

**Thermo Scientific Barnstead Smart2Pure UV/UF 12LPH Water Purification System
A & E Specification Sheet**

Lab water purification system capable of producing between 1 – 70 L/day of Type 1 ultrapure water on demand from a tap/potable feed water supply

PART 1 – GENERAL

1.1 DESIGN AND PERFORMANCE CRITERIA

- A. Water purification system must provide 18.2 megohm quality (Type 1) water to be utilized in a laboratory environment. Type 1 water quality meets standards as defined by ASTM D1193-6, ISO 3696 and CLSI™-CLRW.
- B. Water purification system will be capable of delivering up to 70L per day at a production rate of 12LPH and a flow rate of 1 liter per minute using tap/potable feed water as the supply water.
- C. Water purification system must function as one component with an external storage reservoir. The water purification system must be able to be mounted on the wall or bench. The storage reservoir must also be able to be mounted on the wall or bench.
- D. The system must also have built in a product water resistivity monitor.

1.2 SUBMITTALS

Product Brochure
Water Purification System Operating Manual (includes installation instructions)
Product Guidelines for Site Installation
Drawings

1.3 QUALITY ASSURANCE

- A. Each water purification system will be certified by CE and CSA for electrical safety and integrity.

1.4 QUALIFICATION

- A. Manufacturer – Company must have 10 years documented experience in the construction of water purification systems.
- B. Water Purification System – Shall be CE and CSA certified and meet ASTM D1193 standards.

1.5 WARRANTY

- A. Manufacturer's warranty against defects in material and workmanship covering parts and labor must be available for a period of one year. Standard exceptions for cartridges, filters, and lamps shall apply.

PART 2 – PRODUCT

2.1 MANUFACTURER

A. Thermo Scientific Barnstead Smart2Pure UV/UF 12LPH water purification system – **50129845**

2.2 WATER PURIFICATION SYSTEM PRODUCT WATER SPECIFICATIONS

- A. Ultrapure water flow rate of 1L/minute
- B. Type 2 product water must have a resistivity of 10-15 megohms-cm at 25 °C
- C. Type 1 product water must have a resistivity of up to 18.2 megohms-cm at 25°C and:
 - a. Less than 5 ppb TOC (Total Organic Carbon) in the product water
 - b. Pyrogen (bacterial endotoxin) levels of less than 0.001 EU/ml with in-line integrated ultrafilter
 - c. Bacterial counts less than 1 CFU/ml
 - d. RNase levels <0.003 ng/ml, and DNase <0.4 pg/μl with in-line integrated ultrafilter

2.3 WATER PURIFICATION SYSTEM PERFORMANCE REQUIREMENTS

- A. The system must be able to produce both type 1 and type 2 quality water and both types must be accessible by the end-user to meet different application requirements. Systems producing Type 1 and RO quality water are not acceptable.
- B. Dispensing of type 1 water must be from the front of the water system with a variable flow control knob.
- C. System must come compatible with either a 30L or 60L storage reservoir.
- D. Dispensing ports for type 2 water must be from the side of the unit or the reservoir to allow for flexible dispensing options.
- E. An optional hand dispenser must be available for the dispensing of type 2 water from the system.
- F. Storage reservoir must communicate with system to maintain a continual supply of type 2 water in the reservoir.
- G. System display must have adjustable angle display to make the display easy to read from any angle.
- H. System display should provide all system status data plus access to user menu.
- I. The system will include a UV lamp with a two-year lifespan that will emit both 185 nm and 254 nm wavelengths, designed to ensure organic removal as well as maintaining a bacteria-free environment.
- J. The system will include an inline ultrafilter for the removal of pyrogens with a two year lifespan. The system must allow for an extended ultrafilter flush as well as a 1 minute ultrafilter flush, which is initiated by the controls. The unit must also automatically flush the ultrafilter. External point-of-use ultrafilters are not acceptable.
- K. The system will automatically switch to “Interval” operation after the reservoir is completely filled.
- L. The system will automatically recirculate the water stored in the reservoir for 14 mins after every 16 min of being idle to ensure product water is always fresh and ready for use.
- M. Systems cartridges must be able to be removed / replaced with quick disconnect fittings with no threads, screws or other mechanisms required to change cartridges.
- N. System cartridges must be two discreet canisters. One cartridge containing the RO membrane and carbon and the second cartridge containing the resin required to produce type 1 water. One housing for all is not acceptable.
- O. An absolute 0.2μm polysulfone membrane filter is required as the final purification step as the water is being dispensed. The final filter will be sterilizable using an autoclave.
- P. Temperature measurements are made by a platinum chip sensor with ± 0.1° C accuracy.

2.4 – ACCESSORIES

A. REQUIRED

- a. **09.4003** – 1 micron pretreatment filter to protect RO membrane from particulate damage
 - b. **06.5040*** – 30L storage reservoir
 - c. **06.5070*** – 60L storage reservoir
 - d. **06.5001** – Sterile overflow filter for reservoir
 - e. **06.5002** – Sterile filter and CO2 adsorber for reservoir
- *Must select one reservoir – size depends on customer product water demand

B. OPTIONAL

- a. **09.4001** – 5 micron filter and hardness stabilizer to protect RO membrane from scaling in areas where high levels of hardness occur
- b. **09.2212** – Wall mounting bracket to affix system to wall
- c. **06.5015** – 30L reservoir wall mounting bracket to affix reservoir to wall
- d. **06.5016** – 60L reservoir wall mounting bracket to affix reservoir to wall
- e. **50138221** – Hand dispenser

C. REPLACEMENT CONSUMABLES

- a. **09.1020** - Ultrapure polishing cartridge
- b. **09.1002** - UV lamp
- c. **50133981** - Ultrafilter
- d. **09.1003** - 0.2 micron final filter
- e. **09.2012** – RO membrane with integrated carbon pretreatment
- f. **06.5001** – Sterile overflow filter for reservoir
- g. **06.5002** – Sterile filter and CO2 adsorber for reservoir

ADDITIONAL SPECIFICATIONS

DIMENSIONS (System)	12" W x 15.7" D x 21.5" H (305mm x 400mm x 545mm)
DIMENSIONS (30L Reservoir)	23.5" H x 15" D (598mm x 380mm)
DIMENSIONS (60L Reservoir)	35.9" H x 15" D (912mm x 380mm)
ELECTRICAL REQUIREMENTS	100 – 240 V, 50/60 Hz, 2-1A, up to 5 ft from unit
WATER CONNECTIONS	¾" NPT with manual shut off valve recommended
MIN/MAX INLET PRESSURE	15 – 85 PSI (0.1 – 6 bar)
RECOMMENDED FEED TEMPERATURE	2 – 35°C
RECOMMENDED FEED WATER TYPE	Tap/Potable Water
DRAIN	An atmospheric drain must be available within 5 feet of the final mounting location

