

Part 1 General

1.1 GENERAL REQUIREMENTS

- .1 The Contractor shall be responsible to carry out all the Work set out or referred to in this Section 23 33 14.

1.2 SUMMARY

- .1 Section Includes:
 - .1 Balancing dampers for mechanical forced air ventilation and air conditioning systems.
- .2 Operating dampers for mechanical forced air ventilation and air conditioning systems.

1.3 REFERENCES

- .1 Sheet Metal and Air Conditioning National Association (SMACNA):
 - .1 SMACNA HVAC Duct Construction Standards, Metal and Flexible-1985.
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS):
 - .1 Material Safety Data Sheets (MSDS).
- .3 American Society for Testing and Materials International (ASTM):
 - .1 ASTM A653/A653M-04a, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by Hot-Dip Process.

1.4 SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and datasheet in accordance with Division 01 – General Requirements. Include product characteristics, performance criteria, and limitations.

Part 2 Products

2.1 GENERAL

- .1 Manufacture to SMACNA standards.
- .2 Materials and products in accordance Division 01 – General Requirements.

2.2 SPLITTER DAMPERS

- .1 Fabricate from same material as duct but one sheet metal thickness heavier, with appropriate stiffening.
- .2 Double thickness construction.
- .3 Control rod with locking device and position indicator.
- .4 Rod configuration to prevent end from entering duct.

.5 Pivot: piano hinge.

.6 Folded leading edge.

2.3 SINGLE BLADE DAMPERS

.1 Fabricate from same material as duct, but one sheet metal thickness heavier. V-groove stiffened.

.2 Size and configuration to recommendations of SMACNA.

.3 Locking quadrant with shaft extension to accommodate insulation thickness.

.4 Inside and outside bronze end bearings.

.5 Channel frame of same material as adjacent duct, complete with angle stop.

2.4 MULTI-BLADED DAMPERS

.1 Factory manufactured of material compatible with duct.

.2 Opposed blade: configuration, metal thickness and construction to recommendations of SMACNA.

.3 Maximum blade height: 100 mm.

.4 Bearings: pin in bronze bushings.

.5 Linkage: shaft extension with locking quadrant.

.6 Channel frame of same material as adjacent duct, complete with angle stop.

2.5 MULTI-LEAF DAMPERS

.1 Opposed or parallel blade type as indicated.

.2 Extruded aluminum, interlocking blades, complete with extruded vinyl seals, spring stainless steel side seals extruded aluminum frame.

.3 Pressure fit self-lubricated bronze bearings.

.4 Linkage: plated steel tie rods, brass pivots and plated steel brackets, complete with plated steel control rod.

.5 Operator: Refer to Section 25 05 01 – EMCS.

.6 Performance:

.1 Leakage: in closed position less than 2% of rated air flow at 200 Pa differential across damper.

.7 Insulated aluminum dampers:

.1 Frames: insulated with extruded polystyrene foam with RSI 0.88.

- .2 Blades: constructed from aluminum extrusions with internal hollows insulated with polyurethane or polystyrene foam, RSI 0.88.

2.6 BACK DRAFT DAMPERS

- .1 Automatic gravity operated, multi leaf, aluminum construction with nylon bearings, centre pivoted or counterweighted, as required.

2.7 OPERATING DAMPERS

- .1 Insulated Opposed and Parallel Blade Dampers:
 - .1 Extruded aluminum, interlocking blades, complete with extruded vinyl seals, extruded aluminum frame.
 - .2 Pressure-fit self-lubricated bronze bearings.
 - .3 Linkage: plated steel tie rods, brass pivots and plated steel brackets, complete with plated steel control rod.
 - .4 Performance Characteristics:
 - .1 Leakage: in closed position to be less than 2% of rated air flow at 1.0 kPa differential across damper.
 - .2 Pressure drop: at full open position to be less than 8.0 Pa differential across damper at 5.08 m/s.
 - .5 Opposed blade damper for all modulating services unless otherwise indicated.
 - .6 Parallel blade dampers for all two position services unless otherwise indicated.
 - .7 Frames: insulated with extruded polystyrene foam with R factor of 5.0.
 - .8 Blades: constructed from aluminum extrusions with internal hollows insulated with polyurethane or polystyrene foam, R factor of 5.0 parallel or opposed as indicated on schematics.

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 INSTALLATION

- .1 Install where indicated.
- .2 Install in accordance with recommendations of SMACNA and in accordance with manufacturer's instructions.
- .3 Locate balancing dampers in each branch duct, for supply, return and exhaust systems.
- .4 Runouts to registers and diffusers: install single blade damper located as close as possible to main ducts.
- .5 Dampers: vibration free.

- .6 Ensure damper operators are observable and accessible.
- .7 Corrections and adjustments conducted by Engineer.
- .8 Seal multiple damper modules with silicon sealant.
- .9 Install access door adjacent to each damper.

3.3 CLEANING

- .1 Proceed in accordance with Division 01 – General Requirements.
- .2 Upon completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION