**PRODUCT SPECIFICATION GUIDE**

**MODEL: ULTRA-LOW LEAKAGE CONTROL DAMPERS**

**DIVISION 23 – HEATING VENTILATION AND AIR CONDITIONING (HVAC)  
(PREVIOUSLY DIVISION 15)**

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Specifier Notes: This product guide specification is written according to the Construction Specifications Institute (CSI) Format.

The section must be carefully reviewed and edited by the Engineer to meet the requirements of the project and local building code. Coordinate with other specification sections and the drawings.

Delete all "Specifier Notes" when editing this section.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**SECTION 233313 (Previously 15820)**

**ULTRA-LOW LEAKAGE** **CONTROL DAMPERS**

**PART 1 GENERAL**

**1.1 SECTION INCLUDES**

A. High performance, ultra-low leakage, extruded aluminum control dampers suitable for application in HVAC systems with velocities to 6,000 feet per minute (1,829 m/min).

**1.2 RELATED SECTIONS**

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Specifier Notes: Edit the following list as required for the project. List other sections with work directly related to the dampers.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

A. Section 233100 (Previously 15810) - Ducts.

B. Section 230913.13 (Previously 15900) - Damper Actuators.

**1.3 REFERENCES**

A. AMCA 500-D - Test Methods for Dampers.

B. AMCA 511 - Certified Ratings Program for Air Control Devices.

**1.4 SUBMITTALS**

A. Comply with requirements of Section 013300 - Submittal Procedures.

B. Product Data: Submit manufacturer's product data.

1. Include leakage, pressure drop, and maximum pressure data.

2. Indicate materials, construction, dimensions, and installation details.

3. Verify damper leakage rating AMCA certified.

4. Verify damper pressure drop ratings based on tests and procedures performed in accordance with AMCA 500-D.

**1.5 QUALITY ASSURANCE**

A. Damper Capacity: Demonstrate damper capacity to withstand HVAC system operating conditions.

1. Closed Position: Maximum pressure of 13 inches w.g. (3.2 kPa) @ a 12 inch (305) blade length.

2. Open Position: Maximum air velocity of 6,000 feet per minute (1,829 m/min).

B. Pressure Drop Ratings: Damper pressure drop ratings based on tests and procedures performed in accordance with AMCA 500-D.

C. Leakage Rating: Damper leakage rating AMCA certified. Damper licensed to bear AMCA Certified Ratings Seal in accordance with AMCA 511. AMCA Certified Ratings Seal applies to air leakage performance.

**1.6 DELIVERY, STORAGE, AND HANDLING**

A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly indicating manufacturer and material.

B. Storage: Store materials in a dry area indoors, protected from damage and in accordance with manufacturer's instructions.

C. Handling: Handle and lift dampers in accordance with manufacturer's instructions. Protect materials and finishes during handling and installation to prevent damage.

**PART 2 PRODUCTS**

**2.1 MANUFACTURER**

* + - * 1. United Enertech, 3005 South Hickory Street, Chattanooga, TN. Phone (423)698-7715 [www.unitedenertech.com](http://www.unitedenertech.com)

**2.2 ULTRA-LOW LEAKAGE CONTROL DAMPERS**

1. Model: CD-150,151
2. Construction:

1. Frame: 4.5” deep x .081” 6063-T5 extruded aluminum hat-shaped channel, mounting flanges on both sides of frame, reinforced at corners.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Specifier Notes: Box or square type blades do not provide the same performance as true airfoil type. Box or square type blades can cause excessive turbulence and pressure drop.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

2. Blades:

a. Style: Airfoil-shaped, single-piece.

b. Action: [Parallel] [Opposed].

c. Orientation: [Horizontal] [Vertical with thrust washers].

d. Material: Heavy duty 6063-T5 extruded aluminum.

3. Bearings: Bronze Oilite

4. Seals:

a. Blade: Removable TPV (250° F) Mechanically attached to blade edge.

b. Jamb: Stainless Steel (compression)

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Specifier Notes: Specify concealed linkage for lower pressure drop and low maintenance.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

5. Linkage: Concealed in frame.

6. Axles: 3/8” square, ½” round extended shaft

7. Mounting: [Vertical] [Horizontal].

8. Finish: Mill aluminum.

C. Performance Data:

1. Temperature Rating: Withstand up to 180° F (82° C)

2. Capacity: Demonstrate capacity of damper to withstand HVAC system operating conditions.

a. Closed Position: Maximum pressure of 13 inches w.g. (3.2 kPa) @ a 12 inch blade length (305).

b. Open Position: Maximum air velocity of 6,000 feet per minute (1,829 m/min).

3. Leakage: Maximum 8 cubic feet per minute per square foot (0.6 m3/min/m2) at 4 inches w.g. (1 kPa) for size 48 x 36 inches (1219 x 914 mm).

4. Pressure Drop: Maximum .07 inch w.g. (18 Pa) at 1,500 feet per minute (457 m/min) across 24 inch x 24 inch (610 x 610 mm) damper.

**2.3 ACCESSORIES**

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Specifier Notes: Specify an electric or pneumatic actuator, fail position, and mounting. Consult Ruskin for assistance in specifying accessories for specific applications.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

A. Actuator:

1. Electric: [120 V, 60 Hz, two-position] [24 V, 60 Hz, two-position] [24 V, 60 Hz, modulating] [ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ].

2. Pneumatic: 20 to 30 psi (138 to 207 kPa) supply air pressure, [two-position] [modulating] [ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ].

3. Fail Position: [Open] [Closed].

4. Mounting: [External sideplate] [External sleeve] [In airstream].

B. Factory Sleeve: Minimum 20 gage (1.0 mm) thickness, minimum 12 inches (305 mm) length.

C. Duct Transition Connection: [Round] [Oval] [Rectangular].

**2.4 SOURCE QUALITY CONTROL**

A. Factory Tests: Factory cycle damper [and actuator] assembly to assure proper operation.

**PART 3 EXECUTION**

**3.1 EXAMINATION**

A. Inspect areas to receive dampers. Notify the Engineer of conditions that would adversely affect the installation or subsequent utilization of the dampers. Do not proceed with installation until unsatisfactory conditions are corrected.

**3.2 INSTALLATION**

A. Install dampers at locations indicated on the drawings and in accordance with manufacturer's installation instructions.

B. Install dampers square and free from racking with blades running [horizontally] [vertically].

C. Do not compress or stretch damper frame into duct or opening.

D. Handle damper using [sleeve or] frame. Do not lift damper using blades [, actuator,] [or jackshaft].

E. Install bracing for multiple section assemblies to support assembly weight and to hold against system pressure. Install bracing as needed.

**END OF SECTION**