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## **Specifications for the Hydro Model 955C Gas Chlorination System** **Specification 955C**

HYDRO GAS CHLORINATION SERIES 955C for 25 PPD CHLORINE FEED

### **1.01 GENERAL**

#### **1.01.1 Completeness**

The system shall be complete with all components, equipment, and appurtenances.

#### **1.01.2 Quality Assurance**

All materials and components shall be new and unused of first quality by well-known manufacturers. Inferior materials or components shall not be allowed.

#### **1.02 Manufacturer**

The manufacturer shall be Hydro Instruments, Telford, PA, USA or approved equal. The chlorination system shall be Hydro Instruments Model 955C.

### **1.03 Chlorination System**

#### **1.03.1 General**

1. The Chlorination system shall be a vacuum operated, solution feed, and automatic switchover type for dispensing chlorine gas from industry standard one hundred fifty (150) pound cylinders.
2. The Chlorination system shall have a chlorine gas feed capacity of not less than 25 pounds per day.
3. The system shall convey the gas under vacuum from the cylinder mounted vacuum regulators to the ejector assemblies.
4. The chlorination system shall automatically switch the gas supply from an empty cylinder to a full one.
5. The system design shall permit the entire system to be vacuum checked in the field without the use of special tools.

6. The system shall be constructed of materials suitable for wet or dry chlorine gas service.

#### 1.03.2 Cylinder Mounted Vacuum Regulators

1. To comply with the standards of The Chlorine Institute, Inc., the two (2) vacuum regulators shall mount directly on the gas cylinder valve by means of a corrosion resistant yoke assembly. The sealing of these mating surfaces shall be achieved by the use of a lead gasket.
2. Each Vacuum Regulator shall have a 500 PPD feed rate capacity.
3. In order to avoid corrosion, each vacuum regulator shall use an inlet capsule constructed of solid Hastelloy C-276 material, which shall carry a lifetime warranty.
4. For maximum durability and in order to avoid cracking, each regulator shall have body parts machined from solid PVC. Injection molded PVC or ABS body parts (which possess insufficient wall thickness), shall not be accepted.
5. All springs shall be constructed of tantalum alloy and shall carry a lifetime warranty.
6. Each vacuum regulator shall have a two-layer PVDF (Kynar) diaphragm, which controls vacuum and a spring loaded, normally closed inlet valve, which closes upon loss of vacuum.
7. Each regulator shall possess an internal switchover mechanism to automatically shift from standby to in-service upon depletion of the on-line cylinder. The regulators shall have a clear status indicator (standby or in-service).
8. Each regulator shall incorporate a pressure relief (vent) valve with separate ports for chlorine feed and chlorine vent. Vacuum regulators, which do not possess integral vent mechanisms, and compromise safety by having a single exit port for vent and feed shall not be acceptable.
9. Connections and tubing shall be provided for venting gas away from the pressure relief (vent) port of each vacuum regulator to the outside atmosphere (outside of the building). The outside end of the vent tubing shall be equipped with an insect screen.
10. Each regulator shall be equipped with a porous PTFE inlet filter to remove particulate matter from the gas before it enters the inlet safety valve.
11. Each regulator shall be designed to accept an optional flow meter tube to indicate feed rate and which cylinder is in use.
12. Each regulator shall have a mechanism to indicate when the cylinder is empty and requires replacement.

### 1.03.3 Gas Flow Meter

1. One (1) gas flow meter shall be provided to indicate the gas flow rate. The gas flow meter shall be suitable for wall mounting.
2. This gas flow meter shall be equipped with a control valve for manual feed rate adjustment. The control valve stem shall be constructed entirely of pure Silver for stability, chemical resistance, and maximum service life.
3. Flow meter tubes shall indicate flow rates up to 25 pounds per day and down to a minimum of 1/20 of the maximum value.

### 1.03.4 Ejector

1. One (1) ejector shall be water operated, venturi nozzle type. The ejector shall provide the operating vacuum for the chlorination system.
2. The ejector shall incorporate a spring loaded, normally closed check valve to prevent the backflow of water into the chlorine gas equipment. The check valve shall be suitable for backpressures of at least 140 psi.
3. Ejector check valve shall automatically close upon the loss of vacuum in the Ejector.
4. For maximum durability and in order to avoid cracking, each ejector shall have body parts machined from solid PVC stock. Injection molded PVC or ABS body parts (which possess insufficient wall thickness), shall not be accepted.