Thermo Scientific Barnstead Smart2Pure UV/UF 6LPH Water Purification System
A & E Specification Sheet

Lab water purification system capable of producing between 1 – 40 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 40L per day at a production rate of 6LPH 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 a built-in storage reservoir. The water purification system must 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 6LPH water purification system – **50129887**

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 ^{o}C
C. Type 1 product water must have a resistivity of up to 18.2 megohms-cm at 25^{o}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. Dispensing ports for type 2 water must be from the side of the unit to allow for bench mounting. Dispensing ports on bottom of the reservoir is not acceptable.
D. An optional hand dispenser must be available for the dispensing of type 2 water from the system.
E. System must come with built-in 6L reservoir for the storage of the type 2 water. External reservoirs are not acceptable.
F. System display must have adjustable angle display to make the display easy to read from any angle.
G. System display should provide all system status data plus access to user menu.
H. 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.
I. 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.
J. The system will automatically switch to “Interval” operation after the reservoir is completely filled.
K. The system will automatically recirculate for 14 mins after every 16 min of being idle to ensure product water is always fresh and ready for use.
L. Systems cartridges must be able to be removed / replaced with quick disconnect fittings with no threads, screws or other mechanisms required to change cartridges.
M. 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.
N. 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.
O. 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. 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. **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. **09.2006** – RO membrane with integrated carbon pretreatment

ADDITIONAL SPECIFICATIONS

DIMENSIONS (System)	12” W x 15.47” D x 21.5” H (305mm x 400mm x 545mm)
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 – 35ºC
RECOMMENDED FEED WATER TYPE	Tap/Potable Water
DRAIN	An atmospheric drain must be available within 5 feet of the final mounting location