

## SECTION 23 0516

### EXPANSION FITTINGS AND LOOPS FOR HVAC PIPING

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Flexible pipe connectors.
- B. Expansion joints and compensators.
- C. Pipe loops, offsets, and swing joints.

##### 1.02 RELATED REQUIREMENTS

- A. Section 23 2113 - Hydronic Piping.
- B. Section 23 2213 - Steam and Condensate Heating Piping.
- C. Section 23 2300 - Refrigerant Piping.

##### 1.03 REFERENCE STANDARDS

- A. ASTM A269/A269M - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service; 2015.
- B. EJMA (STDS) - EJMA Standards; Tenth Edition.
- C. UL (DIR) - Online Certifications Directory; current listings at database.ul.com.

##### 1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data:
  - 1. Flexible Pipe Connectors: Indicate maximum temperature and pressure rating, face-to-face length, live length, hose wall thickness, hose convolutions per foot and per assembly, fundamental frequency of assembly, braid structure, and total number of wires in braid.
  - 2. Expansion Joints: Indicate maximum temperature and pressure rating, and maximum expansion compensation.
- C. Manufacturer's Instructions: Indicate manufacturer's installation instructions, special procedures, and external controls.
- D. Maintenance Data: Include adjustment instructions.
- E. Project Record Documents: Record installed locations of flexible pipe connectors, expansion joints, anchors, and guides.
- F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 01 6000 - Product Requirements, for additional provisions.
  - 2. Extra Packing for Packed Expansion Joints: One set for each joint.

##### 1.05 REGULATORY REQUIREMENTS

- A. Conform to UL (DIR) requirements.

#### PART 2 PRODUCTS

##### 2.01 FLEXIBLE PIPE CONNECTORS - STEEL PIPING

- A. Manufacturers:
  - 1. Mercer Rubber Company; \_\_\_\_\_: www.mercer-rubber.com.
  - 2. Metraflex Company; \_\_\_\_\_: www.metraflex.com.
  - 3. Substitutions: See Section 01 6000 - Product Requirements.
- B. Inner Hose: Carbon Steel.
- C. Exterior Sleeve: Single braided, stainless steel.
- D. Pressure Rating: 125 psi and 450 degrees F.
- E. Joint: Flanged.

- F. Size: Use pipe sized units.
- G. Maximum offset: 3/4 inch on each side of installed center line.

## **2.02 FLEXIBLE PIPE CONNECTORS - COPPER PIPING**

- A. Manufacturer:
  - 1. Mercer Rubber Company; \_\_\_\_\_: www.mercer-rubber.com.
  - 2. Metraflex Company; \_\_\_\_\_: www.metraflex.com.
  - 3. Substitutions: See Section 01 6000 - Product Requirements.
- B. Inner Hose: Bronze.
- C. Exterior Sleeve: Braided bronze.
- D. Pressure Rating: 125 psi and 450 degrees F.
- E. Joint: Flanged.
- F. Size: Use pipe sized units.
- G. Maximum offset: 3/4 inch on each side of installed center line.
- H. Application: Copper piping.

## **2.03 EXPANSION JOINTS - STAINLESS STEEL BELLOWS TYPE**

- A. Manufacturers:
  - 1. Mercer Rubber Company; \_\_\_\_\_: www.mercer-rubber.com.
  - 2. Metraflex Company; \_\_\_\_\_: www.metraflex.com.
  - 3. Substitutions: See Section 01 6000 - Product Requirements.
- B. Pressure Rating: 125 psi and 400 degrees F.
- C. Maximum Compression: 1-3/4 inches.
- D. Maximum Extension: 1/4 inch.
- E. Joint: Flanged.
- F. Size: Use pipe sized units.
- G. Application: Steel piping 3 inches and under.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Install in accordance with EJMA (Expansion Joint Manufacturers Association) Standards.
- C. Install flexible pipe connectors on pipes connected to vibration isolated equipment. Provide line size flexible connectors.
- D. Install flexible connectors at right angles to displacement. Install one end immediately adjacent to isolated equipment and anchor other end. Install in horizontal plane unless indicated otherwise.
- E. Anchor pipe to building structure where indicated. Provide pipe guides so movement is directed along axis of pipe only. Erect piping such that strain and weight is not on cast connections or apparatus.
- F. Provide support and equipment required to control expansion and contraction of piping. Provide loops, pipe offsets, and swing joints, or expansion joints where required.

**END OF SECTION 23 0516**