Section 15200

General-Service Compressed Air Piping

PART 1 – GENERAL

* 1. SCOPE:

A. The Work of this Section shall consist of furnishing all labor, material, and equipment necessary for the installation of compressed air piping as shown on the Drawings and specified herein.

* 1. SUMMARY

This specification includes piping and related specialties for the compressed air system operating at 200 psig. System must utilize elastomeric sealing technology to account for thermal variations and vibration.

* 1. SUBMITTALS

Provide the following information to confirm compliance with the specification in addition to the submittal requirements specified in Section 01340.

* + 1. ENGINEERING STANDARDS

1. ASME Compliance: Comply with ASME B31.1 (power piping), ASME B31.3 (process piping), and ASME B31.9 (low pressure building services piping).
2. Piping manufactured to ASTM B241
3. ISO 8573-1 Class 1.1.1
4. UL94HB
5. ISO 9001 & 14001
6. FDA CFR 21, GRAS, U.S. Food and Drugs Regulation

1.04 QUALITY ASSURANCE

A. Qualifications

1. All the equipment specified under this Section shall be furnished by a single manufacturer with a minimum of 10 years’ experience designing and manufacturing aluminum piping.

PART 2 – PRODUCTS

* 1. PIPES, TUBES, AND FITTINGS
     1. Aluminum piping system shall be AIRpipe rigid grade 6063 Aluminum with a T5 thermal hardness treatment or approved equal. It shall be extruded and calibrated within the tolerances specifically required by the manufacturer and be available in the diameters as shown on the drawings.
     2. Aluminum piping system color shall be blue.
     3. Fittings shall be AIRpipe A360 & ZL104 Aluminum without the use of plastic or polyamide fitting bodies or approved equal. Pipe-to-pipe sealing utilizes concentric Nitrile seals with a thickness greater than ½”.
     4. Fittings ¾” to 2” to utilize 316 Stainless Steel grab rings with a greater than 2 mm cross-sectional width that bites into pipe past the powder coated surface.
     5. Fittings to be individually factory labeled with part number and date code.
     6. Fittings are supplied factory cleaned and individually bagged.
     7. AIRpipe or approved equal lockable ball / butterfly valves.
     8. AIRpipe or approved equal aluminum class 150 ANSI flanges.
     9. AIRpipe or approved equal aluminum quick drop fittings for horizontal take off.
     10. AIRpipe or approved equal flexible hose connections.
     11. Ingersoll Rand PacE Pneumatic Flow Controller or approved equal.

PART 3 – INSTALLATION

* 1. PIPE INSTALLATION
     1. All aluminum piping to be installed in strict accordance with AIRpipe or approved equal manufacturers’ installation instructions and specifications.
     2. Drawing plans, schematics, and diagrams indicate general location and arrangement of compressed-air piping. Install piping as indicated unless deviations to layout are approved.
     3. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls.
     4. Install piping adjacent to equipment and machines to allow service and maintenance.
     5. Install nipples, flanges, unions, transition and special fittings, and valves with pressure ratings higher than system pressure rating, unless otherwise indicated.
     6. Install branch connections to compressed-air mains from top of main. Provide drain leg and drain trap at end of each main and branch and at low points.
     7. Install piping to permit valve servicing.
     8. Install piping free of sags and bends.
     9. Install unions, adjacent to each side of valve and at final connection to each piece of equipment and machine, unless connections and/or valve have tightening features that allow disassembly.
     10. Install insulating gasket/fitting where dissimilar metals are joined.
     11. Install sleeves for piping penetrations of building supports, walls, ceilings, and floors.
     12. Install escutcheons for piping penetrations of walls, ceilings, and floors.
     13. Turn over to the Owner at completion one complete tool set for making field connections. Include all required factory fixtures.
     14. New piping shall connect to the engine starting air piping before the existing braided flexible hose connection.
     15. Ingersoll Rand PacE Pneumatic Flow Controller or approved equal shall be installed at location designated on the Drawings. Air piping originating from the air starter piping shall be connected to the flow controller.
     16. The Contractor shall connect flow controller to the instrument air control panel blanking off unused connections on the panel.
     17. The Contractor shall provide a brass quick-connect air station on the low-pressure side of the flow controller for general air service.

3.02 HANGER AND SUPPORT INSTALLATION

1. Horizontal and vertical piping shall be supported by Snug-Fit Vibration-Damping Loop Clamp, aluminum with neoprene rubber cushion or approved equal. Piping system to be anchored to building structure in locations as shown on drawings. Supports to be spaced at nine (9’) foot intervals or less, as required to avoid sag, prevent vibration, and allow accurate leveling or grading.
2. Install supports for vertical tubing every 9’ as required to secure the piping network.

* **END SECTION -**