

SECTION 22 1500
GENERAL-SERVICE COMPRESSED-AIR SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Reciprocating air compressors.
- B. System filters.
- C. Air dryers.
- D. Pipe and fittings.
- E. Unions and couplings.
- F. Pressure reducing stations.
- G. Air outlets.

1.02 RELATED REQUIREMENTS

- A. Section 03 3000 - Cast-in-Place Concrete.
- B. Section 22 0523 - General-Duty Valves for Plumbing Piping.

1.03 REFERENCE STANDARDS

- A. ASME B31.1 - Power Piping; 2024.
- B. ASME B31.3 - Process Piping; 2024.
- C. ASTM B241/B241M - Standard Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube; 2022.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide manufacturers catalog literature with capacity, weight, and electrical characteristics and connection requirements.
- C. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.
- B. Pressure Vessels: Comply with applicable code for installation of pressure vessels.
- C. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Accept air compressors, refrigerated air dryer on site in factory-fabricated containers with shipping skids and plastic pipe end protectors in place. Inspect for damage.
- B. Protect piping and equipment from weather and construction traffic.

1.07 WARRANTY

- A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.
- B. Provide five year manufacturer warranty for reciprocating air compressors.

PART 2 PRODUCTS

2.01 RECIPROCATING AIR COMPRESSORS

- A. Manufacturers:
 - 1. FS-Curtis: us.fscurtis.com/#sle.
 - 2. Ingersoll Rand, Inc: www.ingersollrandproducts.com/#sle.

3. Kaeser Compressors, Inc: us.kaeser.com/#sle.
 4. Quincy Compressor, LLC: quincycompressor.com/#sle.
 5. Or approved equal.
- B. Type: Simplex air compressor system with fixed belt-driven mechanism.
- C. Capacity: As indicated on drawings.
- D. Electrically driven, two-stage air-cooled compressor unit; factory-assembled with air intake, intake filters, air-cooled after-cooler, low-oil level switch, vibration isolators, controls, and safeties.
- E. Mounting: Tank mounted.

2.02 SYSTEM FILTERS

- A. Manufacturers:
1. Atlas Copco USA: www.atlascopco.com/#sle.
 2. Beko Sales: www.bekosales.com/#sle.
 3. Ingersoll Rand, Inc: www.ingersollrandproducts.com/#sle.
 4. Kaeser Compressors, Inc: us.kaeser.com/#sle.
 5. Or approved equal.
- B. Cartridge Number 1: Coalescing, 1 micron.
- C. Cartridge Number 2: Coalescing, 0.01 micron high-efficiency.
- D. Location: As indicated on drawings.
- E. Flow Capacity: Match air dryer capacity.
- F. Accessories: Include housing-built differential pressure indicator. Provide filter housings with internal automatic float drains.

2.03 AIR DRYERS

- A. Manufacturers:
1. Atlas Copco USA: www.atlascopco.com/#sle.
 2. Beko Sales: www.bekosales.com/#sle.
 3. Ingersoll Rand, Inc: www.ingersollrandproducts.com/#sle.
 4. Kaeser Compressors, Inc: us.kaeser.com/#sle.
 5. Or approved equal.
- B. Type: Self-contained mechanical refrigeration type complete with heat exchanger, refrigeration compressor, automatic controls, moisture removal trap, internal wiring and piping, and full refrigerant charge.
- C. Air Connections: Inlet and outlet connections at same level, factory insulated.
- D. Heat Exchangers: Air-to-air and refrigerant-to-air coils. Provide heat exchangers with automatic control system to bypass refrigeration system on low or no-load condition.
- E. Moisture Separator: Centrifugal type located at discharge of heat exchanger.
- F. Refrigeration Unit: Hermetically sealed type to operate continuously to maintain specified 38 degrees F (3 degrees C) dew point. House unit in steel cabinet provided with access door and panel for maintenance and inspection.
- G. Accessories: Microprocessor-based digital controller with dew point display and energy-saving status.
- H. Capacity: As indicated on drawings.
1. Discharge Air: 38 degrees F (3 degrees C) atmospheric dew point.
 2. Rated Air Flow: 30 cfm (14.2 L/sec).
 3. Inlet Air Pressure: 175 psi (1207 kPa).
- I. Electrical Characteristics:
1. 120 volts, single phase, 60 Hz.

- J. Cord and Plug: Provide unit with 6 foot (2 m) cord and plug for connection to electric wiring system including grounding connector.

2.04 PIPE AND FITTINGS

- A. Aluminum Tube:
 - 1. Manufacturers:
 - a. Aircom: www.aircom.us.com/#sle.
 - b. Applied System Technologies: appliedsystemtech.com/#sle.
 - c. Prevost Corporation: www.prevostusa.com/#sle.
 - d. Or approved equal.
 - e. Source Limitations: Furnish tubing, fittings, and joints produced by single manufacturer and obtained from single supplier.
 - 2. Tube: ASTM B241/B241M, ASME B31.1, ASME B31.3.
 - 3. Alloy: 6063-T5, 6063-T6, or 6060-T51.
 - 4. Maximum Working Pressure: 232 psi (16 bar).
 - 5. Finish: Powder coated or electrostatically painted in blue.
 - 6. Fittings and Joints:
 - a. Material: Provide fittings in aluminum, thermoplastic polymer, or stainless steel.
 - b. Joints: Removeable and reusable, gasketed, mechanical, push-connect type with bite ring, clamshell type, or bolted compression type.
 - c. Gaskets and Seals:

2.05 UNIONS AND COUPLINGS

- A. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.
- B. Flexible Connector: Neoprene with brass threaded connectors.

2.06 PRESSURE REDUCING STATIONS

- A. Pressure Reducing Station: Consisting of automatic reducing valve and bypass and low pressure side relief valve and gauge.
- B. Valve Capacity: Reduce pressure from 200 psi (1379 kPa) to 30 psi (207 kPa), adjustable upwards from reduced pressure.

2.07 AIR OUTLETS

- A. Quick Connector: 3/8 inch (10 mm) brass, snap-on connector with self closing valve, Style A.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install equipment in accordance with manufacturer's instructions.
- B. Install compressor unit on concrete housekeeping pad. See Section 03 3000.
- C. Install line size gate valve and check valve on compressor discharge. See Section 22 0523.
- D. Install valved bypass around air dryer. Factory insulate inlet and outlet connections. See Section 22 0523.
- E. Install valved drip connections at low points of piping system. See Section 22 0523.

3.02 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements, for additional requirements.
- B. Compressed Air Piping Leak Test: Prior to initial operation, clean and test compressed air piping in accordance with ASME B31.1.
- C. Repair or replace compressed air piping as required to eliminate leaks, and retest to demonstrate compliance.

- D. Cap and seal ends of piping when not connected to mechanical equipment.

END OF SECTION