

SECTION 13 1140

SWIMMING POOL WATER CHEMISTRY SYSTEMS - ALTERNATE NO. 1

PART 1 GENERAL

1.1 STANDARDS

- A. All construction and equipment shall be in accordance with standard industry practices, using new materials to produce a quality, finished product.

1.2 DESCRIPTION OF WORK

- A. It is the intent of this specification that the Contractor furnishes and installs an integrated disinfection/control system which shall include chlorination, pH adjustment, and automatic water chemistry control.

1.3 RELATED SECTIONS/DOCUMENTS

- A. Drawings and General Provision of Contract, including General and Supplementary Conditions and Division 1 - Specification Sections apply to the work specified in this section.

1.4 REGULATORY AGENCY REQUIREMENTS

- A. The entire system shall be designed and installed to meet all applicable State and Local codes. Nationally recognized standards, including applicable NSF and UL listing requirements, shall be adhered to.

Part 2: LIQUID CHLORINATION SYSTEM

2.01 GENERAL DESCRIPTION.

- A. The systems shall be designed to feed sodium hypochlorite in solution intermittently or continuously as required for pool applications.

202 CHEMICAL FEEDERS

- A. The feeder shall be adjustable peristaltic type, with a polycarbonate plastic case and replaceable variable sized LDPE polyethylene tube.
- B The feeders are to be model number 45M4 as manufactured by Stenner, 3174 DeSalvo Rd., Jacksonville, FL OR APPROVED EQUAL

2.03 CHLORINE STORAGE TANK

- A. The chlorine storage tank shall be a double-wall, 200 gallon polyethylene container as manufactured by Chemtainer, West Babylon, NY, model TC20381A or approved equal. Bulkhead fittings shall be provided on tank top to accommodate pipe penetrations as shown on the drawings.

2.7 WARRANTY

- A. The manufacturer shall guarantee in writing that this unit, if operated in accordance with written instructions given and accepted by the Owner, will perform in complete accord with the specifications. All components will be warranted against manufacturers' defects for twelve (12) months.

PART 3 pH CONTROL SYSTEM

3.1 DESCRIPTION

- A. This specification cover the products and installation of equipment utilized in the control of pH adjustment in swimming pool water with the use of buffered muriatic acid. The system shall be NSF approved.

3.2 SYSTEM COMPONENTS

- A. The feeder shall be adjustable peristaltic type, with a polycarbonate plastic case and replaceable variable sized LDPE polyethylene tube.
- B. The feeders are to be model number 45M4 as manufactured by Stenner, 3174 DeSalvo Rd., Jacksonville, FL or approved equal

- C. The buffered acid storage tank shall be a single-wall, twenty-eight inch high, by twenty-two inches in diameter by 25 gallon polyethylene container as manufactured by Chemtainer, West Babylon, NY, model N-41867 or approved equal. Contractor shall drill a hole in the threaded tank lid to accommodate the feed pump suction tube.

PART 4 AUTOMATIC CHEMISTRY CONTROL SYSTEM

4.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

4.2 SUMMARY

- A. This Section includes pool chemistry control and monitoring.

- 1. Chemistry Controller
 - 2. Flow cell assembly
 - 3. Probes
 - 4. Communication

- B. Related Sections include the following:

- 1. Parts 1, 2 & 3 above

4.3 DEFINITIONS

- A. A programmable Pool Chemical Automation System shall be supplied for continuous monitoring and control of the water chemistry and related disinfection equipment.

4.4 PERFORMANCE REQUIREMENTS

- A. The controller shall automatically activate the appropriate chemical feeders in order to maintain the sanitizer level within +/- 0.1 parts per million (PPM) or +/- 10 mV (millivolts) of Oxidation Reduction Potential (ORP) and the pH within +/- 0.1 pH unit of the setpoints selected by the operator. All setpoint and calibration levels shall be adjustable with a numeric keypad mounted on the front panel of the unit.
- B. The controller shall be capable of actuating all outputs in the following operator selectable modes: off, manual, automatic, and proportional control.
- C. The controller shall have ORP & pH probes for indoor applications.

- D. The controller shall be contained in a NEMA Type 4X (rain and splash proof) injection molded enclosure.
- E. The controller shall be factory assembled on a PVC backboard, complete with controller, machined acrylic flow cell and rotary flow sensor.
- F. The controller shall be supplied at factory on PVC backboard.

4.5 MANUFACTURERS

- A. The basis of design is the CAT 2000 PRO-PACK as manufactured by Hayward Industries, 10101 Molecular Drive, Rockville, MD. 800-657-2287, or approved equal.

4.6 WARRANTY

- 1. The controller shall be covered by a standard manufacturer warranty of five (5) years. All probes will be covered by a standard two (2) year warranty. Other parts shall be covered by their own manufacturer's warranty. The controller shall not require a service technician for annual calibration or whenever chemical supplier or type is changed.
- 2. The manufacturer shall supply a complete instruction, operating and maintenance manual. Check-out of installation, start up, and instruction of operating personnel shall be performed by an authorized and properly trained manufacturer representative.

PART 5 ULTRA VIOLET DISINFECTION SYSTEMS

5.1 GENERAL

- A. The Pool Contractor shall supply and install a low-pressure ultra violet light disinfection system to control soluble chloramines and water-borne pathogens.
- B. The UV unit shall be UL and NSF-50 listed
- C. The UV unit shall be rated for 61.7 mJ/cm² at 84gpm with 90% UVT.
- D. The UV unit's reaction chamber shall be six inches in diameter, with an "L-type" plastic body and two-inch flanged connections.
- E. The UV unit shall include a lamp field safety cover and twelve-foot sensor cable.
- F. The UV unit shall be 390 Watt (3)-130 Watt Amalgam lamps with NEMA 4X Power Supply 120-Volt AC 50/60 Hz @ 6-amps full load.
- G. UV control panel features shall include;
 - 1. Individual UV lamp status indicators.
 - 2. Individual re-settable lamp run-time hour meter.
 - 3. Main Power Indicator Status.
 - 4. Main Power ON / OFF Disconnect Switch.
 - 5. Remote On / OFF capability.

6. UV Intensity Meter/UV intensity set-point alarm relay (12ft sensor cable).
 7. Water Temperature Monitor - Includes set-point alarm relay to shut-down lamps in a no-flow situation (12ft sensor cable).
 8. Output alarm relay to be used to set an external alarm (Normally open 24-Volts AC/DC @ 200-milliamps max current).
 9. All monitored inputs are capable of setting an alarm output.
- H. The basis of design is the *SafeGUARD* Model # CLP4390A6-2FN as manufactured by Emperor Aquatics, Inc. 610.970.0440 x 43, or approved equal.