APPENDIX C
WATERPRO PS SYSTEM SPECIFICATIONS

PS SPECIFICATIONS:

System Description:	Self contained cartridge water purification system.
Technologies:	GENERAL CHEMISTRY Activated carbon adsorption, deionization. HPLC ANALYTICAL INSTRUMENT MODELS Activated carbon adsorption, deionization, organic adsorption, and ultraviolet irradiation at both 185 and 254 nm. UF LIFE SCIENCE MODELS Activated carbon adsorption, deionization, ultrafiltration and ultraviolet irradiation at both 185 and 254 nm. HPLC/UF HYBRID MODELS Activated carbon adsorption, deionization, organic adsorption, ultrafiltration and ultraviolet irradiation at both 185 and 254 nm.
Typical Water Production Rate: (0-100 psi with a minimum feed rate of 2 liters per minutes)	1.8 liters per minute for General Chemistry and HPLC models. Reduced to 1.2 liters/minute with the addition of a 0.2 micron final filter.* 1.1 liters per minute for Ultrafiltered models. Reduced to 1 liter per minute with the addition of 0.2 micron final filter.*

Appendix C: WaterPro PS System Specifications

Water Dispensing Systems:	GUN DISPENSING MODELS Dispense from gun by depressing trigger or from dispense valve by pressing dispense key. Release trigger or key to stop flow. Timed dispense from dispense valve only. Optional hollow fiber filter can be installed on both gun and dispense valves by removing threaded nozzle and replacing with hollow fiber filter. NON-GUN DISPENSING MODELS Dispense by pressing dispense key. Release key to stop flow.
Water Quality Produced:	Meets or exceeds the following: • American Society for Testing and Materials Type I Water • National Committee for Clinical Laboratory Standards Type I Water

*Actual flow rates for ultrafiltered models could vary as much as ± 15% depending on the membrane. Flow rates determined with new hollow fiber final filter installed. Flow rate from final filter decreases with use.

Weight (dry):	60 lbs. (27.2 kg)
Feedwater Requirements **Type:**	Prepurified via reverse osmosis, distillation or deionization, with a conductivity of < 100µS (Tap water feed not recommended)
Temperature:	10-30 degrees Centigrade (50-86 degrees Fahrenheit)
pH:	4-10
Inlet Pressure and Flow:	0-100 psi (0-7 Bar) providing 2 liters/minute (0.5 gallons/minute) or better
Deionization Capacity: **(Based on 70% operating efficiency. See Table under Feed Water Quality in Installation Section of the manual)**	General Chemistry models 1373 Grains as $CaCO_3$ HPLC Analytical Instrument models 915 Grains as $CaCO_3$ UF Life Science models 1373 Grains as $CaCO_3$

	HPLC/UF Hybrid models 915 Grains as $CaCO_3$
Deionization:	High Purity Polishing grade mixed bed resin, which will deliver 16 to 18.2 Megohm.cm Type I water.
Ultrafiltration: **(membrane included on UF models)**	Polysulfone membrane in a spirally wound configuration.
Final Filtration (Optional):	Self-venting 0.2 micron hollow fiber filter
Electrical Specifications:	115V, 60 Hz, 5.0 Amps or 230V, 50 Hz, 2.5 Amps Single Phase
Relative Humidity:	Less than 80%

Environmental Conditions:

The WaterPro PS is designed to operate safely under the following conditions:

- Indoor use
- Altitude up to 2,000M (6,562 Ft.)
- Ambient temperatures 5°C to 40°C (41°F to 104°F)
- Maximum relative humidity 80% for temperatures up to 31°C (88°F) decreasing linearly to 50% relative humidity at 40°C (104°F)
- Main supply voltage fluctuations not to exceed ±10% of the nominal voltage
- Transient over-voltages according to installation category II (over-voltage categories per IEC 1010)
- Pollution degrees 2 (Normally only non-conductive foreign matter, solid, liquid, or gaseous (ionized gases), that may produce a reduction of dielectric strength or surface resistivity occurs. Occasionally, however, a temporary conductivity caused by condensation must be expected, in accordance with IEC 664)

Appendix C: WaterPro PS System Specifications

PS Deionization Cartridge Capacity

WaterPro Reverse Osmosis and WaterPro PS HPLC and HPLC/UF Hybrid Models

Tap Water Conductivity uS/cm	RO Performance 95% Reduction	Resulting RO Water Purity uS/cm	PS Ion Removal Capacity 70% Efficiency	Liters of Type I Water Produced 16.0-18.2 Megohm/cm
2000	x .05	100	915 Grains	1,183
1500	x .05	75	915 Grains	1,577
1000	x .05	50	915 Grains	2,366
900	x .05	45	915 Grains	2,629
800	x .05	40	915 Grains	2,957
700	x .05	35	915 Grains	3,380
600	x .05	30	915 Grains	3,943
500	x .05	25	915 Grains	4,732
400	x .05	20	915 Grains	5,914
300	x .05	15	915 Grains	7,886
200	x .05	10	915 Grains	11,829
100	x .05	5	915 Grains	23,658
90	x .05	4.5	915 Grains	26,286
80	x .05	4	915 Grains	29,572
70	x .05	3.5	915 Grains	33,796
60	x .05	3	915 Grains	39,429
50	x .05	2.5	915 Grains	47,315
40	x .05	2	915 Grains	59,144
30	x .05	1.5	915 Grains	78,858
20	x .05	1	915 Grains	118,288
10	x .05	0.5	915 Grains	236,575
5	x .05	0.25	915 Grains	473,150
1	x .05	0.05	915 Grains	2,365,751
1,000	No Pretreatment w/RO System: If pretreatment with an RO System is not utilized with tap water that has a conductivity of 200 to 1,000 uS/cm, minimal volume of Type I Water is obtained per filter set.		915 Grains	118
900			915 Grains	131
800			915 Grains	148
700			915 Grains	169
600			915 Grains	197
500			915 Grains	237
400			915 Grains	296
300			915 Grains	394
200			915 Grains	591
100			915 Grains	1,183

WaterPro Reverse Osmosis and WaterPro PS General Chemistry and UF Life Science Models

Tap Water Conductivity uS/cm	RO Performance 95% Reduction	Resulting RO Water Purity uS/cm	PS Ion Removal Capacity 70% Efficiency	Liters of Type I Water Produced 16.0-18.2 Megohm/cm
2000	x .05	100	1,373 Grains	1,775
1500	x .05	75	1,373 Grains	2,367
1000	x .05	50	1,373 Grains	3,550
900	x .05	45	1,373 Grains	3,944
800	x .05	40	1,373 Grains	4,437
700	x .05	35	1,373 Grains	5,071
600	x .05	30	1,373 Grains	5,917
500	x .05	25	1,373 Grains	7,100
400	x .05	20	1,373 Grains	8,875
300	x .05	15	1,373 Grains	11,833
200	x .05	10	1,373 Grains	17,750
100	x .05	5	1,373 Grains	35,499
90	x .05	4.5	1,373 Grains	39,444
80	x .05	4	1,373 Grains	44,374
70	x .05	3.5	1,373 Grains	50,713
60	x .05	3	1,373 Grains	59,165
50	x .05	2.5	1,373 Grains	70,998
40	x .05	2	1,373 Grains	88,748
30	x .05	1.5	1,373 Grains	118,331
20	x .05	1	1,373 Grains	177,496
10	x .05	0.5	1,373 Grains	354,992
5	x .05	0.25	1,373 Grains	709,984
1	x .05	0.05	1,373 Grains	3,549,919
1,000	No Pretreatment w/RO System: If pretreatment with an RO System is not utilized with tap water that has a conductivity of 200 to 1,000 uS/cm, minimal volume of Type I Water is obtained per filter set.		1,373 Grains	177
900			1,373 Grains	197
800			1,373 Grains	222
700			1,373 Grains	254
600			1,373 Grains	296
500			1,373 Grains	355
400			1,373 Grains	444
300			1,373 Grains	592
200			1,373 Grains	887
100			1,373 Grains	1,775

If a customer starts with tap water that has a conductivity of 2,000 uS/cm and feeds it to an RO System the resulting dispense water conductivity will be 100uS/cm. If the customer connects the RO dispense to a PS System, they should be able to obtain an estimated 1,183 Liters of Type I water per filter set.