

**#1 Model: 300RS Double Deflection Sidewall Supply Register**

Two sets of moveable bars, front set vertical, rear set horizontal – Type 1 surface mount with OBD

Steel supply grilles shall be TITUS Model 300R (double deflection) of the sizes and mounting types shown on the plans and outlet schedule. The front deflection blades shall be parallel to the short dimension of the register for air spread and the rear blades shall be parallel to the long dimension. Construction shall be of steel with a 1-1/4" wide border on all sides. Screw holes shall be countersunk for a neat appearance. Corners shall be welded with full penetration resistance welds.

Deflection blades shall be contoured to a specifically designed and tested cross-section to meet published test performance data. Blades shall be spaced on 3/4" centers. Blades shall have steel friction pivots on both ends to allow individual blade adjustment without loosening or rattling. Plastic blade pivots are not acceptable.

Opposed blade volume damper shall be constructed of heavy gauge steel and must be operable from the face of the register.

**#2 Model: 350RL Single Deflection Bar Sidewall or Ceiling Return/Exhaust Grille**

Fixed horizontal bars, 35° angle – Type 1 surface mount

Steel return grilles shall be TITUS Model 350R (3/4" blade spacing) of the sizes and mounting types shown on the plans and outlet schedule. The fixed deflection blades shall be available parallel to the long or short dimension of the grille or register. Construction shall be of steel with a 1-1/4" wide border on all sides. Screw holes shall be countersunk for a neat appearance. Corners shall be welded with full penetration resistance welds.

Deflection blades shall be contoured to a specifically designed and tested cross-section to meet published test performance data. Blades shall be firmly held in place by mullions from behind the grille and fixed to the grille by welding in place. Blade deflection angle shall be available at 35°.

**#3 Model: 50R – Eggcrate Return Grille**

Type 1 surface mount

Return grilles shall be TITUS Model 50R for the sizes and mounting types as shown on the plans and outlet schedule. Return grilles must provide a free area of at least 90%. Outer borders shall be constructed of roll- formed 22-gauge steel and shall have countersunk screw holes for a neat appearance. Border width shall be 1-1/4" on all sides and shall be mitered at the four corners with full penetration resistance welds and a reinforcing patch for extra strength to form a rigid frame. Aluminum grid shall be 1/2" x 1/2" x 1/2".

Optional opposed blade volume damper shall be constructed of heavy gauge steel. Damper must be operable from the face of the register.

**#4 Model: 8R – Perforated Hard Ceiling Return Grille**

No deflector – Square Neck – Surface Mount with screw holes

Perforated ceiling return grille shall be TITUS model 8R of the size shown on the plans. The face and border shall be constructed of perforated steel with 3/16" diameter holes on 1/4" staggered centers to provide 51% free area. Outer borders shall be 1 1/4" wide. Corners shall be assembled with full penetration resistance welds with a reinforcing patch for extra strength. Screw holes shall be countersunk for a neat appearance.

**#5 Model: TRM – Hard Ceiling Adapter**

Hard ceiling frame for T-Bar diffusers

Hard ceiling frame shall be TITUS model TRM. The frame shall be supplied as a complete, factory assembled unit with mitred corners. The face shall be 1 1/8" wide with an adjustable clip on the vertical member to adapt from 1/2" to 7/8" sheet rock or plaster thickness. The frame shall be able to support Titus type 3 lay-in diffusers or lay-in ceiling return grilles and be finished to match Titus diffusers.

**#6 Model: PMC – Perforated Ceiling Diffuser, Modular Core**

Square Neck – White or Black Interior – type 3 for T-bar, type 3D for fineline or tegular, type 1C for surface mount

Perforated modular core ceiling diffusers shall be TITUS Model PMC. Diffusers shall have a perforated face with 3/16" diameter holes on 1/4" staggered centers and no less than 51% free area. The back pan shall be one piece

stamped heavy gauge steel of the sizes and mounting types shown on the plans and outlet schedule. The diffuser neck shall have at least 1" depth for easy duct connection.

The diffuser core shall consist of fixed louver directional modules, which can be easily repositioned in the field for 1, 2, 3, or 4-way discharge. Each module shall be easily removable to adjust an optional damper in the neck of the diffuser. The diffuser core must be mounted in the neck of the diffuser (face mounted louvers are not acceptable).

**#7 Model: PSS – Perforated Ceiling Diffuser, Star Pattern**

Round Neck – White or Black Interior – type 3 for T-bar, type 3D for fineline or tegular, use TRM for surface mount

Perforated modular core ceiling diffusers shall be TITUS Model PMC. Diffusers shall have a perforated face with 3/16" diameter holes on 1/4" staggered centers and no less than 51% free area. The back pan shall be one piece stamped heavy gauge steel of the sizes and mounting types shown on the plans and outlet schedule. The diffuser neck shall have at least 1" depth for easy duct connection

The diffusers shall be shipped from the factory set for a 4-way star airflow pattern. The back pan of the diffuser shall be constructed with sheet metal screw locator dimples to allow field adjustment from a 4-way side blow to a 4-way corner blow airflow pattern. The diffuser shall be capable of being field adjusted to change the airflow pattern without a significant increase in pressure drop or sound level, and shall also be adjustable for vertical airflow. The star deflector shall be one piece construction and must be mounted in the neck of the diffuser (face mounted deflectors are not acceptable). The deflector shall include a center opening to allow access to an optional damper. The perforated face must be easily unlatchable from the back pan to facilitate removal of the face for deflector adjustment.

**#8 Models: PCS – Perforated Ceiling Diffuser, Curved Blade Core**

1, 2, 3, or 4-Way Deflectors – Square or Round Neck – White Interior – type 3 for T-bar, type 3D for fineline or tegular, use TRM for surface mount

Perforated ceiling diffusers shall be TITUS Model PCS. Diffusers shall have a perforated face with 3/16" diameter holes on 1/4" staggered centers and no less than 51% free area. The back pan shall be heavy gauge steel of the sizes and mounting types shown on the plans and outlet schedule. The diffuser neck shall have at least 1" depth for easy duct connection.

Individually adjustable curved deflectors shall be mounted in the neck of the diffuser and must allow the discharged air to enter the room in either vertical or 1, 2, 3, or 4-way horizontal jets. The perforated face must be easily unlatchable from the back pan to facilitate removal of the face for pattern controller adjustment.

**#9 Model: PMC1C – Perforated Ceiling Diffuser, Modular Core**

Square Neck – White or Black Interior – surface mount

Perforated modular core ceiling diffusers for hard ceiling mounting shall be TITUS Model PMC1C. Diffusers shall have a perforated face with 3/16" diameter holes on 1/4" staggered centers and no less than 51% free area. The diffuser frame shall have a curved border for a pleasing appearance. The back pan shall be one piece stamped heavy gauge steel of the sizes and mounting types shown on the plans and outlet schedule. The diffuser neck shall have at least 1" depth for easy duct connection.

The diffuser core shall consist of fixed louver directional modules, which can be easily repositioned in the field for 1, 2, 3, or 4-way discharge. Each module shall be easily removable to adjust an optional damper in the neck of the diffuser. The diffuser core must be mounted in the neck of the diffuser (face mounted louvers are not acceptable).

**#10 Model: PAR – Perforated Ceiling Return Grille**

No deflectors – Square or Round Neck – White or Black Interior – type 3 for T-bar, type 3D for fineline or tegular, use PMR for surface mount

Perforated ceiling return grille shall be TITUS model PAR. The return models shall have the same face and border construction as the supply models for harmonious appearance in the room. Diffusers shall have a perforated face with 3/16" diameter holes on 1/4" staggered centers and no less than 51% free area. The back pan shall be one piece stamped heavy gauge steel of the sizes and mounting types shown on the plans and outlet schedule. The diffuser neck shall have 1-1/8" depth for easy duct connection.

The perforated face must be easily unlatchable from the back pan to facilitate removal of the face for pattern controller adjustment or to access an optional damper.

**#11 Model: PXP – Perforated Non-Ducted Return Grille**

Perforated panel, no backpan

Perforated ceiling panels for return applications shall be TITUS model PXP. Perforated face panels shall have 3/16" diameter holes on 1/2" staggered centers and no less than 51% free area. The return panels must match TITUS supply models in appearance and shall be provided in the sizes and mounting type shown on the plans.

**#12 Model: PMR – Perforated Ceiling Return Grille**

No deflectors – Square Neck – White or Black Interior – surface mount

Perforated ceiling return grille shall be TITUS model PMR. The return models shall have the same face and curved border construction as the PMC1C supply model for harmonious appearance in the room. Diffusers shall have a perforated face with 3/16" diameter holes on 1/4" staggered centers and no less than 51% free area. The back pan shall be one piece stamped heavy gauge steel of the sizes and mounting types shown on the plans and outlet schedule. The diffuser neck shall have 1-1/8" depth for easy duct connection.

The perforated face must be easily unlatchable from the back pan to facilitate removal of the face for pattern controller adjustment or to access an optional damper.

**#13 Model: TMS – Square Cone Ceiling Supply Diffuser**

Round Neck – type 3 for T-bar, use TRM frame for surface mount

Square ceiling diffusers shall be TITUS Model TMS of the sizes and mounting types shown on the plans and outlet schedule. The TMS models shall have three cones, which give a uniform face size and appearance when different neck sizes are used in the same area. All cones shall be one piece precision die-stamped; the back cone shall also include an integrally drawn inlet (welded-in inlets and corner joints are not acceptable). The two inner cones shall be constructed as a single, removable inner cone assembly for easy installation and cleaning. The inner cone assembly must have a hole with removable plug in the center to allow quick adjustment of an optional inlet damper without removing the inner cone assembly. Diffusers shall be constructed of 24 Ga. steel.

**#14 Model: 250 – Moveable Curved Blade Ceiling Diffuser**

Square Neck – type 1 for surface mount with screw holes and OBD

Ceiling diffusers shall be TITUS Model 250 (steel) of the sizes and mounting types shown on the plans and outlet schedule. Diffuser shall have curved deflectors, which are individually adjustable from the face of diffuser to regulate air volume and angle of discharge. Diffusers shall be built in 1, 2, 3, or 4-Way discharge patterns. The diffusers shall be constructed of 20 gauge steel.

**#15 Model: OMNI – Square Panel “Plaque” Ceiling Diffuser**

Round Neck – type 3 for T-bar, use TRM frame for surface mount

Architectural square panel ceiling diffusers shall be the TITUS Model OMNI diffuser of the sizes and mounting types shown on the plans and outlet schedule. The OMNI diffuser shall have an 18 gauge steel face panel, which shall be a one piece assembly, removable by means of four positive locking posts. The exposed surface of the face panel shall be smooth, flat, and free of visible fasteners. The face panel shall project 1/4" below the outside border of the diffuser back pan. Panels projecting more than 1/4" below the outside border are not acceptable. The back of the face panel 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" full face shall have no less than an 18" x 18" face panel size.

**#16 Model: MCD - Modular Core Ceiling Supply Diffuser**

Square Neck – White Finish – Type 3 for T-bar, Type 6 Bevel or type 1 for surface mount.

Ceiling diffusers shall be TITUS Model MCD steel modular core diffusers. The diffuser back pan shall be one piece stamped heavy gauge steel of the sizes and mounting types shown on the plans and outlet schedule. The diffuser neck shall have at least 1 in. depth for easy duct connection. The diffuser core shall consist of fixed louver directional modules, which can be easily repositioned without tools in the field for 1, 2, 3, or 4-way discharge. Each module shall be easily removable to adjust an optional damper in the neck of the diffuser. The 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. The diffuser neck shall have a minimum of 1-1/8" depth available for duct connection.

**#17 Model: TDC – Fixed Louver Face, Fixed Discharge Pattern, High Capacity**

Square Neck – type 3 for T-bar, type 6 bevel drop face for surface mount

Ceiling diffusers shall be TITUS Model TDC for fixed, horizontal discharge pattern. These diffusers shall consist of an outer frame assembly of the sizes and mounting types shown on the plans and outlet schedule. A square or rectangular inlet shall be an integral part of the frame assembly and a transition piece shall be available to facilitate attachment of round duct. An inner core assembly consisting of fixed deflection louvers shall be available in 1, 2, 3, or 4-way horizontal discharge patterns. The inner core assembly must be removable in the field without tools for easy installation, cleaning, or damper adjustment.

**#18 Model: TMR – Round Ceiling Supply Diffuser**

3 Cone – 2 Horizontal discharge positions – surface or duct end mount

Round ceiling diffuser shall be TITUS model TMR. The TMR model shall have three round cones and round neck inlets of the sizes and mounting types shown on the plans and outlet schedule. Two horizontal discharge settings shall allow the diffuser to be field adjusted for different flow rate conditions. The two inner cones must be easily removable as a unit using a spring lock mechanism. Round diffusers shall be constructed of 18 gauge steel.

**#19 Models: ML-39, 1" Slot, ML-38, 3/4" Slot, ML-37, 1/2" Slot – Aluminum Modulinear Supply Diffuser**

Modulinear diffusers shall be TITUS model ML (supply) with number of slots and slot as shown on the plans and diffuser schedule. Linear slot diffusers shall be available in standard one-piece lengths up to 6 ft. and 1 to 8 discharge slots. Diffuser lengths greater than 6 ft. shall be furnished in multiple sections and will be joined together end-to-end with alignment pins to form a continuous slot appearance.

All alignment components to be provided by the manufacturer. The return models shall be constructed the same as supply diffusers without the pattern controllers.

The frame and support bars shall be constructed of heavy gauge extruded aluminum. The pattern controller shall be an aerodynamically curved "ice-tong" shaped steel deflector capable of 180° pattern adjustment from the face of the diffuser and shall allow dampening if required. Maximum pattern controller length shall be 3 ft., for diffusers longer than 3 ft. pattern controllers shall be furnished in multiple sections.

Heavy gauge extruded aluminum end borders, end caps, and mitered corners shall be available to close off the ends of the diffusers. Plenums shall be manufactured by the same manufacturer of the linear slot diffusers. Optional diffuser curving to a 6 ft. minimum radius with fixed deflection shall be available as required.

**#20 Models: MPI-39, 1" Slot, MPI-38, 3/4" Slot, MPI-37, 1/2" Slot – Insulated Supply Plenums for ML Diffusers**

Modulinear diffuser plenums shall be TITUS Model MPI. Plenums must be designed specifically for field attachment of TITUS ML or MLR Modulinear diffusers with quantity of slots and slot width of linear diffusers as specified.

Plenums shall include a factory drawn side inlet (welded-in inlets are not acceptable) to fit 1, 2, 3, or 4 slot diffusers of the sizes and mounting types shown on the plans and outlet schedule. Standard lengths shall be 2, 3, 4, or 5 ft.

Plenums shall have internal insulation and optional field mounted inlet dampers shall be available for Models MPI. Plenums shall be provided by the manufacturer of the linear slot diffusers. Plenum material shall be galvanized steel.

The manufacturer shall provide performance data with the linear slot diffuser and plenum tested as one assembly. The linear slot diffuser and plenum assembly shall be tested in accordance with ANSI/ASHRAE Standard 70-1991.

**Finish and Performance Specifications for all Titus Grilles, Registers, Diffusers & Ceiling Frames**

The finish for all ceiling diffusers, linear diffusers, sidewall grilles and registers shall be #26 white. The finish shall be an anodic acrylic paint, baked at 315 degree F for 30 minutes. The pencil hardness must be HB to H. The paint

must pass a 100 hour ASTM D117 Corrosive Environments Salt Spray Test without creepage, blistering, or deterioration of film. The paint must pass a 250 hour ASTM-870 Water Immersion Test. The paint must also pass the ASTM D-2794 Reverse Impact Cracking Test with a 50 inch pound force applied.

The manufacturer shall provide published performance data for the specified diffuser, grille or register. The diffuser, grille or register shall be tested in accordance with ANSI/ASHRAE Standard 70-1991.