

SECTION 22 60 00 - MEDICAL GAS SYSTEMS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Vacuum System.

1.2 QUALITY ASSURANCE

- A. Valves: Remanufactured valves are not acceptable.

1.3 EXTRA STOCK

- A. Furnish two of each spring, poppet, and O-ring for each type of medical gas outlet.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site. Accept material on site in factory containers and packing. Inspect for damage. Protect from damage and contamination by maintaining factory packaging and caps in place until installation.

1.5 COORDINATION DRAWINGS

- A. Reference Coordination Drawings article in Section 22 05 00 for required medical gas systems electronic CAD drawings to be provided to Coordinating Contractor for inclusion into composite coordination drawings.

1.6 OPERATION AND MAINTENANCE DATA

- A. Operation Data: Include installation instructions, lubrication instructions, and assembly views.
- B. Maintenance Data: Include maintenance and inspection data, replacement part numbers and availability, and service depot location and telephone.

1.7 WARRANTY

- A. Provide one year warranty on parts and labor.

PART 2 - PRODUCTS

2.1 VACUUM

- A. Design Pressure: 200 psig.
- B. Maximum Design Temperature: 130°F
- C. Piping - All Sizes:
 - 1. Tubing: Type K or L hard drawn seamless copper tube, ASTM B819, cleaned and capped "for oxygen service". Tube size indicated is nominal designation.

SCOTT COMMUNITY COLLEGE – BELMONT CAMPUS
ALLIED HEALTH WING CTE ADDITION & REMODEL
PROJECT 21002283.01

2. Joints: BCuP silver braze, AWS A5.8.
3. Fittings: Wrought copper solder joint, ANSI B16.22, cleaned and bagged for oxygen service.

D. Shutoff Valves:

1. VS-2: 4" and under, MSS SP-110, three-piece body, full port, double-seal bolted union ball type, 400 psi WOG, bronze body, chrome plated brass ball, blowout proof stem, cleaned, tested, lockable, plugged and tagged at factory for required service, with type K copper tube extensions brazed to flanges. Provide a standard keyed padlock with each valve. Review padlock type with Owner prior to installation.
2. Manufacturers:
 - a. Allied Healthcare/Chemetron
 - b. Beacon/Medaes
 - c. Tri-Tech Medical
 - d. Pattons Medical

2.2 PIPING AND ACCESSORIES

- A. Hangers and Supports: Refer to Section 22 05 29.
- B. Pressure and Vacuum Gauges: ANSI B40.1, white dials and black lettering with restrictor. Gauges cleaned for oxygen service: Manufactured and labeled expressly for intended service, UL listed. Select gauge range for normal reading near center of gauge. Gauge shall be installed adjacent to the master alarm pressure actuating switch for the specific gas and in other locations designated or required by the 2018 edition of NFPA 99. Gauges are to be provided with a demand check fitting to facilitate service, testing, or replacement.

2.3 OUTLETS

- A. Outlet Units: NFPA 99 compliant, non-interchangeable connectors, automatic valves, secondary check valves on positive pressure outlets, and capped 3/8" tubing stubs for supply connections, color coded and labeled for intended service. Provide and install outlets as listed in the Medical Gas Material List.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General Installation Requirements:
 1. Braze joints in pipe and tubing. DURING BRAZING OF PIPE CONNECTIONS, PURGE INTERIOR OF PIPE CONTINUOUSLY WITH NITROGEN. Make joint without adding flux.
 2. Change pipe size with reducing fittings. Change direction with fittings.
 3. Cut pipe and tubing accurately and install without springing or forcing.
 4. Pitch piping down in direction of flow.
 5. Provide pipe sleeves per Section 22 05 29.
 6. Refer to Section 22 05 00 for Excavation, Fill, Backfill and Compaction requirements.
 7. Coordinate utility warning and identification tape with backfill operation and NFPA 99 requirements. Refer to Section 22 05 53 for identification.
 8. Provide identification for all piping. Refer to Section 22 05 53.

SCOTT COMMUNITY COLLEGE – BELMONT CAMPUS
ALLIED HEALTH WING CTE ADDITION & REMODEL
PROJECT 21002283.01

9. Label all valve boxes and area alarm panels with engraved plastic labels indicating area or rooms served. Label service valves with valve tags as listed in Section 22 05 53 and tag listing area served by the valve.
10. Manufacturer shall inspect the installation and assist in startup of equipment. Manufacturer shall submit report certifying the equipment is operating properly.
11. Clamps in direct contact with copper pipe shall include plastic pipe insert similar to Unistrut Cush-A-Clamp, Hydra-Zorb, Erico Cushion Clamp or Cooper Vibra-Clamp.
 - a. 1/4" pipe or tubing: 60" OC
 - b. 3/8" pipe or tubing: 72" OC
 - c. 1/2" pipe or tubing: 72" OC
 - d. 3/4" pipe or tubing: 84" OC
 - e. 1" pipe or tubing: 96" OC
 - f. 1-1/4" pipe or tubing: 108" OC
 - g. 1-1/2" or larger (horizontal): 120" OC
 - h. 1-1/2" or larger (vertical): 10' at every floor not to exceed 15".

3.2 SYSTEMS CLEANING, TESTS, AND ANALYSIS

- A. Document all tests and submit to Owner, Architect/Engineer, and Authority Having Jurisdiction.
- B. Prior to the installation of station outlets, pressure switches, gauges, manifolds, or relief valves, blow down the piping system with oil-free dry nitrogen to clear piping of any moisture or foreign material.

END OF SECTION 22 60 00