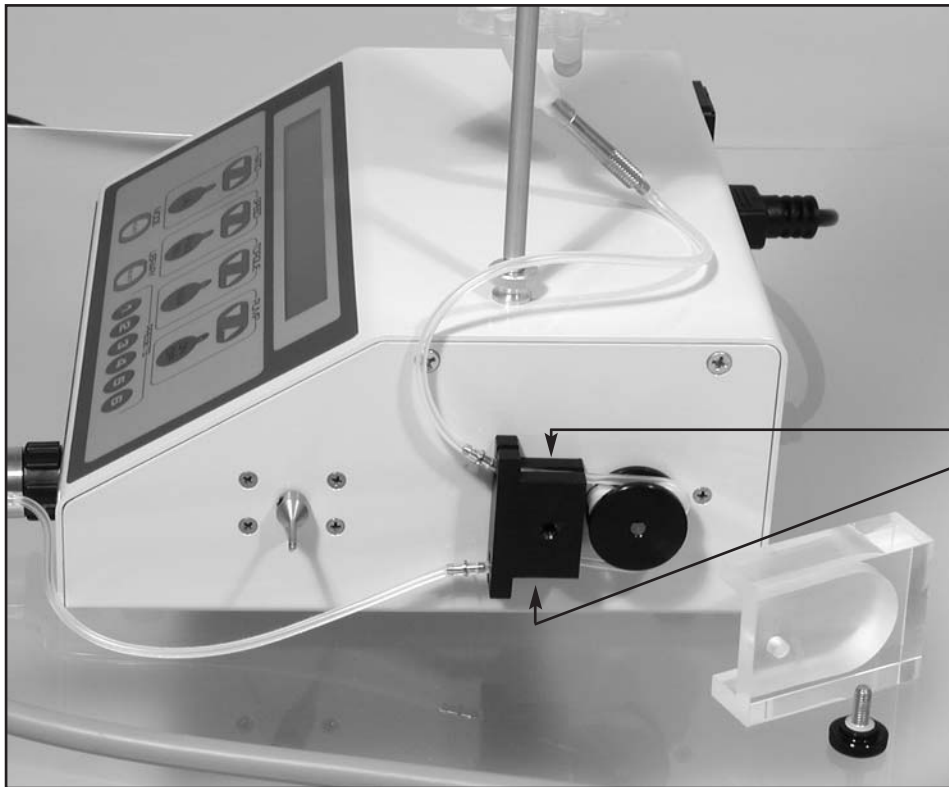
For External Irrigation:

- g. Connect the short silicone tubing from the irrigation barb (at the motor end of the AE-210-30 motor cable assembly) to the external irrigation barb located under the handpiece head.

For Internal Irrigation (use with internally irrigated burs):

- h. Connect the AHP-05 contra angle clip and AHP-06 handpiece body clip to the handpiece.
- i. Attach the silicone tubing from the AHP-07 Cannula Clip Set to the motor irrigation barb.
- j. Insert the Cannula into the hole in the rear of the handpiece head.
- k. Attach the silicone tubing to the AHP-05 and AHP-06 clips.
- l. Remove the protective cover from the irrigation bag/bottle and insert the barb from the AE-26 Tubing Set into the I.V. port.
- m. Hang the bag from the Irrigation Solution Stand.

Install the dynamometer pin using the enclosed Allen wrench.



Push tubing into slots

Irrigation Tubing Set - Pump Setup



Internal/External Irrigation Configuration



Internal Irrigation Configuration

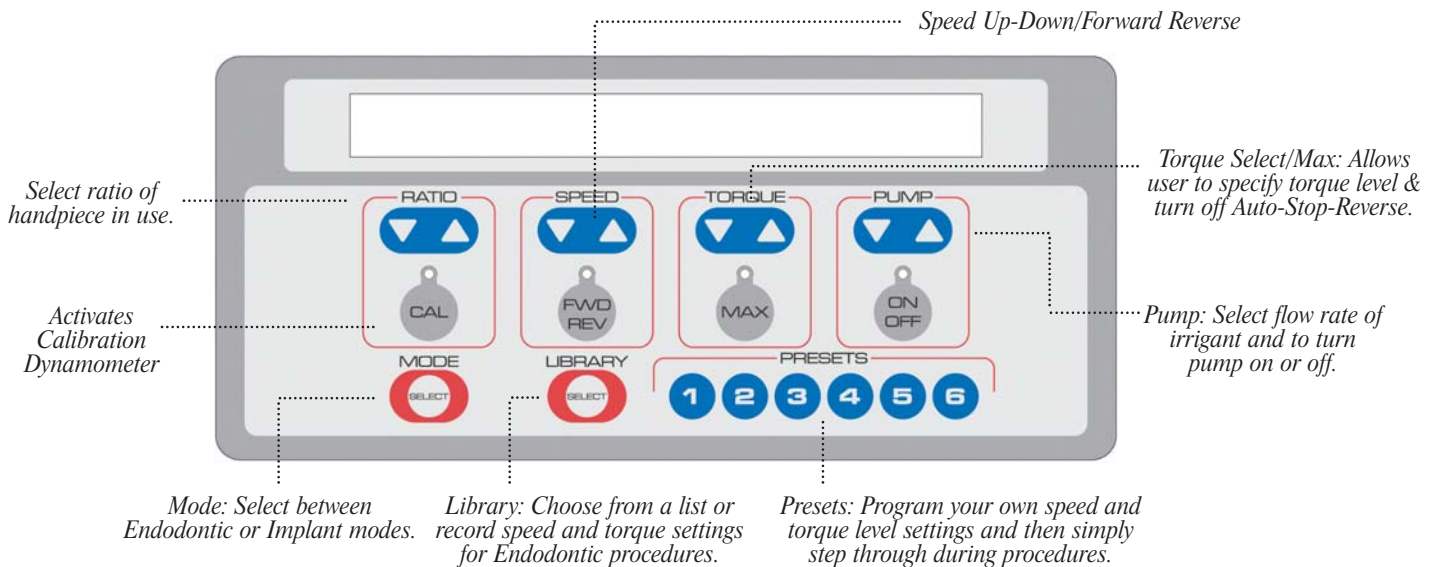


Quick-Start Operation

After the unit has been prepared, quick-start operation is as follows:

1. Activate main power by using the Power Switch located on the rear panel of the console.
The LCD Display on the console will turn on and Startup Screen will be displayed for a few seconds. The Startup Screen displays the current software version of your Aseptico VCT. This version number will change with each software upgrade.

Aseptico AEU-925 Endo/Implant System



2. Calibrate the Aseptico VCT. (see Section 5 in Advanced Operation Instructions). Follow the on-screen instructions.
3. Insert a file or bur into the handpiece.
4. Press the mode button to set the Aseptico VCT to Endo or Implant mode.
5. Set the operating speed to the desired RPM by using the speed control buttons.
6. Set the torque as desired by using the Torque Up/Down or MAX buttons.

Operation Type	Typical RPM
Osteotomy, Implant Site Preparation**	1,000-1,875 RPM
Implant Tapping and Threading**	20-40 RPM
Endodontics with NiTi Rotary Files*	150-350 RPM

*Using 1/8 reduction contra angle, such as AHP-88 or AHP-88MP
 **Using 1/20 reduction contra angle, such as AHP-85

Operation Type	Typical Torque Level
Implant Tapping and Threading*	10-45 N•cm
Osteotomy, Implant Site Preparation	MAX
Endodontics with NiTi Rotary Files*	100 - 500 g•cm

**Use endo file or implant system manufacturer's recommendations for torque and speed.*

- Set the irrigation pump level and activate/deactivate as desired by using the pump up/down and on/off buttons.
- Depress the foot control to activate the motor.

Advanced Operation Functions

Handpiece Ratio Selector:



Multiple handpieces with different ratios are often required to obtain the various speed ranges used in dental procedures. Proper entry of handpiece ratio allows the display to properly indicate speed and torque levels.

- Depress the Handpiece Ratio Selector up/down buttons until the Handpiece Ratio Indicator matches the handpiece ratio you are using.
- After calibrating a reduction handpiece with the dynamometer, no handpiece ratio adjustment is necessary. The Aseptico VCT will automatically set the handpiece ratio to the exact ratio found by calibration measurements. Use with 1/8, and 1/16 ratio handpieces.

Speed Up/Down Buttons



Controls the speed of the handpiece.

Depress the Speed Up button to increase speed and the Speed Down button to decrease speed.

The Speed (RPM) Indicator on the LCD Display shows target RPM of the handpiece.

(For display accuracy, the Ratio Selector must exactly match the ratio of the handpiece being used. The Aseptico VCT will do this automatically after calibration. In some cases, the ratio displayed will differ from the handpiece rating, indicating the handpiece's actual characteristics).

Forward/Reverse Selector (FWD/REV):



Determines the rotation direction of the handpiece.

The LED on the Fwd/Rev button illuminates green when forward rotation is selected. The red LED on the Fwd/Rev button indicates reverse rotation. When the Reverse Beeper feature is activated, an audible beep (and the red LED light) will indicate reverse rotation.



Torque Controls



Torque Up/Down Buttons

Allows the user to adjust exact torque limits in Newton•Centimeter increments (in Implant Mode) and Gram•Centimeter increments (in Endo Mode) . Depress the Torque Selector Up/Down buttons until the desired torque level is indicated on the LCD Display.



Maximum Torque Button (MAX):

The VCT allows the user to change the characteristics of motor operation for different procedures and torque requirements. Press and release the MAX button to change the settings as listed below.

NOTE: Characteristics change depending on the selected mode, Endo or Implant.

Implant Mode

LED Off – The VCT will limit operation at the selected torque level.

LED Green – The VCT will stop at the selected torque level for one second. This is the suggested setting when tapping and threading implants.

LED Red – Max torque is activated, the VCT will operate at full torque. This is the suggested setting for an osteotomy, or surgical site preparation.

Endo Mode

LED Off – The VCT will limit operation to the selected torque level.

LED Green – The VCT will Auto-Stop Reverse at the selected torque level. This is the suggested setting when using NiTi rotary endo files.

LED Red – Max torque is activated, the VCT will operate at full torque. This is the suggested setting for gaining access to the canal.

Implant Mode: By adjusting the torque control to higher limits at lower rpm, setting the implant is quick and easy. Max torque during the osteotomy ensures more than enough torque for drilling purposes.

*Torque settings are retained in memory even after unit is turned off.
Proper contra angle maintenance, including cleaning and lubrication are essential to minimize torque losses when using the torque reduction settings.*

Endo Mode: By adjusting the torque control to reduced limits for each instrument size and operating the handpiece at a constant RPM, the risk of instrument breakage is greatly reduced.

NOTE: Torque Limitations

The preset torque values and actual torque values are comparable. With the inherent inefficiencies found in all handpieces, the torque may fluctuate. To verify torque accuracy, we recommend finishing with a hand torque wrench.

NOTE:

All Handpieces have inherent inefficiencies that will cause torque variations (typically 10%).



Irrigation Pump Controls:

The peristaltic irrigation pump provides irrigation to the handpiece up to a maximum flow of 60 mL/min.

Flow level can be adjusted in percentages from 10% to 100% by pressing the Pump up/down buttons. Current pump percentage is indicated on the LCD Display.

Depress the pump on/off button to activate/deactivate the pump.

The green LED inside the pump on/off button will illuminate when activated. Irrigant will flow when the foot switch is depressed.



Calibration and System Setup:

Calibration (CAL): Intended for use with reduction handpieces (1/8, and 1/16 ratio handpieces).

Press and release the "CAL" button to activate the Integrated Calibration System.

Aseptico suggests using the Calibration function in the following circumstances:

- At the beginning of each day
- After changing handpieces

The VCT will run the handpiece and console through a self test. Follow the on-screen instructions shown below.

Step 1: Attach handpiece to motor.

Press Cal to continue or Mode to escape

Step 2: Free run test in progress

Please wait.

Step 3: Attach handpiece to dynamometer

Press Cal to continue or Mode to escape

Step 4: Load calibration in progress

Please wait.

If the handpiece is not properly connected to the dynamometer, the screen will display the following message:

Dynamometer error. Try again?

Press: 1 =Yes, 2=No

After a successful calibration, the screen will display the test results. The handpiece ratio and gear efficiency (Eff) may vary from calibration to calibration. Try several calibrations to familiarize yourself with expected results.

Results: Ratio = 16.00 Eff = 620

Press Mode to return to normal operation

After calibration, press the Mode button. The Aseptico VCT will automatically set the handpiece ratio for the tested handpiece to the exact ratio found by calibration measurements.



System Setup Menu:

Press and hold the "CAL" button for 1 second (until you hear a double beep) to enter the System Setup menu.

After entering the System Setup Menu, the following setup options will be displayed on the LCD Display.

Do you want to recall factory settings?

Press: 1=No, 2=Yes, Mode=Escape

Recalling the factory settings allows you to reset your Aseptico VCT to factory specifications. Please note, any customized presets and voice training will be lost if you recall factory settings.

To keep your customized settings, press 1.

To return the Aseptico VCT's preset buttons to the factory settings (as shown in Section 3), press 2.

To exit the system setup menu without saving changes, press Mode.

Do you want to upload new software?

Press: 1=No, 2=Yes, Mode=Escape

New versions of software can be downloaded from the internet with a PC then uploaded onto the Aseptico VCT using the included serial port connector cable. Use your Personal Computer to download the AseptiCom serial port communications program from www.aseptico.com before beginning.

To keep the current software version, press 1.

To upload new software, connect the serial cable from a PC to the connector labeled "Serial" on the back of the Aseptico VCT, then press 2. The display will read:

Ready for upload. Settings = 57600,8,N,1

Press Mode to escape

Do you want the warning beeper enabled?

Press: 1=Yes, 2=No, Mode=Escape

When the warning beeper is active, a chirping warning noise will be audible when the torque level reaches approximately 75% of the selected torque limit.

To enable the warning beeper, press 1.

To disable the warning beeper, press 2.

To exit the system setup menu without changes, press Mode.

Do you want the reverse beeper enabled?

Press: 1=Yes, 2=No, Mode=Escape

When the reverse beeper is active, an audible beep will sound when the handpiece is rotating in the reverse direction.

To enable the Reverse Beeper feature, press 1.

To disable the Reverse Beeper feature, press 2.

To exit the system setup menu without changes, press Mode.

Endo Mode: ASR in automatic mode?

Press: 1=Yes, 2=No, Mode=Escape

When the Auto-Stop Reverse (ASR) is in automatic mode: as the torque limit is reached, the endodontic rotary file will stop, automatically reverse, and return to forward rotation when the torque level falls below the limit. To enable automatic ASR, press 1.

When the ASR is in manual mode: as the torque limit is reached, the file will stop. To reverse, release then press the foot pedal. To go back to forward rotation release and press the foot pedal again. To enable manual ASR, press 2.

To exit the system setup menu without changes, press Mode.

Endo Mode: Variable speed foot pedal?

Press: 1=No, 2=Yes, Mode=Escape

To exit the system setup menu without changes, press Mode.

Implant Mode: Variable speed foot pedal?

Press: 1=Yes, 2=No, Mode=Escape

To exit the system setup menu without changes, press Mode.

Save changes?

Press: 1=Yes, 2=No

To save changes and exit the system setup menu, press 1.

To exit the system setup menu without saving changes, press 2.



MODE



Mode Button

The Mode button allows the user to change the system configuration from Endo to Implant, the current mode is displayed on the Console LCD. The torque forces for each mode differ by a factor of 100. (100 G•cm = 1 N•cm.) (The delicate nature of NiTi endodontic files require torque levels in G•cm, while the nature of osteotomies and the tapping and threading of implants require the higher torque level measured in N•cm.) Max Torque button characteristics are different in Endo and Implant mode(see page 8).

LIBRARY



Library Button:

The Library button is used to access the Endodontic File Library and to program User Defined Settings. After pressing the Library button, the following options will be displayed.

Do you want to access the file library?

Press: 1=Yes, 2=No, Mode=Escape

Preset Buttons 1-6:

Preset buttons can store a total of 12 different system settings: 6 settings can be stored in Endo Mode and 6 settings can be stored in Implant Mode. The Preset buttons will recall speed, torque, rotation direction, and pump settings when programmed for User Defined settings in Endo or Implant mode.

In Endo mode, the Preset Buttons can be programmed to recall an entire file series or individual files from the file library.

The Preset Buttons are also used to navigate the various menus in the System Setup and File Library.

CHANGING THE FUSE OR VOLTAGE -



WARNING

Turn the power off and unplug the unit before following the steps below.

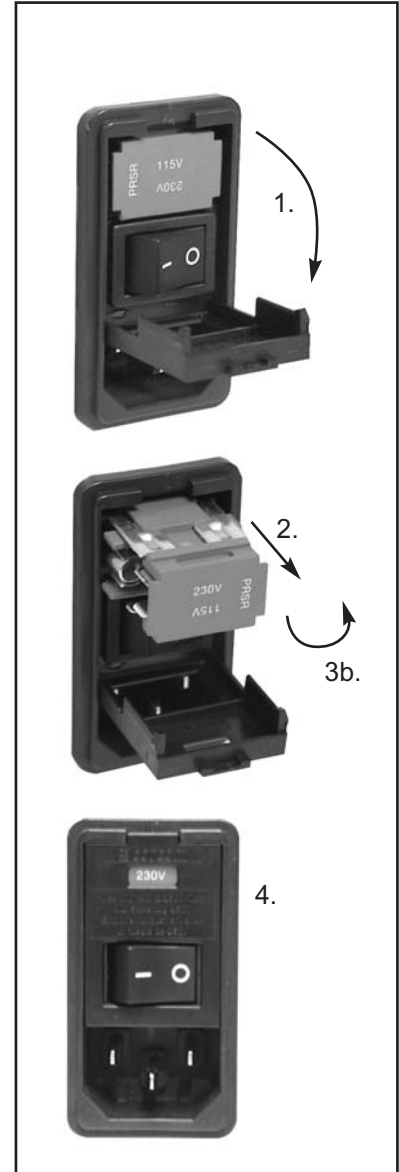
1. Use a small flathead screwdriver to open the Fuse/Voltage Selector Panel on the back of the unit.
2. Remove the red Fuseholder from the unit.
- 3a. Changing the fuse:
Replace the blown fuses on either side of the Fuseholder.

Replacement Fuses:
115V: 1.6A/250V slo-blo fuse
230V: 0.8A/250V slo-blo fuse
- 3b. Changing the voltage:
The proper fuses for the country of use are sent in the unit. When changing voltage, replace the fuses with fuses that are rated for the new voltage.
Turn the Fuseholder until the white lettering with the proper voltage is right side up.
4. Replace the Fuseholder and close the Fuse/Voltage Selector Panel.



CAUTION

Do not attempt to operate the Endo DTC while configured in the 115V mode with a 230V power source. This could damage the electrical components and will void the warranty.





AEU-925 Versatile Control Technology

VCT Endo File Library Settings (As displayed on console)

GT Acc. & 20 Series YELLOW		
File Size	Speed (RPM)	Torque (g-cm)
ACC 90, 70, 50, 35/12	500	700
GT YEL 20/10 & 20/08	300	312
GT YEL 20/06 & 20/04	300	174

GT Acc. & 30 Series BLUE		
File Size	Speed (RPM)	Torque (g-cm)
ACC 90, 70, 50, 35/12	500	700
GT BLU 30/10 & 30/08	300	347
GT BLU 30/06 & 30/04	300	208

GT Acc. & 40 Series BLACK		
File Size	Speed (RPM)	Torque (g-cm)
ACC 90, 70, 50, 35/12	500	700
GT BLK 40/10 & 40/08	300	405
GT BLK 40/06 & 40/04	300	230

PROTAPER		
File Size	Speed (RPM)	Torque (g-cm)
PROTAPER SX & S1	300	520
PROTAPER S2 & F1	300	150
PROTAPER F2 & F3	300	312

GT/PROFILE .04		
File Size	Speed (RPM)	Torque (g-cm)
ACC 90, 70, 50, 35/12	500	700
GT 20/10 & GT 20/08	300	312
GT 20/06 & PF 35/04	300	132
PF 30/04 & PF 25/04	300	104
PF 20/04	300	75

PROFILE S29* 06 TAPER		
File Size	Speed (RPM)	Torque (g-cm)
PF S29 06 SIZE 7 & 6	300	368
PF S29 06 SIZE 5 & 4	300	290
PF S29 06 SIZE 3 & 2	300	195

PROFILE S29 04 TAPER		
File Size	Speed (RPM)	Torque (g-cm)
PF S29 04 SIZE 7 & 6	300	132
PF S29 04 SIZE 5 & 4	300	104
PF S29 04 SIZE 3 & 2	300	75

PROFILE ISO 06 TAPER		
File Size	Speed (RPM)	Torque (g-cm)
PF ISO 40/06 & 35/06	300	368
PF ISO 30/06 & 25/06	300	290
PF ISO 20/06 & 15/06	300	195

PROFILE ISO 04 TAPER		
File Size	Speed (RPM)	Torque (g-cm)
PF ISO 40/04 & 35/04	300	132
PF ISO 30/04 & 25/04	300	104
PF ISO 20/04 & 15/04	300	75

PROFILE OS		
File Size	Speed (RPM)	Torque (g-cm)
PF OS SIZE 6 & 5	300	510
PF OS SIZE 4 & 3	300	400
PF OS SIZE 2 & 1	300	256

LEXICON GATES V 1.20		
File Size	Speed (RPM)	Torque (g-cm)
LEXICON GATES #6	3000	1000
LEXICON GATES #5	3000	750
LEXICON GATES #4	3000	700
LEXICON GATES #3	3000	400
LEXICON GATES #2	3000	240
LEXICON GATES #1	3000	150

* S29 represents Series 29

STERILIZATION AND MAINTENANCE:

HANDPIECES - Thorough cleaning and lubrication of handpieces after each use and before sterilization is very important to ensure proper operation and service life of the handpiece. Follow the instructions provided with the handpiece for complete maintenance instructions.

IMPORTANT! Protect motor from excess oil draining from handpiece. After lubricating and before autoclaving, stand handpiece by its base on a paper towel and allow excess oil to drain.

MOTORS - The AE-210-30 motor is fully autoclavable. Detach the motor from motor cord by unscrewing the metal motor to cable connector by turning counter-clockwise (see photo below). Steam autoclave the motor at 132° C (275° F) for five minutes. Wipe down motor cable with disinfecting solution. We recommend also sleeving the cable between each patient.

MOTOR WATER LINE - Disinfect the water lines weekly. Prepare a 1:10 bleach solution (1 part household bleach to 9 part water). Air purge waterline. Run bleach through line. Allow bleach solution to stand in lines for 10 minutes. Flush thoroughly with clean water. Air purge and leave lines dry until next clinical use.

MOTOR & CORD STERILIZATION FOR SURGICAL USE:

When the motor cord must be autoclaved, autoclave cord and motor joined - do not separate the cord from motor. Install autoclaving cap onto motor cord as illustrated. Turn black connector ring connector and the cap will click into place. The motor cord may be autoclaved but extensive autoclaving will shorten the life of the cable. Loosely coil the motor cord when autoclaving. Avoid sharply bending the cord when autoclaving.

CONSOLE - The exterior of the console may be cleaned by wiping with a soft cloth moistened with mild detergent or disinfecting solution.

SILICONE WATER LINES - The silicone water lines used for the pump (Item AE-26) are fully autoclavable. Sterilize at 132° C (270° F) for 3 minutes.

WARNING

- Do not attempt to disassemble the motor.
- Do not oil or lubricate the motor.
- Do not attach a handpiece to the motor while the motor is running.
- Do not bend motor cord sharply.

Failure to comply with any of the above instructions may void your warranty

CORD CONNECTOR CAP

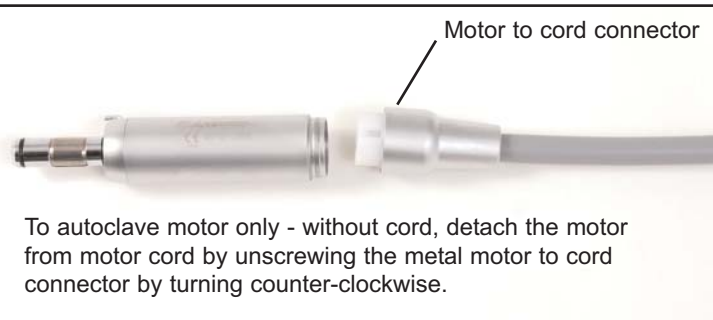
- Always install the red cord connector cap onto motor connector before autoclaving.



- Loosely coil the motor cord when autoclaving. Avoid sharply bending the cord when autoclaving.

CAUTION FOR ALL STERILIZATION:

- Do not submerge in any solutions.
- Do not use ultrasonic cleaners.





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WARRANTY

Aseptico warrants this product against defects in material or workmanship for a period of one year, from date of original invoice. Handpieces are warranted for 90 days under the same conditions. Expendable components such as light bulbs, are covered by shorter warranty periods, or have no warranty. Aseptico's sole obligation under product warranty is (at its sole option and discretion) to repair or replace any defective component or product in part or whole. Aseptico shall be the sole arbiter of such action.

In the event of alleged defect under warranty, the purchaser is to notify Aseptico's Customer Service Department promptly. Customer Service will provide instructions, usually directing that the product be returned for service. Shipment to Aseptico and the cost thereof is always the responsibility of the purchaser.

Accidental misuse, inappropriate installation, or failure to perform directed maintenance voids the warranty.

Aseptico does not assume, under this warranty, any risks or liabilities arising from the clinical use of its products, whether or not such use involves coincidental utilization of products manufactured by others.

NOTE: In the interest of serving our customers more efficiently, customers receiving service on non-warranted repairs are expected to accept charges that are less than \$250.00 without further notification



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