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Specification for Stainless Steel Chainwheels & Safety Restraints

1. Chainwheels.

- a. All valves with centerlines more than 6 feet above the floor shall be provided with chainwheels. The chain of each chainwheel shall be looped to extend to within 4 feet of the floor. Valves shall be installed horizontally, or provided with geared operators to position chainwheels in the vertical position. The manual overrides of motor operated valves shall be equipped with chainwheel operators, if the centerline of the valve is more than 6 feet above the floor.
- b. Materials of Construction: Chainwheel and chain guides shall be cast from type 316 stainless steel. Stainless castings shall be passivated in accordance with ASTM A-380.
- c. Chain shall be type 316L welded link chain. All excess metal, burrs and sharp edges shall be removed for a smooth finish. The chain shall be calibrated to fit in the pockets of the chainwheel. Chain loops shall be made with connecting links provided by the manufacturer of the chainwheel and chain.
- d. Chain Retaining Device: Provide a chain retaining device to hold the chain above the walking area during non-use. The retaining device shall be polypropylene and safety orange.
- e. Safety Restraint Device: The top half of the chain guide shall have a boss and tap to permit installation of a chainwheel safety restraint system, as specified below. A safety restraint system shall be installed on each chainwheel, in accordance with the installation instructions of the manufacturer.

2. Chainwheel Safety Restraint System

- a. The Safety Restraint System shall be designed to protect the personnel operating an overhead valve, in the event the chainwheel assembly should separate from the valve and fall to the ground.
- b. All components shall be type 316 stainless steel, including the eye-bolt, wire rope cable and cable clips. The cable shall be a minimum of 7 x 19, 1/4" in diameter. The cable must not be plastic coated, nor sheathed, and must be fastened with cable clips, not by swaged fittings. A total of 4 cable clips shall be used on each restraint, two clips fastening each end of cable.
- c. The eye-bolt shall be appropriately sized for the application and shall be threaded into the top half of the chainwheel safety guide. A locking jam nut must be used to secure the eyebolt to the Safety Restraint Cap.
- d. The manufacturer must provide supporting evidence of a successful drop test of the Safety Restraint System, based on a 200 # drop, from a length of 4 feet. All components of the Safety Restraint System must be as provided by the manufacturer; no substitutions of the eyebolt, cable, or cable clips are permitted.

Chainwheels, chain and safety restraint system shall be as manufactured by Trumbull Industries, Youngstown, Ohio.