

SECTION 11270 - STATIC MIXERS

City of San Diego, CWP Guidelines

PART 1 -- GENERAL

1.1 WORK OF THIS SECTION

- A. The WORK of this Section includes providing static mixers, complete and operable.
- B. The WORK requires that all static mixers be furnished by a single manufacturer.

1.2 RELATED SECTIONS

- A. The WORK of the following Sections applies to the WORK of this Section. Other Sections of the Specifications, not referenced below, shall also apply to the extent required for proper performance of this WORK.
 - 1. Section 09800 Protective Coating
 - 2. Section 06610 Glass Fiber and Resin Fabrications, General
 - 3. Section 11000 Equipment General Provisions

1.3 SPECIFICATIONS AND STANDARDS

- A. The current editions of the following applies to the WORK of this Section:

ANSI/AWWA B 16.1	Cast Iron Pipe Flanges and Flanged Fittings Class 25, 125, 250 and 800
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1.4 SHOP DRAWINGS AND SAMPLES

- A. Shop Drawings shall comply with Section 01300 and include:
 - 1. Manufacturer's product data including catalog cuts, materials, and details.
 - 2. Typical head loss data for each mixer in the form of curves showing total head loss across the mixer, including entrance and exit losses, versus flow rate over the indicated range of flows and identifying the head loss at the guarantee point.
 - 3. A manufacturer's certification for each mixer that the total head loss will be no greater than the specified value at the guarantee point.

1.5 OWNER'S MANUAL

- A. OWNER'S Manual shall comply with the requirements of Sections 01300 and 11000.

1.6 FACTORY TESTING

- A. Comply with the requirements of Section 11000.

PART 2 -- PRODUCTS

2.1 MIXER SCHEDULE

A. Service Conditions

- 1. Equipment Number [] []
- 2. Primary Flow Stream [] []
- 3. Additive Stream [] []
- 4. Downstream Process [] []
- 5. Max Fluid Temperature, degrees F. [] []
- 6. Max Pressure, psi [] []
- 7. Flow Range, MGD [to] [to]

B. Construction Requirements

- 1. Nominal Diameter, Inches [] []
- 2. Overall Length, Inches [] []
- 3. Number of Elements [] []

C. Guarantee Point

- 1. Pressure Drop, Feet of Water Column [] []
- 2. Flow Rate, MGD [] []

2.2 MATERIALS

- A. The static mixer elements shall be rigid devices positioned in the body of the mixer which divide and recombine the flow to achieve mixing as fluids progress axially along the mixer body. Orifices shall not be permitted.
- B. For static mixers 2 inches in diameter and larger, all wetted components, including the mixer elements and the body of the mixer shall be constructed of fiberglass reinforced plastic (FRP) conforming to the requirements of Section 06610.
- C. For static mixers smaller than 2 inches in diameter, all wetted components shall be CPVC or polypropylene.
- D. Each static mixer body shall include full-face flanges drilled to ANSI B16.1, Class 125.

E. All fasteners shall be Type 316 stainless steel.

2.3 NAMEPLATES

- A. Nameplates of engraved or stamped stainless steel shall be fastened to the mixers. The following information shall be included on the nameplates:
 - 1. Equipment number.
 - 2. Performance data including head loss (in inches W.C. or psig, as appropriate) at the guarantee point.
- B. In lieu of stainless steel nameplates, nameplates for static mixers of FRP construction can be made of a durable material laminated onto the body of the mixer during manufacture.

2.4 MANUFACTURERS

- A. Products shall be manufactured by one of the following, (or equal):
 - 1. Koch.
 - 2. Komax.

PART 3 -- EXECUTION

3.1 INSTALLATION

- A. Installation, handling, and storage of the static mixers shall be in strict accordance with the manufacturer's written recommendations and requirements.

3.2 FIELD TESTING

- A. **Functional Testing Prior to Plant Startup:** After certification of proper installation by the Manufacturer's representative, each mixer shall be hydrostatically leak tested with the surrounding piping.
- B. **Performance Testing During Plant Startup:** During plant startup, each static mixer shall be performance tested to demonstrate conformance with the guarantee point listed in the mixer schedule.

- END OF SECTION -