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SECTION 23 33 00

ROUND CONTROL DAMPERS

Display hidden notes to specifier by using “Tools”/”Options”/“View”/”Hidden Text”.

\*\* NOTE TO SPECIFIER \*\* This section is based on the products of Ruskin Company, which is located at:

 3900 Dr. Greaves Road

 Kansas City, Missouri 64030

 Tel: (816) 761-7476

 Fax: (816) 765-8955

 Email: ruskin@ruskin.com

 Web: <http://www.ruskin.com>

Ruskin Manufacturing has been the leading manufacturer of dampers and louvers for 50 years. Ruskin has pioneered advanced products for the HVAC Industry and continues to be an industry leader with modern manufacturing equipment, computer-aided design capabilities and an AMCA registered air performance testing laboratory for research and development. All of these are backed by our experienced engineers and professional staff and reflects Ruskin's commitment to high quality product standards.

Ruskin Industrial Dampers are designed to provide construction features that meet the needs of the customers, ambient to extreme temperatures, pressures and challenging atmospheres. Ruskin can provide ultra-low leakage, high temp and pressure relief dampers for process control. When required non-standard materials can be used to meet or exceed project requirements. Post applied coatings and finishes are also to be considered based on system conditions.

This section covers Ruskin Manufacturing high performance, low leakage, round control dampers suitable for application in HVAC systems with velocities to 4,000 feet per minute (1,220 m/min), Model CDR25. Consult Ruskin for assistance in editing this section for specific applications.

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1. GENERAL
	1. SECTION INCLUDES
		1. High performance, low leakage, steel, thin line control dampers suitable for application in HVAC systems with velocities to 4,000 feet per minute (1,220 m/min).
	2. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Edit the following list as required for the project. List other sections with work directly related to the dampers.

* + 1. Section 23 31 00 – HVAC Ducts and Casings.
		2. Section 23 09 00 – Instrumentation and Control for HVAC.
	1. REFERENCES
		1. AMCA 500 – Test methods for Louvers, Dampers, and Shutters.
		2. AMCA 500-D - Laboratory Methods for Testing Dampers for Ratings.
		3. AMCA 511 – Certified Ratings Program for Air Control Devices.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. USGBC: U.S. Green Building Council LEED® Rating System.
	1. DEFINITIONS

\*\* NOTE TO SPECIFIER \*\* Retain definitions remaining after this Section has been edited.

* + 1. Damper Terminology: Definitions of terms for metal louvers contained in AMCA 500 apply to this Section unless otherwise defined in this Section or in referenced standards.
		2. Horizontal Damper: Damper with horizontal blades; i.e., the axes of the blades are horizontal.
		3. Vertical Damper: Damper with vertical blades; i.e., the axes of the blades are vertical.
	1. ACTION SUBMITTALS
		1. Comply with requirements of Section 01 33 00 - Submittal Procedures.
		2. Product Data: Submit manufacturer's product data.
			1. Include leakage, pressure drop, and maximum pressure data.
			2. Indicate materials, construction, and dimensions.
			3. Damper to be tested specifically to project specifications in an AMCA approved laboratory when applicable.
			4. Include a copy of the Installation Instructions.
		3. Certifications: Manufacturer shall certify in writing that the damper capacity will withstand HVAC system operating conditions.
			1. Closed Position: Maximum pressure of 10 inches w.g. (2.5 kPa) at a 6 inch (305 mm) blade length.
			2. Open Position: Maximum air velocity of 4,000 feet per minute (1,829 m/min).
		4. Product Schedule: For dampers. Use same designations indicated on Drawings.

\*\* NOTE TO SPECIFIER \*\* Delete selection samples if not required.

* + 1. Samples: Submit sample of damper to show frame, blades, actuator, accessories, finish, and color.
	1. INFORMATIONAL SUBMITTALS

\*\* NOTE TO SPECIFIER \*\* Coordinate "Qualification Data" Paragraph below with qualification requirements in Division 01 Section "Quality Requirements" and as may be supplemented in "Quality Assurance" Article.

* + 1. Qualification Data: For manufacturer and Installer.
		2. Product Test Reports: For each type of damper, for tests performed by a qualified testing agency.

\*\* NOTE TO SPECIFIER \*\* Retain "Field quality-control reports" Paragraph below if Contractor is responsible for field quality-control testing and inspecting.

* + 1. Field quality-control reports.
		2. Sample Warranties: For manufacturer's warranties.
	1. QUALITY ASSURANCE
		1. Manufacturer Qualifications:
			1. The manufacturer shall have implemented the management of quality objectives, continual improvement, and monitoring of customer satisfaction to assure that customer needs and expectations are met.
			2. Manufacturer shall be International Organization for Standardization (ISO) 9001 accredited.

\*\* NOTE TO SPECIFIER \*\* Insert installer qualifications. Delete if not required.

* + 1. Installer Qualifications:
			1. USGBC LEED Compliance: The Work of this section shall be in accordance with applicable portions of the U.S. Green Building Council’s LEED Green Building Rating System. Refer to Divisions 23 and 26 Sections and other related documents bound herein for purposes of complying with this requirement.
		2. Product Qualifications:
			1. Dampers to be tested in accordance to project specification or published data sheets. Test set up and orientation to be per AMCA 500-D. Leakage and pressure drop will be recorded and submitted for review and acceptance.
			2. Ratings based on tests and procedures performed in accordance with AMCA 511 and comply with AMCA Certified Ratings Program. AMCA Certified Ratings Seal applies to Air leakage and Air Performance.
	1. DELIVERY, STORAGE, AND HANDLING
		1. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly indicating manufacturer and material.
		2. Storage: Store materials in a dry area indoors, protected from damage and in accordance with manufacturer's instructions.
		3. Handling: Handle and lift dampers in accordance with manufacturer's instructions. Protect materials and finishes during handling and installation to prevent damage.
	2. WARRANTY
		1. Manufacturer shall provide standard limited warranty for damper systems for a period of 5 years (60 months) from date of installation, no more than 60 months after shipment from manufacturing plant. When notified in writing from the Owner of a manufacturing defect, manufacturer shall promptly correct deficiencies without direct financial cost to the Owner.
1. PRODUCTS
	1. MANUFACTURER
		1. Ruskin Company, 3900 Dr. Greaves Road, Kansas City, Missouri 64030. Phone (816) 761-7476. Fax (816) 765-8955. Web Site http://www.ruskin.com.
		2. Substitutions: Not permitted.
		3. Requests for substitutions will be considered in accordance with provisions of Section 01600.
	2. ULTRA-LOW LEAKAGE CONTROL DAMPERS

\*\* NOTE TO SPECIFIER \*\* Consult Ruskin for assistance in selecting from options for specific applications.

* + 1. Model: CDR25 as manufactured by Ruskin Company.
		2. Rating:
			1. Temperature Rating: Withstand maximum of 250 degrees F (121 degrees C).
			2. Size: Minimum diameter 4 inches (102 mm). Maximum is 48 inch (1219 mm).
			3. Capacity: Damper shall withstand HVAC system operating conditions:
				1. Closed Position: Maximum pressure of 10 inches w.g. (2.5 kPa) @ a 6 inch (152 mm) diameter.
				2. Open Position: Maximum air velocity of 4,000 feet per minute (1,220 m/min).
			4. Leakage: Maximum without seals 539 cfm. (254 l/s) at 4 inches w.g. (1 kPa) for a 48 inch diameter damper (1219 mm). Maximum with seals 10 cfm (4.7 l/s) at 4 inches w.g. (1 kPa) for 48 inch diameter damper (1219 mm).
			5. Pressure Drop: Maximum 0.1 inch w.g. (0.02 kPa) at 1,000 feet per minute (305 m/min) across 24 inch diameter (610 mm) damper.
		3. Construction:
			1. Frame: Under 6 inch (152 mm) diameter; 2 inch x 12 gauge (51 x 2.8 mm) steel tube. 6 thru 12 inch (152 to 305 mm); 2 inch x 0.5 inch x 14 gauge (51 x 13 x 2 mm) steel channel. Above 12 inch thru 24 inch (305 to 610 mm); 2 x 0.5 x 1/8 inch (51 x 13 x 3.2 mm) steel channel. Above 24 inch (610 mm); 2 x 1 x 3/16 inch (51 x 25 x 4.7 mm) steel channel.
			2. Blades:
				1. Style: Single skin round blade.
				2. Material: Diameter 18 inch (457 mm) or under; 12 gauge (2.8 mm) steel. Diameter over 18 inch (457 mm); 10 gauge steel (3.5 mm). Stiffeners as required.
			3. Bearings: Stainless steel pressed into frame.

\*\* NOTE TO SPECIFIER \*\* Delete if optional seals not required.

* + - 1. Seals: Optional neoprene ring.
			2. Axles: Diameter 24 inch (610 mm) or under; 0.5 inch (13 mm) diameter plated steel. Diameter over 24 inch (13 mm); 0.75 inch (19 mm) plated steel.

\*\* NOTE TO SPECIFIER \*\* Delete mounting not required.

* + - 1. Mounting: Vertical.
			2. Mounting: Horizontal.

\*\* NOTE TO SPECIFIER \*\* Standard finish is mill aluminum. Consult Ruskin for assistance in specifying special finishes for specific applications.

* + - 1. Finish: Aluminum paint..
	1. ACCESSORIES
		1. Actuator:

\*\* NOTE TO SPECIFIER \*\* Specify an electric or pneumatic actuator, fail position, and mounting. Consult Ruskin for assistance in specifying accessories for specific applications. Delete actuator type (electric or pneumatic) not required.

* + - 1. Electric: 120 V, two-position.
			2. Electric: 24 V, two-position.
			3. Electric: 24 V, modulating.

\*\* NOTE TO SPECIFIER \*\* Delete pneumatic type not required.

* + - 1. Pneumatic: Two-position. 20 to 30 psi (138 to 207 kPa) supply air pressure.
			2. Pneumatic: Modulating. 20 to 30 psi (138 to 207 kPa) supply air pressure.

\*\* NOTE TO SPECIFIER \*\* Delete fail position not required.

* + - 1. Fail Position: Open.
			2. Fail Position: Closed.
			3. Mounting: External, mounting bracket.
	1. SOURCE QUALITY CONTROL
		1. Factory Tests: Factory cycle damper and actuator assembly to assure proper operation.
1. EXECUTION
	1. EXAMINATION
		1. 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.
	2. INSTALLATION
		1. Install dampers at locations indicated on the drawings and in accordance with manufacturer's installation instructions.
		2. Install dampers square and free from racking with blades orientation as scheduled or required.
		3. Do not compress or stretch damper frame into duct or opening.
		4. Handle damper using sleeve or frame. Do not lift damper using blades, actuator, or jackshaft.
		5. Install bracing for multiple section assemblies to support assembly weight and to hold against system pressure. Install bracing as needed.

END OF SECTION