Written Specifications Commercial WQ-SF Water Quality Solution

SPECIFICATION SECTION XXX

PRODUCT: Lync WQ-SF Complete Water System for Water Hardness Reduction

1. GENERAL

Furnish a pre-packaged commercial meter demand sodium regenerated water softener system as specified here in this section and as called for in the equipment schedule for the reduction of water hardness. The water softener package system shall be supplied complete and assembled entirely by one manufacturer. System to include all components required for proper operation of the system. These components include mineral tanks, ion exchange resin, gravel under-bedding, internal distributor system, control valve, meter, back wash flow control, and brine tank with air check. System configuration shall be a Twin Alternating or Progressive Flow depending on system flow rate. Expressed grain capacity of the system is per mineral tank. The system shall be a Lync Model # WQSF-025-N, WQSF-050-N, WQSF-075-N, or WQSF-100-N.

* 1. Feedwater Requirements

The system shall be suitable for operation and capable of all flow and dosage claims when operated on a water supply with the following parameters:

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| pH | 6 to 10 |
| Water Pressure | 25 psi to 125 psi (172 kPa to 861 kPa) |
| Water Temperature | 34°F (1°C) to 113°F (45°C) |
| Turbidity | <5 Nephelometric Turbidity Units (NTU) |
| Total Dissolved Solids | <750 mg/l for the softener to produce less than 1 grain per gallon soft water. |
| Maximum Iron | 1 mg/l |
| Maximum Free Chlorine | 1 mg/l |
| Ambient Temperature | 34°F (1°C) to 120°F (52°C) |
| Oil & H2S | None allowed |
| Maximum Humidity | 75% |

1. COMPONENTS
   1. Mineral Tank

The mineral tank shall be constructed of a polyethylene liner with a continuous roving outer fiberglass reinforced wrapping. The tank shall be non-ASME code with a 150-psi maximum pressure rating and a 120 deg. F (48 deg. C) maximum temperature rating and certified to NSF/ANSI STD. 61 Section 8 Material Safety Only and NSF/ ANSI STD. 372 for Low Lead compliance. 18” diameter tanks and larger shall have a bottom base permanently installed with industrial grade adhesive. Tank shall be supplied with a 4” top threaded port for loading media and connection of the control valve. The tank shall be designed with a safety factor of 4:1 for minimum burst pressure. The dimensions and number of mineral tanks are dependent on the flow rate of the system.

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| Model | Quantity | Diameter | Height |
| WQSF-025-N | 2 | 18” | 65” |
| WQSF-050-N | 2 | 21” | 62” |
| WQSF-075-N | 4 | 18” | 65” |
| WQSF-100-N | 4 | 21” | 62” |

2.2 Ion Exchange Resin

The ion exchange resin shall be a high purity, premium grade, strongly acidic gel-type cation exchange resin specially designed for residential water treatment. The ion exchange resin shall be composed of polystyrene with 8% divinylbenzene crosslinking that offers excellent bead integrity, high resistance to bead fracture or osmotic shock, and very low extractables. The resin shall have a light amber color and shall be specially pretreated to remove taste, odor, and color throw. Resin bead size shall be 16X40 mesh. Maximum grain capacity per cubic foot of resin shall be 30,000 grains as CaCO3 when regenerated with 15 lbs. of sodium chloride and 20,000 grains as CaCO3 when regenerated with 6 lbs. of sodium chloride. pH stability of the resin must be 0-14. Temperature stability of the resin must be up to 250 deg. F (121 deg. C). The resin shall be Watts Model # A4000.

* 1. Gravel Under-bedding

The gravel under-bedding shall be a flint media. This media shall be washed to rid it of fines to prevent clogging of the lower distributor system. Enough gravel must be furnished to completely cover the lower distributor in the mineral tanks.

* 1. Internal Distributor System

The internal distributor system shall come already installed in the water softener mineral tanks. The screens/laterals of the internal distribution system shall be a slotted screen type diffuser. The slot cross section shall be a V shape to promote a self-cleaning characteristic of the slot. Slot size shall be .008” and not allow the resin to pass through and become present in the systems effluent water. Each screen will have an internal perforated pipe core to evenly distribute water flow across the entire lateral to prevent resin bed channeling. The lower distributor shall be a hub and lateral design for mineral tanks over 24” in diameter and single point design for mineral tanks 24” in diameter and below.

The internal distribution system shall be made of abrasion resistant 20% glass filled polypropylene and have a maximum temperature limitation of 160 deg. F (71 deg. C). The distributor tube connecting the internal distribution system to the system control valve shall be made of polyvinyl chloride.

* 1. System Control Valve

The system control valve shall control all functions of the water softener regeneration and service cycles. The control valve shall be a multi-port type constructed of lead free brass as defined in the US EPA Safe Drinking Water Act and be tested and certified to NSF/ANSI STD. 61 Section 8 Material Safety Only and NSF/ ANSI STD. 372 for Lead Free compliance. The control valve must also meet The State of California’s Proposition 65 Standards.

Cycle positioning shall be motor driven, slow in actuation, and not cause pressure surges or water hammer. The system control valve shall be furnished with a fully programmable microprocessor-based controller. Operating data from the system shall be stored within the controller and displayed on the screen. Operating data shall be peak flow rate, totalizing meter, gallons remaining in softening cycle, hours between last two regenerations, and hours since last regeneration. The control valve will be provided with a multi color LED display to indicate the position of the system. In service, regeneration, and standby positions will be indicated by the condition of the LED. The valve will be supplied with a normally open and normally closed dry contact for interface with the building control system. The controller, related wiring, and positioning motors shall be housed within a NEMA 3 or equivalent enclosure. The control valve shall be supplied with a meter capable of tracking gallons higher and lower than the system is capable of processing so that it is not a flow restriction at high flow rates or not sensitive to low flow rates. A drain line flow control shall be provided to regulate the flow of water to drain during a regeneration cycle. The flow controller shall be constructed of a sch. 80 PVC nipple or brass coupling with an orifice plate in the middle. Pressure sensitive rubber flow restrictors shall be installed in the orifice plate. These flow restrictors shall not be able to wash out of the plate and shall allow the consistent passage of water with pressure fluctuations between 30 to 100 psi. The number of system control valves shall be dependent on the model of the system.

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| Model | Quantity |
| WQSF-025-N | 2 |
| WQSF-050-N | 2 |
| WQSF-075-N | 4 |
| WQSF-100-N | 4 |

The control valve shall be 2” Fleck Valve Model # 2900.

* 1. Brine Tank

Brine tank(s) shall be made of high-density polyethylene for making a brine solution for the water softener to use during a regeneration cycle and for salt storage. The brine tank shall be furnished with an overflow connection, lid, aircheck, and brine well. The brine tank shall be sized to hold enough salt for 12 regenerations at 6 lbs. of salt per cubic foot of resin. The dimensions and number of tanks in a system shall be dependent on the flow rate of the system.

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| Model | Quantity | Diameter | Height |
| WQSF-025-N | 1 | 24” | 41” |
| WQSF-050-N | 1 | 30” | 50” |
| WQSF-075-N | 4 | 24” | 41” |
| WQSF-100-N | 4 | 30” | 50” |

* 1. Base and Piping

The system shall be placed on structural steel base(s). The base will be 60” in length and will be 24” deep. The number of bases shall be dependent on the flow rate of the system.

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| Model | Quantity |
| WQSF-025-N | 1 |
| WQSF-050-N | 1 |
| WQSF-075-N | 2 |
| WQSF-100-N | 2 |

Interconnecting piping shall be constructed of schedule 80 PVC.

1. SERVICES
   1. Warranty

1-year parts and labor warranty shall be provided for the system to protect against manufacturing and material defects. More details regarding warranty shall be provided in Lync Water Quality and Conditioning Solutions warranty document.

* 1. Start-up and Training

Start up on the unit must be performed by qualified contractor. The contractor shall provide start-up of the water softener system, 50 lb bags of pellet form sodium chloride for the brine tank, and perform a training for the owner upon completion of start-up.