Written Specifications Commercial WQ-AS Water Quality Solution

SPECIFICATION SECTION XXX

PRODUCT: WQ-AS Complete Water System for scale prevention and water prevention

1. GENERAL

Furnish a pre-packaged commercial water quality scale prevention, sediment filtration, and UV disinfection package as specified here in this section and as called for in the equipment schedule for the reduction of scale formation and sediment as well as for the disinfection of water. The anti-scale packaged system shall be supplied complete and pre-assembled entirely by one manufacturer. The construction of the packaged system shall include commercial Lync AquaSolve® scale prevention systems, Lync ultraviolet disinfection systems, and a Lync cartridge filter system. The packaged system shall be a Lync Model # WQAS-050-D or WQAS-100-D.

* 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:

|  |  |
| --- | --- |
| Maximum Hardness | 30 Grains (120 mg/L as CaCO3) |
| Water Pressure | 35 psi to 125 psi (242 kPa to 861 kPa) |
| Water Temperature | 40°F (5°C) to 100°F (38°C) |
| Turbidity | <5 Nephelometric Turbidity Units (NTU) |
| Total Suspended Solids | <10 ppm |
| Maximum Iron | 0.3 ppm |
| Maximum Manganese | 0.05 ppm |
| pH | 6.5-8.5 |
| Free Chlorine | <2 ppm |
| Maximum Copper | 1.3 ppm |
| Maximum Silica | 20 ppm |
| Total Phosphates | 3 ppm or less |
| Total Dissolved Solids | 1500 ppm or less |
| Maximum Ambient Temperature/Humidity | 122°F(50°C) / 95% Relative Humidity (non-condensing) |
| Oil & H2S | None allowed |
| UV Transmittance (UVT) | 95% UVT |

1. COMPONENTS
   1. Construction

Pre-packaged systems shall be constructed with commercial Lync AquaSolve® scale prevention system(s), Lync cartridge filtration system, Lync ultraviolet disinfection system(s). The number of tanks packaged in a system will be dependent on the flow rate.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Flow Rate [GPM] | Model | Lync AquaSolve® | Lync Cartridge Filtration | UV Disinfection |
| 50 | WQAS-050-D | 1 | 1 | 1 |
| 100 | WQAS-100-D | 2 | 1 | 2 |

The system shall be field installed with an integral bypass loop to isolate the AquaSolve® tank, filter housing, or UV treatment and to allow for the bypass of untreated water if service be necessary.

* 1. Products
     1. Lync AquaSolve® Scale Prevention System
        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, CSAB483.1, and NSF/ ANSI STD. 372 for Low Lead compliance. Tanks shall have a bottom base permanently installed with industrial grade adhesive. The tanks shall come with a 4” top threaded port for loading media and connection of the tank head. The tank shall be designed with a safety factor of 4:1 for minimum burst pressure.

* + - 1. Scale Prevention Media

The scale prevention media shall convert dissolved bicarbonate related water hardness into inactive non-scale forming nanocrystals that will not form scale on surfaces. The media shall operate in an up-flow pattern and shall not require backwashing or chemicals for regeneration. The media shall be certified to NSF/ANSI standard 61. Media within the systems shall be replaced every three years to ensure continued scale protection.

* + - 1. Internal Distributor System

The internal distributor system shall come pre-installed in the scale prevention system’s media tank(s). There shall be one upper distributor and one lower distributor screen to ensure that the media cannot be washed out of the tank regardless of flow direction. The screens of the internal distribution system shall be a slotted screen type diffuser. The slots shall be sized to not allow the scale prevention media to pass through and become present in the system's effluent water. The lower distributor shall be equipped with a downward pointing shroud to direct water to the bottom most portion of the media bed before it travels upward through the media. Screens shall be constructed of PVC.

2.2.1.4 The Head Component

The head must be constructed of 303 stainless steel. The stainless-steel head must be connected to the system with 2” inlet and outlet flex connectors.

* + 1. Lync Cartridge Filtration System
       1. Filter Housing

The filter housing shall be constructed of fiberglass reinforced polypropylene with a top opening to provide access into the filter housing for replacement of the filter cartridge. Eyebolts constructed of 304 stainless steel shall secure the removable lid. the lid shall have a brass reinforced gauge port to accept the pressure gauge to display inlet pressure. A flow baffle shall deflect the inlet water to prevent direct bombardment of inlet water against the filter cartridge. The housing will have a drain port to empty the unfiltered water compartment during filter changes and have 2" union connections for the inlet and outlet supply water. The housing shall have a 125-psi maximum pressure rating, 125 °F (48 °C) at 80 psi maximum temperature rating and certified to NSF/ANSI Standard 61. The housing shall be a Lync LCH-150.

* + - 1. Replaceable Filter Cartridge

The replaceable filter cartridge shall be a single open-end pleated type 5 micron nominally rated cartridge with double O-ring end seal to eliminate bypassing of the filter. The filter shall be composed of 100% polymer to resist the growth of microbiological films. Filter cartridges should be changed before reaching a 15-psi pressure differential to prevent collapse of the filter cartridge. The filter cartridge shall be a Watts BBC-150 Pleated Cartridge.

* + 1. Lync Ultraviolet Disinfection System

2.2.3.1 Reactor Chamber(s)

All wetted metal components of the reactor chamber(s) shall be constructed of 316 stainless steel. Systems shall have internally and externally threaded plumbing connections for optional male or female style connections. The reactor chamber shall be rated for 125 psi operation.

* + - 1. UV Lamp(s)

The UV lamp(s) shall be a low-pressure high output type which created 254 nanometer wavelength UV C radiation suitable for disinfection of water. Lamps must be able to be dimmed by the ballast to reduce heat during periods of no flow conditions. The controller shall maintain a calendar of service on the lamp’s radio frequency identification (RFID) tag so that days remaining on the lamp are updated daily and automatically.

* + - 1. Quartz Sleeve(s)

The quartz sleeve house the lamp within the UV reactor chamber and are to be constructed of hard quartz glass for the lowest possible impurity content. The quarts glass must be rated for 95% UV transmittance.

* + - 1. System Controller

The UV system shall come with a combination controller / power supply that monitors and controls all aspects of the UV system. All controllers shall have the capability to reduce power to the lamp by 50% during periods of no flow, which is detected by an onboard flow meter, for cooler operation and shall all have the capability to write data to the lamp’s RFID tag. Controller shall include UV sensor input, 4-20 milliamp output for UV intensity (when UV Sensor is used), lamp dimming, flow switch, lamp out audible alarm, alarm output for solenoid valve, multicolor LED system status indicator, glow cap lamp indicator, lamp life timer with a graphic touch screen, radio frequency communication to lamps to verify correct lamps and remaining life of the lamp. Lamp life timer resets when a new lamp is installed. Total system hours are displayed along with key operational data.

* + 1. Base and Piping

The system shall be placed on two structural steel bases with one supporting the Lync AquaSolve® scale prevention systems and the other supporting the Lync UV and Lync cartridge filtration systems. The dimensions of the system base shall be dependent on the flow rate of the system.

|  |  |  |  |
| --- | --- | --- | --- |
| Flow Rate [GPM] | Model | AquaSolve® Base  (LxW) | Cartridge Filtration and UV Disinfection Base  (LxW) |
| 50 | WQAS-050-D | 30” x 24” | 48” x 24” |
| 100 | WQAS-100-D | 60” x 24” | 60” x 24” |

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 perform a training for the owner upon completion of start-up.