

Part 1 General

- 1.1 SUMMARY** .1 Section Includes:
- .1 Control devices integral to the Building Energy Monitoring and Control System (EMCS): transmitters, sensors, controls, meters, switches, transducers, dampers, damper operators, valves, valve actuators, and low voltage current transformers.
- 1.2 REFERENCES** .1 American Society for Testing and Materials International, (ASTM).
- .1 ASTM B148-97(03), Standard Specification for Aluminum-Bronze Sand Castings.
 - .2 National Electrical Manufacturer's Association (NEMA).
 - .1 NEMA 250-03, Enclosures for Electrical Equipment (1000 Volts Maximum).
 - .3 Air Movement and Control Association, Inc. (AMCA).
 - .1 AMCA Standard 500-D-98, Laboratory Method of Testing Dampers For Rating.
 - .4 Canadian Standards Association (CSA International).
 - .1 CSA-C22.1-02, Canadian Electrical Code, Part 1 (19th Edition), Safety Standard for Electrical Installations.
- 1.3 ACTION AND INFORMATIONAL SUBMITTALS** .1 Submit shop drawings and manufacturer's installation instructions in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Manufacturer's Instructions:
- .1 Submit manufacturer's installation instructions for specified equipment and devices.
- 1.4 EXISTING CONDITIONS** .1 Repair surfaces damaged during execution of Work. Turn over to Departmental Representative existing materials removed from Work not identified for re-use.

Part 2 Products

- 2.1 GENERAL** .1 Control devices of each category to be of same type and manufacturer.
- .2 External trim materials to be corrosion resistant. Internal parts to be assembled in watertight, shockproof, vibration-proof, heat resistant, assembly.

- .3 Operating conditions: 0 - 32 degrees C with 10 - 90% RH (non-condensing) unless otherwise specified.
- .4 Devices installed in user occupied space not exceed Noise Criteria (NC) of 35. Noise generated by any device must not be detectable above space ambient conditions.

2.2 CONTROL VALVES

- .1 Body: globe style.
 - .1 Flow characteristic as indicated on control valve schedule: linear, equal percentage, quick opening.
 - .2 Flow factor (KV) as indicated on control valve schedule: CV in imperial units.
 - .3 Leakage rate ANSI class IV, 0.01% of full open valve capacity.
 - .4 Packing easily replaceable.
 - .5 Stem, stainless steel.
 - .6 Plug and seat, stainless steel.
 - .7 Disc, replaceable, material to suit application.
 - .8 NPS 2 and under: Screwed National Pipe Thread (NPT) tapered female connections.
 - .1 Valves to ANSI Class 250, valves to bear ANSI mark.

3-Way Valve Schedule						
TAG	Location	Service	Applica- tion	Actuator	Conn Size	Flow Rate
V-1	CSB Mezz	Divert	MAV-1	Pneu	1-1/2 NPS	*1.25 L/s
V-2	CSB Mezz.	Mix	P-3 & 4	Pneu	2 NPS	*1.96 L/s
V-3	ATB Mech Rm 219	Divert	AHU-1	Pneu	1-1/2 NPS	*2.71 L/s
V-4	ATB Mech Rm 219	Divert	AHU-1	Pneu	1-1/2 NPS	*2.52 L/s

*Flowrates shall be site verified.

2.3 PNEUMATIC VALVE ACTUATORS

- .1 Requirements:
 - .1 Construction: steel, cast iron, aluminum.
 - .2 Diaphragm: moulded Buna-N rubber, nylon reinforced.
 - .3 Spring return to normal position.
 - .4 Spring range adjustment and position indicator.
 - .5 Minimum shut-off pressure: refer to control valve schedule.

Part 3 Execution

3.1 INSTALLATION

- .1 Install equipment, components so that manufacturer's and CSA labels are visible and legible after commissioning is complete.
- .2 Install field control devices in accordance with manufacturers recommended methods, procedures and instructions.
- .3 Pneumatic: provide Pneumatic fittings and extend tubing as required to accommodate new control valves.

3.2 TESTING AND COMMISSIONING

- .1 Calibrate and test field devices for accuracy and performance in accordance with Section 25 01 11 - EMCS: Start-up, Verification and Commissioning.

END OF SECTION