

Titus Helios Solar-Powered Variable Geometry Diffuser

Division 23 – Heating, Ventilating, and Air Conditioning

Section 23 37 13 – Diffusers, Registers, and Grilles

PART 1 – GENERAL

* 1. RELATED DOCUMENTS

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division \*\* Specifications Sections, apply to this section
   1. SUMMARY
2. Sections Includes:
   1. Helios solar-powered VAV ceiling diffuser
3. Related Sections:
   1. None
   2. SUBMITTALS
4. Product Data: For each type of produce indicated, include the following:
   1. Data Sheet: Indicate materials of construction, finish and mounting details and performance data including throw vertical and horizontal, static pressure, sound ratings.
   2. Source quality-control reports.

PART 2 - PRODUCTS

2.1 DIFFUSERS

1. Architectural square plaque ceiling diffusers
2. Manufacturers: Subject to compliance with requirements and performance listed in section 2.2 Source Quality Control, products by one of following manufacturer is acceptable
   1. Titus Helios (Basis Design)
3. Description: The Titus Helios shall deliver a 360 degree horizontal air pattern and shall modulate air volume to maintain a room air temperature setting. A variable position damper ring shall be digitally controlled by an onboard circuit board and powered by a capacitor on the control board. The capacitor shall be charged by a solar collection panel on the plaque face of the diffuser. The unit shall require no electrical or control connections.

The diffuser shall be capable of standalone operation, controlled wirelessly by a remote solar-powered wall sensor or interface with building automation through a wireless gateway.

1. Face Plate: shall be 22-gauge steel face panel that captures a secondary 22-gauge panel, removable by means of four hanger brackets, exposed surface shall be smooth, flat, and free of visible fasteners, panel shall project no more than ¼ inch below the outside border of the diffuser back pan, rear size of plaque shall have an aerodynamically shaped, rolled edge to ensure a tight horizontal discharge pattern. A single metal thickness on the edges of the face panel will not be accepted. Ceiling diffusers with a 24 x 24-inch full face shall have no less than an 18 x 18-inch face panel size.
2. Back pan: shall be one piece precision die-stamped and shall include an integrally drawn inlet (welded-in inlets and corner joints are not acceptable). The diffuser back pan shall be constructed of 22-gauge steel.
3. Neck: shall have a beaded 3¼-inch minimum depth inlet available for duct connection.
4. Finish: shall be #26 white.
   1. The finish shall be an anodic acrylic paint, baked at 315°F for 30 minutes.
   2. The pencil hardness must be HB to H.
   3. The paint must pass a 100-hour ASTM B117 Corrosive Environments Salt Spray Test without creepage, blistering or deterioration of film.
   4. The paint must pass a 250-hour ASTM D870 Water Immersion Test. The paint must also pass the ASTM D2794 Reverse Impact Cracking Test with a 50-inch pound force applied.
5. Optional molded insulation blanket shall be available. The insulation will be R-6, foil-backed, and provide an additional 1-inch gap around the neck to install insulated flex duct.
   1. Source Quality Control
6. The manufacturer shall provide published performance data for rated for the square panel diffuser
   1. All test data shall be obtained in accordance with ANSI/ASHRAE Standard 70–2006, and ARI Standard 880–98. A copy of the certified test results shall be provided upon request. The VAV diffuser shall be ARI certified.

PART 3 – EXECUTION

3.1 EXAMINATION

1. Examine areas where diffusers, registers, and grilles are to be 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.

3.2 INSTALLATION

1. Install Diffusers level and plumb.
2. Verify diffuser air patterns are as indicated on drawings during installation.
3. Ceiling-Mounted Outlets: Drawings indicate general arrangement of ducts, fittings and accessories. Air Outlet and 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. Where architectural features or other items conflict with installation, notify Engineer for determination of final location.
4. Install diffusers with airtight connections to ducts and to allow service and maintenance of dampers, air extractors and fire dampers.

3.3 ADJUSTING

1. After installation, verify diffusers air patterns is as indicated on drawings, or as directed before starting air balance.

END OF SECTION 233713