

ADVANTAGE PLUS®

Endoscope Reprocessor



INSTALLATION PACKAGE
SITE REQUIREMENTS

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SITE REQUIREMENTS

The purpose of this section is to provide the customer with requirements that need to be met to ensure the ADVANTAGE PLUS® Endoscope Reprocessor will be properly installed. *Checklist provided in [Appendix C](#).*

By signing below Customer acknowledges that:

1. Customer reviewed these Site Requirements for the ADVANTAGE PLUS Endoscope Reprocessor(s) indicated in this document.
2. The customer assumes complete responsibility for meeting each of the specifications and requirements set forth in the Site Requirements, to ensure proper installation and performance of the ADVANTAGE PLUS Endoscope Reprocessor(s). Failure of the customer to comply with these Site Requirements and any deviation from the specifications set forth herein may compromise the functionality of the reprocessor(s), and/or may cause operational issues which will not be covered by the Cantel Medical warranty, and are hereby disclaimed by Cantel Medical.
3. The customer assumes complete responsibility for meeting each of the specifications and requirements set forth in the Site Requirements by the agreed upon installation date by Customer and Cantel Medical. If the Cantel Medical installation team encounters any delays due to site requirements not meeting specifications and requirements, the Customer will be charged \$265.00/hr for stand-by fees, until site requirements are met and installation activity resumes; or, if it is determined that the delay results in rescheduling the installation to a later date, the Customer will be charged for all expenses (flights, lodging, and car rental, if applicable), and travel (\$200.00/hr) and labor time (\$265.00/hr) related to the return installation dispatch.
4. If installation is canceled or moved 48hrs prior to the agreed upon installation date, no fee will be charged.

CUSTOMER REPRESENTATIVE _____

TITLE _____

SIGNATURE _____

DATE _____

EMAIL _____

Applicable Document

- ADVANTAGE PLUS Operator ID Form ([Appendix A](#)) and Endoscope List Form ([Appendix B](#))



IMPORTANT! It is the responsibility of the customer to meet ALL requirements to ensure proper installation of the ADVANTAGE PLUS® Endoscope Reprocessor.

Water Supply *refer to [Appendix G](#)*



WARNING: An emergency eye wash valve **WILL NOT** meet the water temperature specifications for the ADVANTAGE PLUS Endoscope Reprocessor and should not be used.

- The water supply must be connected to a thermostatic mixing valve set to provide an on-demand water temperature of $35^{\circ}\text{C} \pm 2^{\circ}\text{C}$ ($95^{\circ}\text{F} \pm 4^{\circ}\text{F}$). **One mixing valve per reprocessor is REQUIRED.**
 - o The mixing valve must be accessible and located near the pre-filter to aid in adjustment. The mixing valve must include a thermometer followed by a bypass valve to a drain.
 - o The ADVANTAGE PLUS Reprocessor requires a thermostatic mixing valve with a temperature range of $35^{\circ}\text{C} \pm 2^{\circ}\text{C}$ ($95^{\circ}\text{F} \pm 4^{\circ}\text{F}$). It is the responsibility of the facility to purchase, install and maintain this device. **PRODUCT BULLETIN: SUGGESTED LIST OF THERMOSTATIC MIXING VALVES FOR ADVANTAGE PLUS ENDOSCOPE REPROCESSOR** ([Appendix E](#))
 - o Facility water pressure and temperature can vary greatly. Most thermostatic mixing valves require a pressure differential of less than 10 PSI (0.70 bar) and a minimum temperature differential of 45°F (7°C) between the hot and cold-water supplies for optimum operation (see specifications of the chosen mixing valve). Therefore, Cantel Medical requires the addition of pressure regulators on each of the hot and cold-water supply lines prior to entering the thermostatic mixing valve as well as temperature and pressure gauges on both the hot and cold supply lines. It is the responsibility of the facility to purchase, install and maintain these devices. Temperature and pressure gauges on the incoming water lines, provide a means of monitoring the water system of the facility should water temperature issues arise. Consult a qualified plumber to assist in determining the proper regulators and temperature and pressure gauges to use.



NOTE: Mixing Valve should be located within **4 feet** of the reprocessor and be easily accessible to operators for adjustments.

NOTE: After the mixing valve and before the pre-filter assembly, a path to a drain with a shutoff valve **MUST** be installed so the operator can run water through the mixing valve if the water temperature falls too low and needs to be brought to temperature. This may occur primarily in colder winter climates after an extended time of non-use.

- The incoming waterline must be a minimum of 1/2" ID providing a flow rate of 1.32 GPM and a **Dynamic** water pressure between 40 to 87 PSI at the first gauge of the Pre-Filtration Unit.
- Water consumption per side is approximately 8 gallons/cycle for a standard endoscope disinfection cycle and 13 gallons/cycle for an endoscope disinfection cycle with a detergent wash.
 - o Water consumption for the ADVANTAGE PLUS Endoscope Reprocessor will vary depending on the incoming water temperatures. The reprocessor will extend the initial flush to allow the water to come up to temperature to meet the minimum required temperature of the disinfectant.

- The pre-filter assembly ([Appendix G](#)) is wall mounted and has the dimensions of 26" H x 38" W x 6" D. **It is the responsibility of the customer to mount and plumb the pre-filter assembly.**
 - o The incoming water connection to the pre-filter assembly is 1/2" NPT on the right-hand side. All fittings and hoses for the output of the pre-filter assembly are included. The pre-filter assembly must be within ten feet and in the same room as the ADVANTAGE PLUS® Endoscope Reprocessor. The water supply hose has a maximum working length of ten feet and cannot be lengthened.
 - o A shut-off valve must be installed before the pre-filtration system. It is important that the valve be mounted within reach of the operator.
 - o One pre-filter system per ADVANTAGE PLUS Reprocessor is **required**.
 - o Pre-Filter Assembly must be accessible to allow for easy filter changes.
- Ensure water hardness is less than 12 gpg (200 ppm) for optimal performance
- Potable water is the minimum standard.
- De-ionized water (DI water), due to its corrosive nature **cannot be used** in ADVANTAGE PLUS Reprocessor
- Reverse Osmosis (RO water) can be used in ADVANTAGE PLUS Reprocessor. If RO water is utilized, the pre-filter system must still be used. Consult a qualified plumber to assist with sourcing proper mixing valves and components to be used with RO water.



NOTE: The ADVANTAGE PLUS Endoscope Reprocessors do not require backflow protection for the incoming water supply, nor is a backflow protection device installed in the reprocessor. If building or plumbing codes require backflow protection, then please consult your local codes, standards and/or guidelines, for applicable requirements.

Drain refer to [Appendix G](#)



NOTE: ADVANTAGE PLUS Endoscope Reprocessors are Gravity Drained.

- A vented drain system capable of draining 3.17 GPM, 18" or less from the floor will ensure the proper operation of the ADVANTAGE PLUS Endoscope Reprocessor. The supplied drain line has a 1" ID, 1 3/8" OD and is 3 feet long. Any additional required length will be customer supplied.



NOTE: Drain needs to accommodate the Bypass valve output line/pipe as well as the Advantage Reprocessor Drain Line.

Air Supply



NOTE: The ADVANTAGE PLUS® Endoscope Reprocessor can be purchased with an air compressor ([Appendix D](#)) that requires a dedicated 120 VAC 15-amp circuit.

- If the ADVANTAGE PLUS Endoscope Reprocessor model purchased did not include the air compressor, the system may utilize house compressed air (dry, oil free) which must meet these required air pressure specifications: 58 to 125 PSI with a minimum flow volume of 1.1 SCFM, maximum particle size of 5 microns, maximum dew point of 7°C (45°F), maximum oil concentration of 5 mg/m³. It is strongly suggested that a water dryer or separator be placed at or near the reprocessor to remove as much water as possible from the air.
- A 1/4" ID flexible air hose (EPDM, braided, 150 psi minimum) is required to connect the ADVANTAGE PLUS Endoscope Reprocessor to the house air. The hose connects to a barbed fitting on the back of the ADVANTAGE PLUS Endoscope Reprocessor **This is not supplied with the ADVANTAGE PLUS Endoscope Reprocessor.**



NOTE: If compressor is installed in a different location than the reprocessor, the customer is responsible for supplying the required 1/4"ID-1/2" OD tubing and supplies to connect to the reprocessor.

Electrical Supply

- 120 VAC \pm 10%, single phase, 60 Hz, 15 Amp circuit
- A GFI protected outlet (NEMA 5-15R) should be located within the operator's reach.
- Power consumption is 150 watts at idle, 400 watts during a cycle in one basin, 600 watts during a cycle in both basins, and a nominal peak of 1000 watts.
- The ADVANTAGE PLUS Endoscope Reprocessor can operate uninterrupted with power losses up to 0.5 seconds. Power losses greater than 0.5 seconds without proper shutdown may produce system alarms, system shutdown and system damage.
- A UPS with a minimum rating of 1500 VA/865 watts is **REQUIRED**. The role of the UPS is solely to protect the computer and will allow the ADVANTAGE PLUS Endoscope Reprocessor to operate for a short period of time without power allowing for an orderly shutdown of the computer in the event of a power outage.



NOTE: If Compressor is installed with the ADVANTAGE PLUS Endoscope Reprocessor TWO NEMA 5-15 receptacles are **REQUIRED**.

Heat Load

- Idle: 500 BTU/hr.
- Cycle (1 basin): 1400 BTU/hr.
- Cycle (2 basins): 2000 BTU/hr.

Ventilation



NOTE: It is the Customer's Responsibility to ensure the room is following this requirement. This is not a requirement of the ADVANTAGE PLUS® Endoscope Reprocessor but of the chemicals that are used for disinfection.

- It is a health and safety requirement to have a minimum of 10 air changes per hour in the room. During cycle operation, chemical vapor may be produced. The air exchange will minimize staff exposure to chemical vapors.
- A 4" flexible duct may be connected from the back of the ADVANTAGE PLUS Endoscope Reprocessor to the facility's exhaust system to aid in fume extraction. To properly vent the ADVANTAGE PLUS Endoscope Reprocessor 25 CFM at 0.25 inches-water static pressure is required.
- The ADVANTAGE PLUS Endoscope Reprocessor may also be supplied with an active vapor management system to aid in chemical vapor management. Please refer to the purchase order to determine the correct configuration of the ADVANTAGE PLUS Endoscope Reprocessor

Dimensions - Elevation Drawing [Appendix H](#) and Top-Down Drawing [Appendix I](#)

- The ADVANTAGE PLUS Endoscope Reprocessor physical dimensions are 62" H x 49" W x 31" D, weight 400 lbs. Refer to [Figure 1](#) and [Figure 2](#) below.
- If the optional air compressor is used it may be placed on the floor on either side or the back of the ADVANTAGE PLUS Endoscope Reprocessor. This will add additional depth (~16") or width (~16") to the installation. The physical dimensions of the compressor are 18" H x 16" W x 20" L with caster wheels, 15" H x 16" W and 20" L with rubber feet, weight 65 lbs. Alternately, the compressor may be installed remotely (in an adjacent room, closet, wall space). [Appendix D](#)
- Space is required on either side of the unit (approximately a combined 12") for easy access to the internal components. If this is not available, the ADVANTAGE PLUS Endoscope Reprocessors contains a base with casters allowing the system to be moved. There must be adequate room for the ADVANTAGE PLUS Endoscope Reprocessor to be moved for access to accommodate maintenance.

Endoscope & User Information

- To ensure a smooth and trouble-free installation, the customer must supply a complete list of users and endoscopes that will be reprocessed in the ADVANTAGE PLUS Endoscope Reprocessor.
- Fill out the ADVANTAGE PLUS Endoscope Reprocessor Operator ID ([Appendix A](#)) & Endoscope List ([Appendix B](#)) forms.

Network/Remote Access *refer to [Appendix F](#)*

- The ADVANTAGE PLUS Endoscope Reprocessor is equipped with a PC-based computer running Windows 7 (SP3) which will allow full networking along with the capability of remote diagnostics.
- To allow for remote diagnostics an internet connection is required. This is highly recommended.

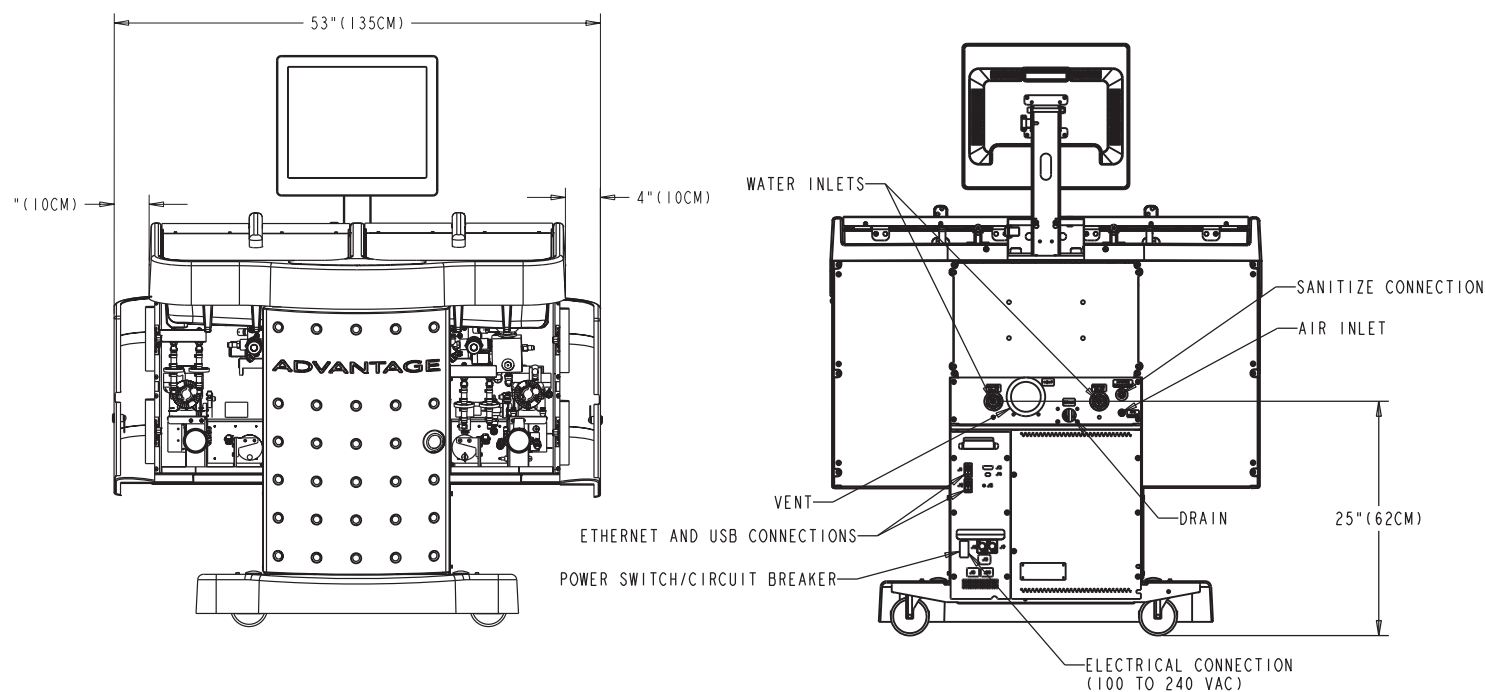


Figure 1. Front & Back Dimensions

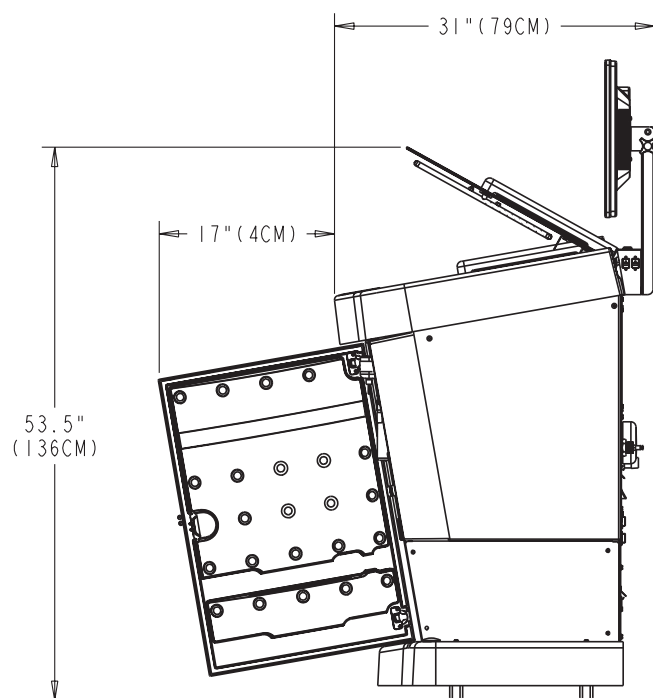


Figure 2. Side Dimensions & Clearance

APPENDIX A
USER / OPERATOR ID FOR
MEDIVATORS REPROCESSING SUITE of EQUIPMENT

#	PRINT First and Last Name	Group A=Administrator O=Operator B=Biomed D=Doctor (if using)	Barcode # from badge (if applicable)	Facility (if applicable)
1				
2				
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APPENDIX B
FACILITY ENDOSCOPE LIST

#	Model #	Serial #	Brand	Internal ID	Customer Barcode (if applicable)	Department
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APPENDIX C

SITE REQUIREMENTS CHECKLIST

This checklist should be utilized to ensure the installation site meets the required specifications. If all specifications are met, the site is suitable for the installation and use of the ADVANTAGE PLUS® Endoscope Reprocessor.

Water Supply	Potable water is the minimum standard.	
	Minimum flow rate of 1.32 GPM (5000 mL per minute) with a DYNAMIC pressure of 40 to 87 PSI	
	Water Temperature 35°C ± 2°C (95°F ± 4°F), on-demand supplied by a thermostatic mixing valve. <u>One mixing valve per reprocessor.</u>	
	The mixing valve must be accessible and within 4 feet of reprocessor.	
	Hardness, less than 12 gpg (200 ppm)	
	Pre-filter wall space 26" H x 38" W x 6" D, customer mounted and plumbed.	
	Installation of Bypass Valve for Draining, Testing, and Warming Supply Water	
	Installation of Pressure regulators, Pressure Gauges, and Temp Gauges on both the incoming hot and cold supply lines	
Drain	3.17 GPM, with the opening no higher than 18" from the floor, vented	
Air Supply	Optional air compressor dedicated, 120 VAC, dedicated 15 Amp circuit	
	House compressed air requirements: (dry/oil free) 58 to 125 PSI, minimum flow volume of 1.5 CFM, maximum particle size of 5 microns, maximum dew point of 7°C (45°F), maximum oil concentration of 5 mg/m ³	
	¼" ID Flexible Air Hose to connect Reprocessor CUSTOMER SUPPLIED	
Electrical Supply	120 VAC ± 10%, single phase, 60 Hz, 15 Amp circuit	
	NEMA 5-15R outlet, GFI protected, accessible by user	
Ventilation	Minimum of 10 room air exchanges per hour	
	Optional ventilation system available, 120 VAC, <1 Amp, adds 7" to the depth	
Unit Dimensions	62" H X 49" W X 31" D, 400 lbs.	
	Add 12" of open space to the total width to aid with service access	
Endoscope List	ADVANTAGE PLUS AER Endoscope List & Operator ID form completed	
Remote Access	Internet connection (recommended)	

APPENDIX D

JUN-AIR Compact Oil Free Compressor



- Features**

 - 100% oil free
 - 100% duty cycle
 - Super quiet - only 50dBA
 - Pressure up to 7 bar
 - Long-life
 - 8000 hours cup life at 7bar
 - Easy to use
 - Plug & play
 - Rubber feet and casters included
- Description**

 - 5µm filter with autodrain
 - Pressure regulator
 - Automatic drain system with evaporation tray
 - Hour run meter
 - Receiver with internal coating and 5-year warranty

- Certifications**
- 

UL
LISTED



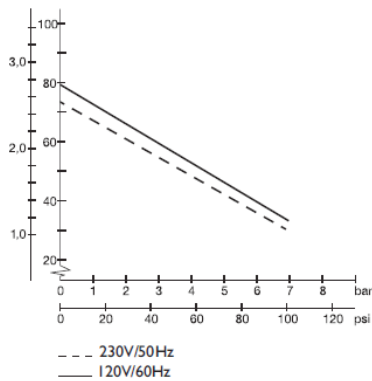
CE

- UL 1450
 - cUL (CAN ISCA C22.2, No. 68-09)
 - CE (97/23/EC, 2004/108/EC, 2006/95/EC, 2011/65/EU)

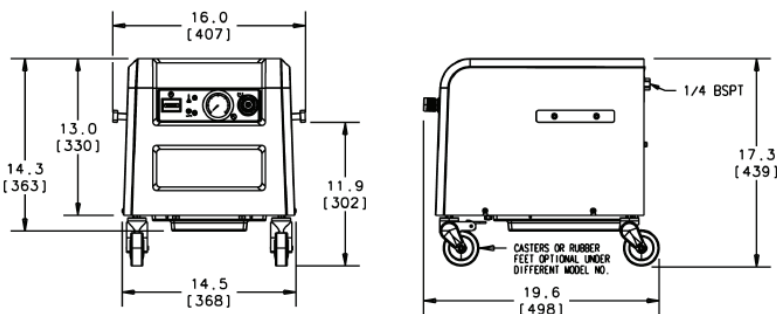
Product Specifications

Model		
Voltage	V	1x120
Frequency	Hz	60
Motor	HP	0.5
	kW	0.37
Displacement	l/min	78
Air flow @ 7bar / 100 psi	l/min	32
	cfm	1.1
Max. pressure	bar	7
	psi	100
Max. current	A	6.4
Receiver volume	litres	4
Weight	kg	29.5
	lbs	65
Noise level	dB(A)/1m	50
Thermal protection		Yes
Duty cycle		100%

Air Flow / Pressure Curve



Dimensions*



APPENDIX E



WARNING: An emergency eye wash valve **WILL NOT** meet the water temperature specifications for the ADVANTAGE PLUS® Endoscope Reprocessors and should not be used.

The ADVANTAGE PLUS Endoscope Reprocessors require a water supply that is tempered to $35^{\circ}\text{C} \pm 2^{\circ}$ ($95^{\circ}\text{F} \pm 4^{\circ}\text{F}$) with water at this temperature being available on demand for proper reprocessor operation.

Reprocessor	Water pressure	Flow Rate
ADVANTAGE PLUS Reprocessor	40 PSI to 87 PSI	Minimum of 1.32 GPM for each hot and cold supply line

To maintain this temperature, we recommend the installation of a thermostatic mixing valve. The valve has both hot and cold water plumbed into the unit, with an output of properly tempered water available on demand to the pre-filtration system of the reprocessor. We require one mixing valve be installed per machine and that the mixing valve be installed no further than 4 feet from the filtration system and accessible to the operator. A mixing valve installed at some distance away from the filtration system is likely to be ineffective at providing water at the correct temperature because of the length of plumbing through which the water must pass prior to reaching the filtration system.

Because each installation can be unique in terms of facility and plumbing code requirements, Cantel Medical cannot recommend specific mixing valves for each installation. Experience with prior successful installations has demonstrated that the valves listed below can be expected to meet most water supply needs. This list cannot be viewed as an endorsement by Cantel Medical as we do not manufacture, test, validate or certify thermostatic mixing valves. The customer assumes the responsibility to decide the proper fit for their individual installation needs. Due to variations in local codes, please consult your plumber before selecting a mixing valve.

Manufacturer	Valve Series	Specifications
Honeywell	AM-1 1070 Series	$70-120^{\circ}\text{F} \pm 3^{\circ}\text{F}$ ($21-49^{\circ}\text{C} \pm 2^{\circ}\text{C}$) at 0.5-10 GPM
WATTS	LFMMV	$80-120^{\circ}\text{F} \pm 3^{\circ}\text{F}$ ($27-49^{\circ}\text{C} \pm 2^{\circ}\text{C}$) at 0.5-20 GPM
WATTS	LFL1170	$60-120^{\circ}\text{F} \pm 3^{\circ}\text{F}$ ($16-49^{\circ}\text{C} \pm 2^{\circ}\text{C}$) at 0.5-20 GPM
Symmons	6-102-1	$70-110^{\circ}\text{F}$ at 0.5– 5 GPM
	6-200-1	$70-110^{\circ}\text{F}$ at 0.5– 5 GPM

NOTE: Manufacturer part numbers are subject to change without notice.

APPENDIX F

Endoscope Reprocessor IT FAQ

Medical Equipment Configuration

Question	Answer
What CPU is used in the medical device?	Intel i3-2120 CPU@3.3 GHz
How many processors are included in the medical device?	1
What OS does the system utilize?	Windows 7
Can critical security patches be installed without prior vendor approval?	YES
Does the device incorporate a network switch into its design?	NO
What anti-virus software is approved by the device manufacturer?	Microsoft Security Essentials, factory installed on new equipment
Which database software and version is installed on the medical device?	2012

Authentication and User Accounts

Question	Answer
Must the operator be logged on as an administrator to operate the device?	NO, but the default user is an Admin user.
Can the device be made to require user authentication?	YES
Does user authentication support Strong Passwords?	YES
Does user authentication support password aging?	YES
Can the device be part of the facility's Windows domain?	YES

Medical Equipment Configuration

Question	Answer
What is the local storage capacity?	200 GB
What is the estimated annual storage consumption?	300 MB
How many years should the storage capacity last?	10+ years
Are scheduled database backups required?	NO - Device contains mirrored hard drives (RAID 1)
Are scheduled database backups recommended?	YES, Database backup software is installed, configurable by customer.
Can the database be run off-device?	YES, using a central server supported by the facility IT department
What ePHI data is stored on the local hard drives?	Patient ID assigned by facility
Is the medical device HIPPA compliant?	YES

APPENDIX F - continued

Endoscope Reprocessor IT FAQ

Networking

Question	Answer
Is local area network connection required for normal operation?	NO
Is PC network hardware included in the ADVANTAGE PLUS® AER	YES, on-board Ethernet 1 Gbps, RJ45 socket.
Can unutilized ports be closed without negatively impacting device operation?	YES
Can the device support DHCP for network address configuration?	YES, fixed and dynamic addressing is supported.
How many IP addresses does the device require?	One (1)
Is Internet connection required?	NO, but Internet access for remote access is beneficial.
Can the system be addressed via a fully qualified domain name (FQDN)?	YES

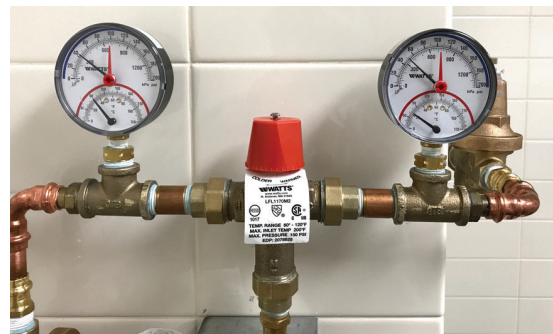
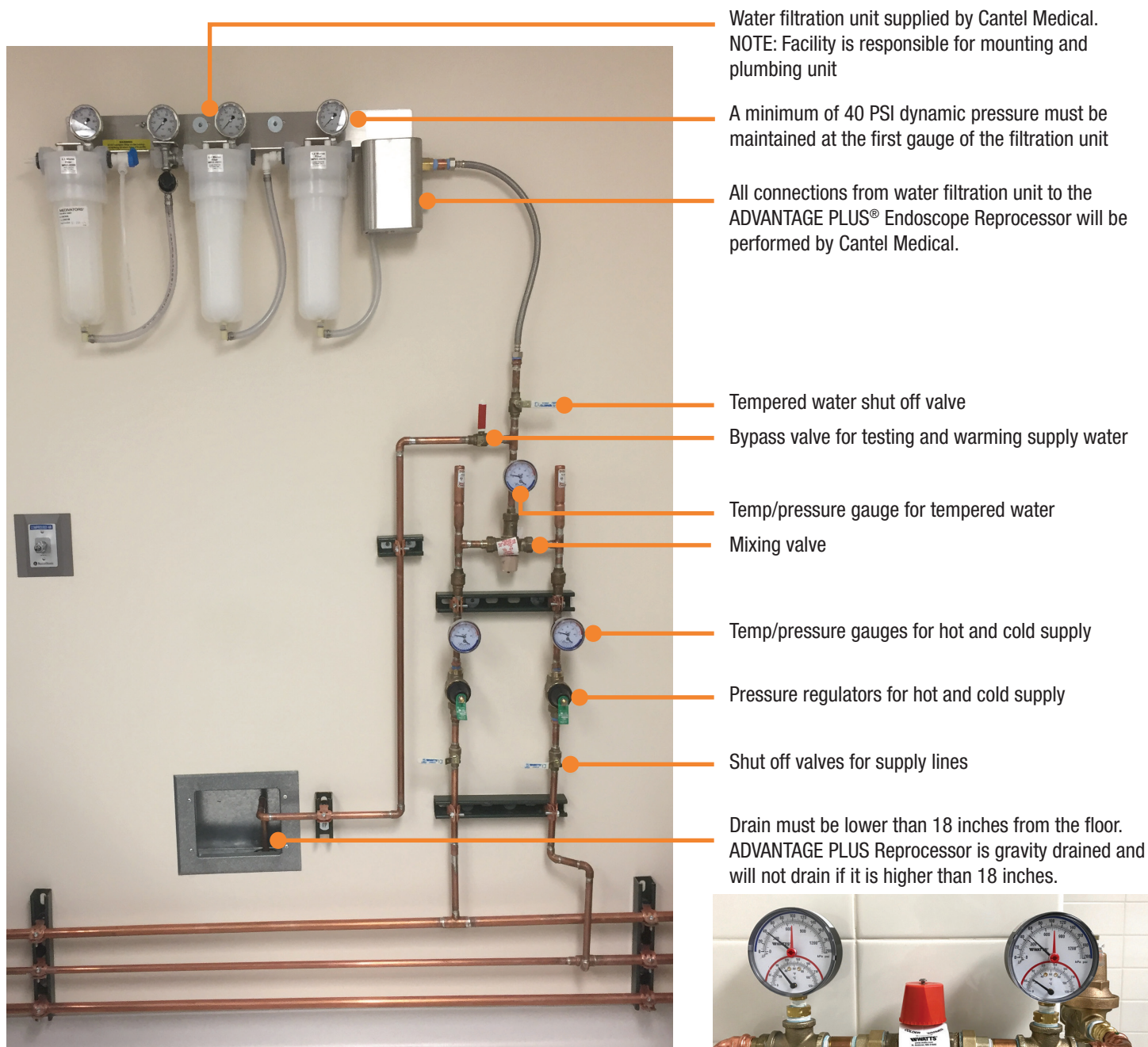
Wireless

Question	Answer
Can the device utilize wireless communication?	YES, using customer supplied wireless adapter.
What wireless protocols are used?	802.11n or 802.11g
Is any ePHI transmitted via the wireless link?	Only if using central server or off-device back-up.
Does the device support installation of FIPS 140-2 certified wireless security clients?	NO
Does the device support a bi-directional HL7 interface?	NO

Remote Diagnostics

Question	Answer
Can Cantel Medical support the system remotely?	YES
What are the remote support options?	GoToMyPC
Are VPN connections supported?	NO

APPENDIX G



Example of combined temp/pressure gauges and mixing valve

For clarification and/or questions regarding site preparation please contact Technical Support at 1.800.444.4729 or 763-553-3300.

APPENDIX G

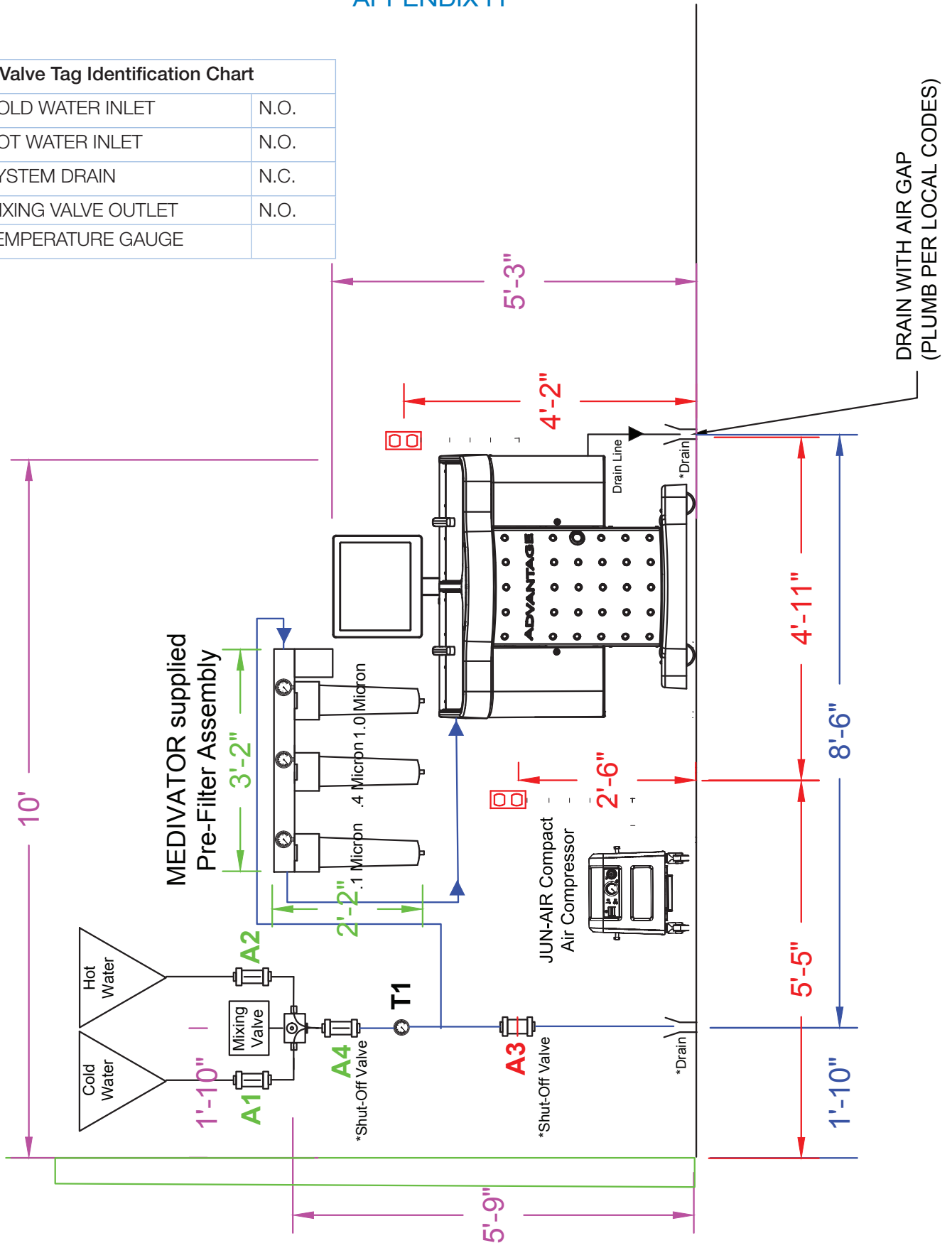


Important! Notes Summary

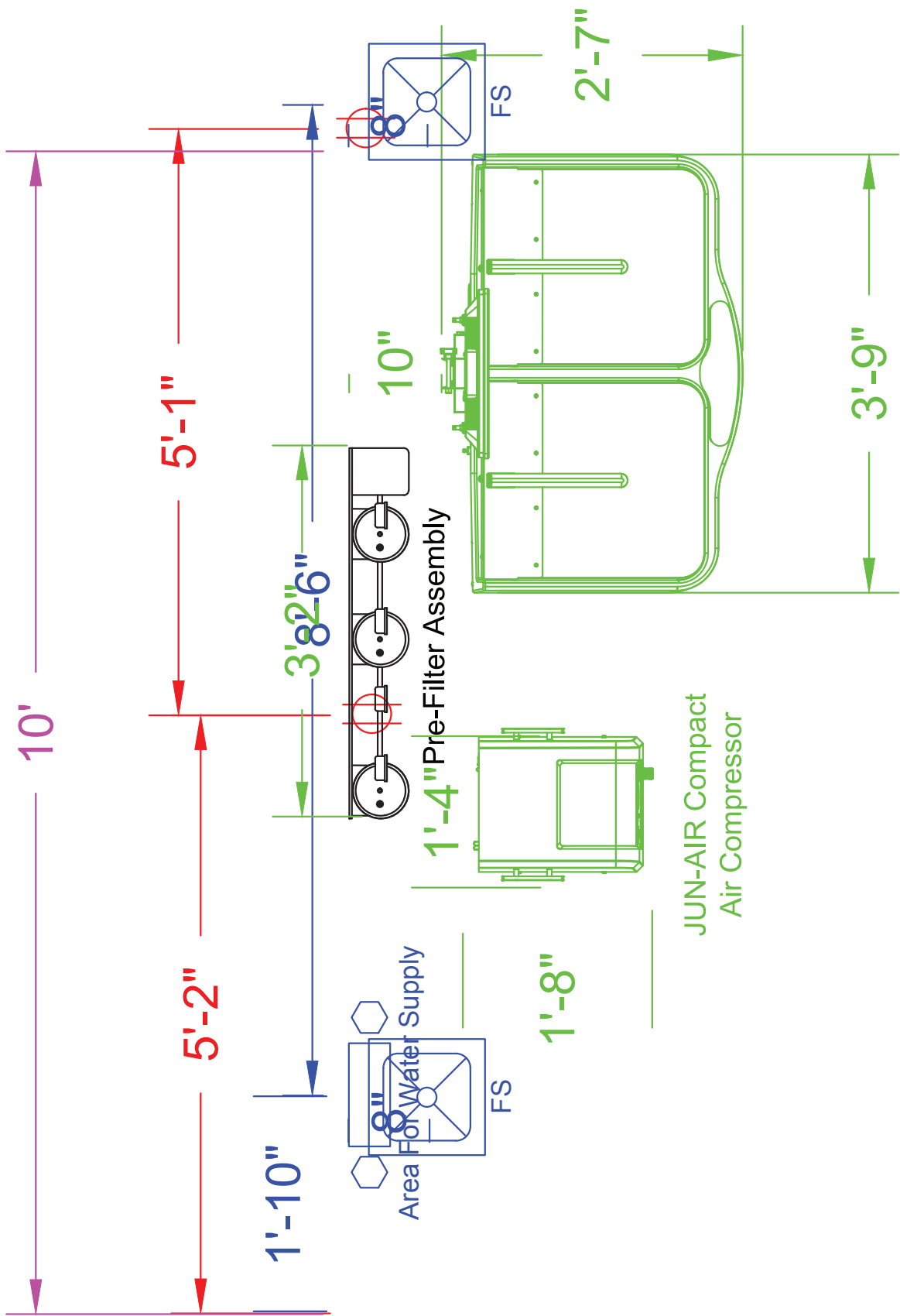
- Potable water is the minimum standard
- One mixing valve per reprocessor
- Mixing valve must be within 4 feet of reprocessor and easily accessible
- Water pressure of 40 to 87 PSI DYNAMIC must be maintained at the first gauge of the water filtration unit
- Water consumption is approximately 8 gallons per standard cycle and 13 gallons per cycle if using the detergent wash function
- Water hardness must be less than 12gpg or 200ppm
- De-ionized water can NOT be used in the ADVANTAGE PLUS® Endoscope Reprocessor
- One pre-filter system per ADVANTAGE PLUS Reprocessor
- A vented drain system capable of draining 3.17 GPM that is 18 inches or less from the floor is required.

APPENDIX H


Valve Tag Identification Chart		
A1	COLD WATER INLET	N.O.
A2	HOT WATER INLET	N.O.
A3	SYSTEM DRAIN	N.C.
A4	MIXING VALVE OUTLET	N.O.
T1	TEMPERATURE GAUGE	



APPENDIX I





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EC	REP
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