PART 1 GENERAL

1.1 REFERENCE STANDARDS

.1 American Society of Mechanical Engineers (ASME)
- .1 ASME Boiler and Pressure Vessel Code Section VIII Pressure Vessels.
  - .1 BPVC-VIII B (Latest Edition), BPVC Section VIII - Rules for Construction of Pressure Vessels Division 1.
  - .2 BPVC-VIII-2 B (Latest Edition), BPVC Section VIII - Rules for Construction of Pressure Vessels Division 2 - Alternative Rules.
  - .3 BPVC-VIII-3 B (Latest Edition), BPVC Section VIII - Rules for Construction of Pressure Vessels Division 3 - Alternative Rules High Press Vessels.
- .2 ASME B16.5 (Latest Edition), Pipe Flanges and Flanged Fittings.
- .3 ASME B16.11 (Latest Edition), Forged Fittings, Socket-Welding and Threaded.

.2 American Society for Testing and Materials International (ASTM)
- .1 ASTM A 53/A 53M (Latest Edition), Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
- .2 ASTM A 181/A 181M (Latest Edition), Standard Specification for Carbon Steel Forgings for General Purpose Piping.

.2 Canadian Standards Association (CSA International)
- .1 CSA B51-14, Boiler, Pressure Vessel, and Pressure Piping Code.

.3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
- .1 Material Safety Data Sheets (MSDS).

1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
- .1 Submit manufacturer's printed product literature, specifications and datasheet for piping, fittings and equipment.
- .2 Submit WHMIS MSDS. Indicate VOC's for adhesive and solvents during application and curing.

.3 Shop Drawings:
- .1 Submit shop drawings to indicate project layout including layout, dimensions and extent of piping system.
- .2 Vertical and horizontal piping locations and elevations and connections details.
- .3 Test Reports: submit certified test reports from approved independent testing laboratories indicating compliance with specifications for specified performance characteristics and physical properties.
- .4 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
- .5 Instructions: submit manufacturer's installation instructions.
- .6 Closeout Submittals: submit maintenance and engineering data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.3 DELIVERY, STORAGE AND HANDLING

.1 Waste Management and Disposal:
- .1 Remove from site and dispose of packaging materials at appropriate recycling facilities.

PART 2 PRODUCTS

2.1 COMBINATION FILTER-REGULATOR

.1 Factory assembled, heavy-duty with mounting bracket and low pressure side relief valve.

.2 Maximum inlet pressure: 800 kPa.

.3 Operating temperature: minus 18 degrees C to plus 52 degrees C.

.4 Filter element: 40 micron. Bowls: polycarbonate.

.5 Pressure range in regulator: 34 kPa to 800 kPa.

.6 Gauge range: 0 kPa to 1100 kPa.

2.2 PIPING

.1 Piping: to ASTM A 53/A 53M, schedule 80 seamless black steel.

.2 Fittings:
- .1 NPS2 and smaller: to ASME B16.11, schedule 80 steel, socket welded.
- .2 NPS2 1/2 and larger: to ASME B16.11, schedule 80 steel, butt or socket welded.

.3 Couplings: to ASME B16.11, socket welded or threaded half coupling type.

.4 Unions: 1000 kPa malleable iron with brass-to-iron ground seat.

.5 Dissimilar metal junctions: use dielectric unions.

.6 Flanges:
- .1 NPS2 and smaller: to ASME B16.5, forged steel, raised face and socket welded.
- .2 NPS2 1/2 and larger: to ASME B16.5, forged steel, raised face and slip-on or weld neck.

.7 Joints:
- .1 NPS2 and smaller: socket welded.
- .2 NPS2 1/2 and larger: butt welded.

2.3 BALL VALVES

.1 Three piece design or top entry for ease of in-line maintenance.
- .1 To ASTM A 181/A 181M, Class 70, carbon steel body socket welded or screwed ends, carbon steel ball and associated trim suitable for compressed air application.
- .2 To withstand 1034 kPa maximum pressure.

2.4 COUPLERS/CONNECTORS

.1 Industrial interchange series, full-bore.

.2 Maximum inlet pressure: 1700 kPa.

.3 Valve seat: moulded nylon.

.4 Body: zinc plated steel.

.5 Threads: NPT.

PART 3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheet.

3.2 COMPRESSED AIR PIPING CONNECTIONS AND INSTALLATION

.1 Install shut-off valves at outlets, major branch lines and in locations as indicated.

.2 Install quick-coupler chucks and pressure gauges on drop pipes.

.3 Install unions to permit removal or replacement of equipment.

.4 Install tees in lieu of elbows at changes in direction of piping. Install plug in open ends of tees.

.5 Grade piping at 1% slope minimum.

.6 Install compressed air trap and pressure equalizing pipe at moisture collecting points. Drain pipe to nearest floor drain.

.7 Make branch connections from top of main.

3.3 FIELD QUALITY CONTROL

.1 Site Tests/Inspection:

.1 Testing: pressure test in accordance, for 4 hours minimum, to 1100 kPa, with outlets closed and with compressor isolated from system. Pressure drop not to exceed 10 kPa.

3.4 CLEANING

.1 Refer to Section 23 08 02 - Cleaning and Start-Up of Mechanical Piping System.

.2 Cleaning: blow out piping to clean interior thoroughly of oil and foreign matter.

.3 Perform cleaning operations for new piping in accordance with manufacturer's recommendations.

END OF SECTION