SECTION 233713.13 - AIR DIFFUSERS

Revise this Section by deleting and inserting text to meet Project-specific requirements.

This Section uses the term "Architect." Change this term to match that used to identify the design professional as defined in the General and Supplementary Conditions.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

1. GENERAL
   * + 1. RELATED DOCUMENTS

Retain or delete this article in all Sections of Project Manual.

* + - * 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
      1. SUMMARY
         1. Section Includes:

Round ceiling diffusers.

Rectangular and square ceiling diffusers.

Perforated diffusers.

Louver face diffusers.

Linear bar diffusers.

Linear slot diffusers.

Ceiling-integral continuous slot diffusers.

Light troffer diffusers.

Round induction underfloor air-distribution diffusers.

Linear underfloor air-distribution diffuser plenums.

High-capacity drum louver diffusers.

High-capacity, modular-core supply grille diffusers.

* + - * 1. Related Requirements:

Retain subparagraphs below to cross-reference requirements Contractor might expect to find in this Section but are specified in other Sections.

Section 233300 "Air Duct Accessories" for fire and smoke dampers and volume-control dampers not integral to diffusers.

Section 233713.23 "Air Registers and Grilles" for adjustable-bar register and grilles, fixed-face registers and grilles, and linear bar grilles.

Section 233713.43 "Security Registers and Grilles" for security registers and security grilles.

Section 233716 "Fabric Air-Diffusion Devices" for continuous tubular diffusers.

* + - 1. SUBMITTALS
         1. Submittals for this section are subject to the er-evaluation fee identified in Article 4 of the General Conditions.
         2. Manufacturer’s installation instructions shall be provided along with product data.
         3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
         4. Product Data: For each type of product.

Data Sheet: Indicate materials of construction, finish, and mounting details; and performance data including throw and drop, static-pressure drop, and noise ratings.

Diffuser Schedule: Indicate drawing designation, room location, quantity, model number, size, and accessories furnished.

Retain "Samples" paragraph below for single-stage Samples, with a subordinate list if applicable. Retain "Samples for Initial Selection" and "Samples for Verification" paragraphs for two-stage Samples.

* + - * 1. Samples: For each exposed product and for each color and texture specified. Actual size of smallest diffuser indicated.
        2. Samples for Initial Selection: For diffusers with factory-applied color finishes. Actual size of smallest diffuser indicated.
        3. Samples for Verification: For diffusers, in manufacturer's standard sizes to verify color selected. Actual size of smallest diffuser indicated.

Retain "Coordination Drawings" paragraph below for situations where limited space necessitates maximum utilization for efficient installation of different components or if coordination is required for installation of products and materials by separate installers. Coordinate paragraph with other Sections specifying products listed below. Preparation of coordination drawings requires the participation of each trade involved in installations within the limited space.

* + - * 1. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

Ceiling suspension assembly members.

Method of attaching hangers to building structure.

Size and location of initial access modules for acoustical tile.

Ceiling-mounted items including lighting fixtures, diffusers, grilles, speakers, sprinklers, access panels, and special moldings.

Duct access panels.

* + - * 1. Source quality-control reports.

1. PRODUCTS

Manufacturers and products listed in SpecAgent and Masterworks Paragraph Builder are neither recommended nor endorsed by the AIA or Deltek. Before inserting names, verify that manufacturers and products listed there comply with requirements retained or revised in descriptions and are both available and suitable for the intended applications. For definitions of terms and requirements for Contractor's product selection, see Section 016000 "Product Requirements."

Descriptions of diffusers include required attributes that define air outlets and inlets. Each description must be edited to include a drawing designation. If there is more than one type of outlet or inlet for a particular description, copy the paragraph for each type required and edit each copy to define each required type. Assign each type a different drawing designation.

* + - 1. SECURITY AIR DIFFUSERS
         1. Do not use neck or duct connection sizes indicated to size diffusers.

Use two paragraphs below for supply air when good air distribution is needed with a perforated face plate. These registers are cost effective and lightweight. Typical areas of use are the staff occupied areas in the maximum and medium facilities and all buildings at minimum facilities. SCD-AL registers should be used where the moisture level is high.

* + - * 1. Staff Ceiling Diffusers (SCD):

Face Plate: Minimum 12 gage steel plate with 13/16 inch square holes on 1 inch centers.

Constructed of steel with reinforced welded corners, 4-way air pattern, and frame surface mounted on face plate with square neck.

Assembled with 1/4 inch -20 Torx center pin fasteners.

Damper: Opposed blade type installed in neck, and operated thru face plate with removable key

* + - * 1. Staff Ceiling Diffusers (SCD-AL):

Face Plate: Minimum 0.040 inch thick aluminum face with 13/16 square inch holes on 1 inch centers.

Constructed of aluminum with reinforced welded corners, 4-way air pattern and frame surface mounted on face plate with square neck.

Assembled with 1/4 inch -20 Torx center pin fasteners.

Damper: Opposed blade type installed in neck, and operated thru face plate with removable key

Use paragraph below for supply air in ante rooms in health buildings

* + - * 1. High Capacity Radial Diffusers (HCRD):

Flat faced, flush to ceiling, with edge border to accommodate adjacent ceiling surface or grid configuration, and consisting of 22 gage steel perforated plate, arranged in discrete pattern that delivers air in a radial pattern.

Air Discharge: Radial outward contiguous air stream that forms and fills one 180 degree arc in continuous planes, and is perpendicular to longitudinal axis of diffuser.

Diffuser Face: Hinged to diffuser backpan and attached to backpan in plane of ceiling with 1-1/4 turn quick lock fasteners.

Construction: Zinc-coated steel with gloss white baked epoxy finish.

Use paragraph below for supply air around beds in isolation rooms in health buildings. Only anemostat and titus have submitted air flow test data thru the 10 gage maximum security face plate that is approved by New York State for use in the prisons. Other manufacturers may be approved upon submission of air flow test data.

When laminar flow diffusers are provided, insert two special details that show how diffuser fits into metal plank ceiling. Details are stored in DOCS detail file. Verify use with Team Leader.

* + - * 1. Laminar Flow Diffuser (LFD):

Acceptable Diffusers:

Model MVMSP by Anemostat.

Model SGTLF by Titus.

Diffuser Assembly: Dual chamber design consisting of an upper chamber, distribution valves, lower chamber and security distribution plate.

Single chamber designs without intermediate diffusion means or distribution valves are not acceptable.

Distribution Face Plate: Maximum security type, minimum 10 gage thickness.

Supply Air Holes: Maximum diameter of 0.157 inch with 12 holes per square inch, locate within the nominal 1 foot x 4 feet laminar flow outlet to produce multiple discrete air streams into occupied zone

Framebody with 6 inch round inlet collar, 1-5/8 inch minimum height, incorporates multiple perforated air diffusion baskets that produce uniform distribution of air from the inlet to laminar flow face plate.

Fabricate backpan and perforated baskets of 22 gage zinc-coated steel.

Permanently attach 10 gage companion flange to back pan to form attaching surface to which perforated face plate is fastened and forms sandwich with ceiling surface.

Securely attach framebody with companion flange to top of steel ceiling surface with fasteners concealed by face plate.

Attach face place to companion flange with Torx center pin fasteners.

Seal mating surfaces between distribution plate and framebody with closed cell gaskets.

Damper: Opposed blade type installed in neck in back of distribution baskets, and operated thru face plate with removable key.

Finish surfaces with fusion bonded powder coating using organic polymer formulated using only code of Federal Regulation Title 21 Section 175.300 raw materials.

Use paragraph below for supply air when good air distribution is needed. These diffusers are cost effective and lightweight. Typical areas of use are in the administration building at maximum and medium facilities and all buildings at minimum security facilities.

* + - * 1. Non-Secure Ceiling Diffuser (NSCD):

Construction: Minimum 22 gage flat steel.

Distribution Pattern: 1, 2, 3, and 4-way distribution air patterns.

Damper: Opposed blade type installed in neck behind cones, and operated thru cones with removable key.

* + - 1. ROUND CEILING DIFFUSERS

Copy this article and re-edit for each product.

* + - * 1. [Manufacturers:](http://www.specagent.com/Lookup?ulid=12382) Subject to compliance with requirements, provide products by one of the following:

[Carnes Company](http://www.specagent.com/Lookup?uid=123457029254).

[Price Industries](http://www.specagent.com/Lookup?uid=123457029258).

[Titus; brand of Johnson Controls International PLC, Global Products](http://www.specagent.com/Lookup?uid=123457029261).

Approved equivalent.

Retain first paragraph below for variable-air-volume operations.

* + - * 1. Devices shall be specifically designed for variable-air-volume flows.
        2. Material: [**Steel**] [**Aluminum**].
        3. Finish: [**Baked enamel, white**] [**Baked enamel, color selected by Architect**] [**Anodized aluminum**] <**Insert finish**>.
        4. Face Style: [**Four**] [**Three**] [**Two**] cone.
        5. Mounting: Duct connection.
        6. Pattern: [**Fully adjustable**] [**Two-position horizontal**].
        7. Dampers: [**Radial opposed blade**] [**Butterfly**] [**Combination damper and grid**].
        8. Accessories:

Equalizing grid.

Plaster ring.

Safety chain.

Wire guard.

Sectorizing baffles.

Operating rod extension.

* + - 1. RECTANGULAR AND SQUARE CEILING DIFFUSERS

Copy this article and re-edit for each product.

* + - * 1. [Manufacturers:](http://www.specagent.com/Lookup?ulid=12383) Subject to compliance with requirements, provide products by one of the following:

[Anemostat Products; a Mestek company](http://www.specagent.com/Lookup?uid=123457029264).

[Price Industries](http://www.specagent.com/Lookup?uid=123457029271).

[Titus; brand of Johnson Controls International PLC, Global Products](http://www.specagent.com/Lookup?uid=123457029274).

Approved equivalent.

Retain first paragraph below for variable-air-volume operations.

* + - * 1. Devices shall be specifically designed for variable-air-volume flows.
        2. Material: [**Steel**] [**Aluminum**].
        3. Finish: [**Baked enamel, white**] [**Baked enamel, color selected by Architect**] [**Anodized aluminum**] <**Insert finish**>.
        4. Face Size: [**24 by 24 inches (600 by 600 mm)**] [**20 by 20 inches (500 by 500 mm)**] [**12 by 12 inches (300 by 300 mm)**] <**Insert dimensions**>.
        5. Face Style: [**Three cone**] [**Four cone**] [**Plaque**].
        6. Mounting: [**Surface**] [**T-bar**] [**Snap in**] [**Spline**] [**Mounting panel**].
        7. Pattern: [**Fixed**] [**Two position**] [**Adjustable**].
        8. Dampers: [**Radial opposed blade**] [**Butterfly**] [**Combination damper and grid**].
        9. Accessories:

Equalizing grid.

Plaster ring.

Safety chain.

Wire guard.

Sectorizing baffles.

Operating rod extension.

* + - 1. PERFORATED DIFFUSERS

Copy this article and re-edit for each product.

* + - * 1. [Manufacturers:](http://www.specagent.com/Lookup?ulid=12384) Subject to compliance with requirements, provide products by one of the following:

[Anemostat Products; a Mestek company](http://www.specagent.com/Lookup?uid=123457029278).

[Carnes Company](http://www.specagent.com/Lookup?uid=123457029279).

[Price Industries](http://www.specagent.com/Lookup?uid=123457029285).

[Titus; brand of Johnson Controls International PLC, Global Products](http://www.specagent.com/Lookup?uid=123457029287).

Approved equivalent.

Retain first paragraph below for variable-air-volume operations.

* + - * 1. Devices shall be specifically designed for variable-air-volume flows.
        2. Material: Steel backpan and pattern controllers, with [**steel**] [**aluminum**] face.
        3. Finish: [**Baked enamel, white**] [**Baked enamel, color selected by Architect**] [**Anodized aluminum**] <**Insert finish**>.
        4. Face Size: [**12 by 12 inches (300 by 300 mm)**] [**24 by 12 inches (600 by 300 mm)**] [**36 by 12 inches (900 by 300 mm)**] [**48 by 12 inches (1200 by 300 mm)**] [**16 by 16 inches (400 by 400 mm)**] [**20 by 20 inches (500 by 500 mm)**] [**24 by 24 inches (600 by 600 mm)**] [**36 by 24 inches (900 by 600 mm)**] [**48 by 24 inches (1200 by 600 mm)**] <**Insert dimensions**>.
        5. Duct Inlet: [**Round**] [**Square**].
        6. Face Style: [**Flush**] [**Drop extended**].
        7. Mounting: [**Surface**] [**T-bar**] [**Snap in**] [**Spline**] [**Mounting panel**].
        8. Pattern Controller: [**Four louvered deflector patches**] [**Fixed with curved blades at inlet**] [**Adjustable with louvered pattern modules at inlet**] [**None**].
        9. Dampers: [**Opposed blade**] [**Radial opposed blade**] [**Butterfly**] [**Combination damper and grid**] [**Combination volume and fire**].
        10. Accessories:

Equalizing grid.

Plaster ring.

Safety chain.

Wire guard.

Sectorizing baffles.

Operating rod extension.

* + - 1. LOUVER FACE DIFFUSERS

Copy this article and re-edit for each product.

* + - * 1. [Manufacturers:](http://www.specagent.com/Lookup?ulid=12385) Subject to compliance with requirements, provide products by one of the following:

[Anemostat Products; a Mestek company](http://www.specagent.com/Lookup?uid=123457029291).

[Price Industries](http://www.specagent.com/Lookup?uid=123457029295).

[Titus; brand of Johnson Controls International PLC, Global Products](http://www.specagent.com/Lookup?uid=123457029297).

Approved equivalent.

Retain first paragraph below for variable-air-volume operations.

* + - * 1. Devices shall be specifically designed for variable-air-volume flows.
        2. Material: [**Steel**] [**Aluminum**].
        3. Finish: [**Baked enamel, white**] [**Baked enamel, color selected by Architect**] [**Anodized aluminum**] <**Insert finish**>.
        4. Face Size: <**Insert inches (mm)**>.
        5. Mounting: [**Surface**] [**Surface with beveled frame**] [**T-bar**] [**Snap in**] [**Spline**] [**Mounting panel**].
        6. Pattern: [**One-way**] [**Two-way**] [**Two-way corner**] [**Three-way**] [**Four-way**] [**Adjustable**] <**Insert pattern**> core style.
        7. Dampers: [**Radial opposed blade**] [**Butterfly**] [**Combination damper and grid**].
        8. Accessories:

Square to round neck adaptor.

Adjustable pattern vanes.

Throw reducing vanes.

Equalizing grid.

Plaster ring.

Safety chain.

Wire guard.

Sectorizing baffles.

Operating rod extension.

* + - 1. LINEAR BAR DIFFUSERS

Copy this article and re-edit for each product.

* + - * 1. [Manufacturers:](http://www.specagent.com/Lookup?ulid=12386) Subject to compliance with requirements, provide products by one of the following:

[Anemostat Products; a Mestek company](http://www.specagent.com/Lookup?uid=123457029300).

[Price Industries](http://www.specagent.com/Lookup?uid=123457029307).

[Titus; brand of Johnson Controls International PLC, Global Products](http://www.specagent.com/Lookup?uid=123457029309).

Approved equivalent.

Retain first paragraph below for variable-air-volume operations.

* + - * 1. Devices shall be specifically designed for variable-air-volume flows.
        2. Material: [**Steel**] [**Aluminum**] [**Stainless steel**].
        3. Finish: [**Baked enamel, white**] [**Baked enamel, color selected by Architect**] <**Insert finish**>.

Retain one of first five paragraphs below.

* + - * 1. Narrow Core Spacing Arrangement: 1/8-inch- (3-mm-) thick blades spaced 1/4 inch (6 mm) apart; [**zero**] [**15**]-degree deflection.
        2. Wide Core Spacing Arrangement: 1/8-inch- (3-mm-) thick blades spaced 1/2 inch (13 mm) apart; [**zero**] [**15**]-degree deflection.
        3. Wide Core Spacing Arrangement: 3/16-inch- (5-mm-) thick blades spaced 1/2 inch (13 mm) apart; [**zero**] [**15**] [**30**]-degree deflection.
        4. Pencil-Proof Core Spacing Arrangement: 3/16-inch- (5-mm-) thick blades spaced 7/16 inch (11 mm) apart; [**zero**] [**15**] [**30**]-degree deflection.
        5. [**One**] [**Two**]-Way Deflection Vanes: Extruded construction [**fixed**] [**adjustable**] louvers with removable core.
        6. Frame: [**1-1/4 inches (32 mm)**] [**1 inch (25 mm)**] [**3/4 inch (19 mm)**] [**1/2 inch (13 mm)**] [**3/16 inch (5 mm)**] wide.

Retain first paragraph below if mounting frame is required.

* + - * 1. Mounting Frame: [**Filter**] <**Insert frame size and style**>.
        2. Mounting: [**Countersunk screw**] [**Concealed bracket**] [**Spring clip**].
        3. Damper Type: [**Adjustable opposed-blade assembly**] [**Hinged single blade**].
        4. Accessories: [**Plaster frame**] [**Directional vanes**] [**Alignment pins**] [**Core clips**] [**Blank-off strips**].
      1. LINEAR SLOT DIFFUSERS

Copy this article and re-edit for each product.

* + - * 1. [Manufacturers:](http://www.specagent.com/Lookup?ulid=12387) Subject to compliance with requirements, provide products by one of the following:

[Carnes Company](http://www.specagent.com/Lookup?uid=123457029313).

[Krueger-HVAC; brand of Johnson Controls International PLC, Global Products](http://www.specagent.com/Lookup?uid=123457029316).

[Price Industries](http://www.specagent.com/Lookup?uid=123457029319).

[Titus; brand of Johnson Controls International PLC, Global Products](http://www.specagent.com/Lookup?uid=123457029322).

Approved equivalent.

Retain first paragraph below for variable-air-volume operations.

* + - * 1. Devices shall be specifically designed for variable-air-volume flows.
        2. Material - Shell: [**Steel**] [**Aluminum**], [**insulated**] [**noninsulated**].
        3. Material - Pattern Controller and Tees: Aluminum.
        4. Finish - Face and Shell: [**Baked enamel, black**] <**Insert finish**>.
        5. Finish - Pattern Controller: [**Baked enamel, black**] <**Insert finish**>.
        6. Finish - Tees: [**Baked enamel, white**] [**Baked enamel, color selected by Architect**] <**Insert finish**>.
        7. Slot Width: [**1/2 inch (13 mm)**] [**3/4 inch (19 mm)**] [**1 inch (25 mm)**] [**1-1/2 inches (38 mm)**].
        8. Number of Slots: [**One**] [**Two**] [**Three**] [**Four**] <**Insert number**>.
        9. Length: [**24 inches (600 mm)**] [**30 inches (750 mm)**] [**36 inches (900 mm)**] [**48 inches (1200 mm)**] [**60 inches (1500 mm)**].
        10. Accessories: [**Plaster frame**] [**T-bar slot**] [**Center notch**] [**T-bar on inlet side**] [**T-bar on both sides**] [**T-bar clip on one side**] [**T-bar clips on both sides**].
      1. CEILING-INTEGRAL CONTINUOUS DIFFUSERS

Copy this article and re-edit for each product.

* + - * 1. [Manufacturers:](http://www.specagent.com/Lookup?ulid=12388) Subject to compliance with requirements, provide products by one of the following:

[Anemostat Products; a Mestek company](http://www.specagent.com/Lookup?uid=123457029325).

[Price Industries](http://www.specagent.com/Lookup?uid=123457029331).

[Titus; brand of Johnson Controls International PLC, Global Products](http://www.specagent.com/Lookup?uid=123457029332).

Approved equivalent.

* + - * 1. Slot Width: [**1 inch (25 mm)**] [**1-1/2 inches (38 mm)**] [**2 inches (50 mm)**] [**2-1/2 inches (63 mm)**] [**3 inches (76 mm)**].

Retain "Section Length" paragraph below unless length is indicated on Drawings.

* + - * 1. Section Length: [**12 feet (3.7 m)**] <**Insert dimension**>.
        2. Straight and curved sections as required to accommodate layout.

Mitered tees and corners are upgrade features, which are not always required.

* + - * 1. Mitered tees and corners.
        2. Pattern Controllers: [**24 inches (600 mm)**] <**Insert dimension**> o.c.
        3. Material: Aluminum, extruded, heavy wall.
        4. Finishes:

Exterior: Standard white.

Interior: Standard black.

* + - * 1. Throw: [**Standard**] [**High**].
        2. Mounting: [**Ceiling**] [**Sidewall**].
        3. Plenum: [**Noninsulated**] [**Insulated**].
        4. Other Features:

Painted interior.

Blank-offs.

* + - 1. LIGHT TROFFER DIFFUSERS

Copy this article and re-edit for each product.

* + - * 1. [Manufacturers:](http://www.specagent.com/Lookup?ulid=12389) Subject to compliance with requirements, provide products by one of the following:

[Carnes Company](http://www.specagent.com/Lookup?uid=123457029335).

[Price Industries](http://www.specagent.com/Lookup?uid=123457029341).

Approved equivalent.

Retain first paragraph below for variable-air-volume operations.

* + - * 1. Devices shall be specifically designed for variable-air-volume flows.
        2. Material: Steel[**with external insulation**].
        3. Finish: [**None**] [**Black enamel on visible surfaces**] <**Insert finish**>.
        4. Slot Width: [**1/2 inch (13 mm)**] [**3/4 inch (19 mm)**] [**1 inch (25 mm)**] [**1-1/2 inches (38 mm)**].
        5. Number of Sides: [**One**] [**Two**].
        6. Length: [**24 inches (600 mm)**] [**36 inches (900 mm)**] [**48 inches (1200 mm)**].
        7. Pattern: [**Fixed**] [**Adjustable**].
        8. Inlet: [**Top**] [**Side**].
        9. Inlet Size: [**5 inches (125 mm)**] [**6 inches (150 mm)**] [**8 inches (200 mm)**].
      1. ROUND INDUCTION UNDERFLOOR AIR-DISTRIBUTION DIFFUSERS

Copy this article and re-edit for each product.

* + - * 1. [Manufacturers:](http://www.specagent.com/Lookup?ulid=12390) Subject to compliance with requirements, provide products by one of the following:

[Carrier Global Corporation](http://www.specagent.com/Lookup?uid=123457029385).

[Price Industries](http://www.specagent.com/Lookup?uid=123457029352).

[Titus; brand of Johnson Controls International PLC, Global Products](http://www.specagent.com/Lookup?uid=123457029353).

Approved equivalent.

* + - * 1. Airflow Principle: Swirl-pattern induction.
        2. Material: Plastic, high impact, and resistant to cart and foot traffic.
        3. Color: [**Gray**] [**Black**].
        4. Components:

Diffuser core.

Flow regulator.

Dirt and liquid catch pan.

Spacer flange.

Gasketed, underfloor compression ring.

* + - 1. LINEAR UNDERFLOOR AIR-DISTRIBUTION DIFFUSER PLENUMS

Copy this article and re-edit for each product.

* + - * 1. [Manufacturers:](http://www.specagent.com/Lookup?ulid=12391) Subject to compliance with requirements, provide products by one of the following:

[Anemostat Products; a Mestek company](http://www.specagent.com/Lookup?uid=123457029355).

[Price Industries](http://www.specagent.com/Lookup?uid=123457029361).

[Titus; brand of Johnson Controls International PLC, Global Products](http://www.specagent.com/Lookup?uid=123457029362).

Approved equivalent.

* + - * 1. Material: Steel.
        2. Finish: White baked acrylic.
        3. Deflection: [**Zero**] [**15**] degrees.
        4. Components:

Aluminum diffuser core.

Diffuser frame.

Plenum, 0.034-inch (0.85-mm) steel.

* + - 1. HIGH-CAPACITY DRUM LOUVER DIFFUSERS

Copy this article and re-edit for each product.

* + - * 1. [Manufacturers:](http://www.specagent.com/Lookup?ulid=12392) Subject to compliance with requirements, provide products by one of the following:

[Anemostat Products; a Mestek company](http://www.specagent.com/Lookup?uid=123457029364).

[Price Industries](http://www.specagent.com/Lookup?uid=123457029371).

[Titus; brand of Johnson Controls International PLC, Global Products](http://www.specagent.com/Lookup?uid=123457029372).

Approved equivalent.

* + - * 1. Airflow Principle: Extended distance for high airflow rates.
        2. Material: Aluminum, heavy gage extruded.
        3. Finish: White baked acrylic.
        4. Border: 1-1/4-inch (32-mm) width with countersunk screw holes.
        5. Gasket between drum and border.
        6. Body: Drum shaped; adjustable vertically.
        7. Blades: Individually adjustable horizontally.
        8. Mounting: Surface to [**duct**] [**wall**].
        9. Inlet Width: [**6 inches (150 mm)**] [**10 inches (250 mm)**] [**12 inches (300 mm)**] [**15 inches (380 mm)**] <**Insert dimension**>.
        10. Inlet Length: [**12 inches (300 mm)**] [**24 inches (600 mm)**] [**36 inches (900 mm)**] [**60 inches (1500 mm)**] <**Insert dimension**>.
        11. Accessories:

Opposed-blade steel damper.

Duct-mounting collars with countersunk screw holes.

* + - 1. HIGH-CAPACITY, MODULAR-CORE SUPPLY GRILLE DIFFUSERS

Copy this article and re-edit for each product.

* + - * 1. [Manufacturers:](http://www.specagent.com/Lookup?ulid=12393) Subject to compliance with requirements, provide products by one of the following:

[Anemostat Products; a Mestek company](http://www.specagent.com/Lookup?uid=123457029375).

[Price Industries](http://www.specagent.com/Lookup?uid=123457029381).

[Titus; brand of Johnson Controls International PLC, Global Products](http://www.specagent.com/Lookup?uid=123457029383).

Approved equivalent.

* + - * 1. Throw: Extended distance for airflow rates.
        2. Material: Steel.
        3. Grilles per Unit: [**One**] [**Two**] [**Three**] [**Four**].
        4. Finish: White baked acrylic.
        5. Border: 1-1/2-inch (38-mm) width with countersunk screw holes.
        6. Blades:

Airfoil, individually adjustable horizontally.

Double deflection.

Set in modules.

* + - * 1. Modules: Removable; rotatable.
        2. Mounting: Surface.
        3. Accessory: Opposed-blade steel damper.
      1. SOURCE QUALITY CONTROL
         1. Verification of Performance: Rate diffusers according to ASHRAE 70, "Method of Testing for Rating the Performance of Air Outlets and Inlets."

1. EXECUTION
   * + 1. EXAMINATION
          1. Examine areas where diffusers are installed for compliance with requirements for installation tolerances and other conditions affecting performance of equipment.
          2. Proceed with installation only after unsatisfactory conditions have been corrected.
       2. INSTALLATION
          1. Install diffusers level and plumb.
          2. Ceiling-Mounted Outlets and Inlets: Drawings indicate general arrangement of ducts, fittings, and accessories. Air outlet and inlet locations have been indicated to achieve design requirements for air volume, noise criteria, airflow pattern, throw, and pressure drop. Make final locations where indicated, as much as practical. For units installed in lay-in ceiling panels, locate units in the center of panel. Where architectural features or other items conflict with installation, notify Architect for a determination of final location.
          3. Install diffusers with airtight connections to ducts and to allow service and maintenance of dampers, air extractors, and fire dampers.
       3. ADJUSTING
          1. After installation, adjust diffusers to air patterns indicated, or as directed, before starting air balancing.
          2. After installation, adjust diffusers to air patterns indicated, or as directed, before starting air balancing.

END OF SECTION 233713.13