

**MODEL HCR**  
**High Capacity**  
**Radial Diffuser**  
**Installation**  
**Operation**  
**and Maintenance**

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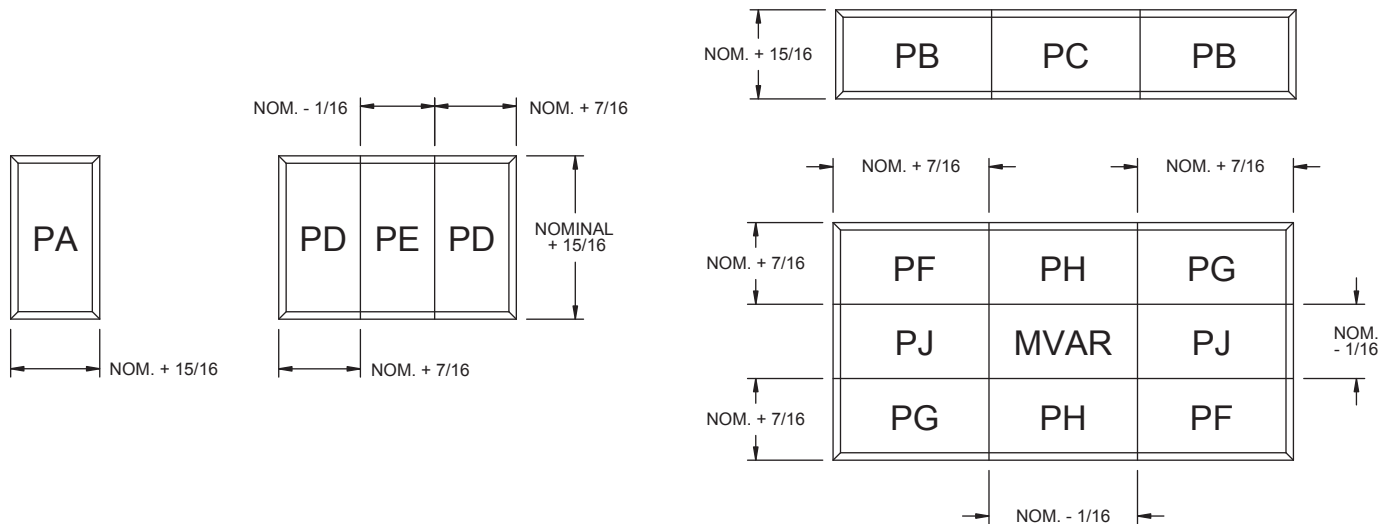
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## Batten Arrangements

HCR High Capacity Radial Diffusers are available for surface mounting in plaster / gypsum ceiling construction. The HCR design permits flexibility in panel arrangement to properly integrate the air distribution into the ceiling.

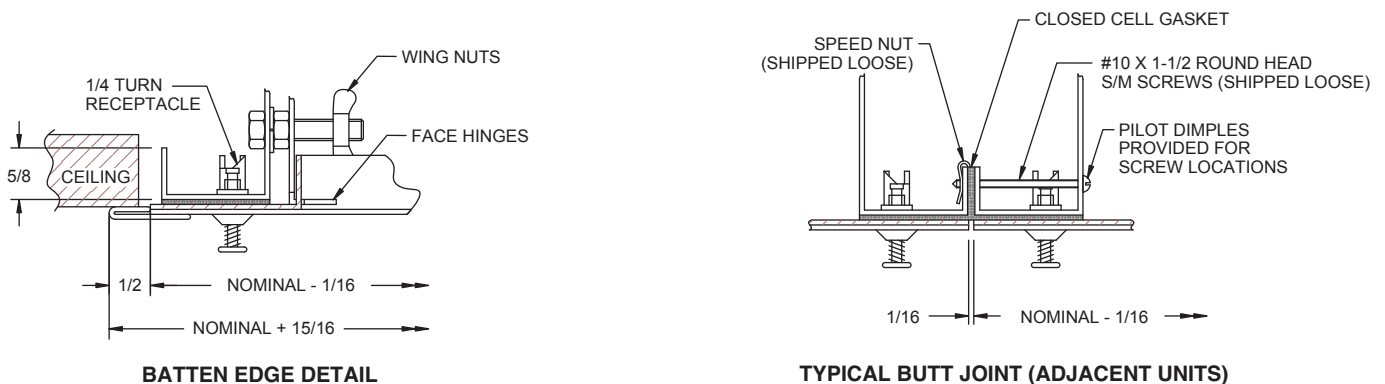
### CONSTRUCTION

The HCR Design for surface mounting incorporates BATTENS. Battens are trim strips welded to the outer edges of the removable face of Surface Mounted HCR Diffusers. Battens provide a finished appearance and mask the ceiling opening edge. HCR Diffusers are ordered from the factory with preconfigured batten arrangements, and therefore, have specific locations within the building. The nomenclature for various batten arrangements are as shown in the plan view below:



For example, Batten Arrangement PA consists of a singular panel, with battens on all four edges of the face, for stand-alone installation. Batten Arrangements PD in conjunction with PE, when installed within the ceiling, provide a neat installation, with perimeter trim battens around the entire built-up assembly.

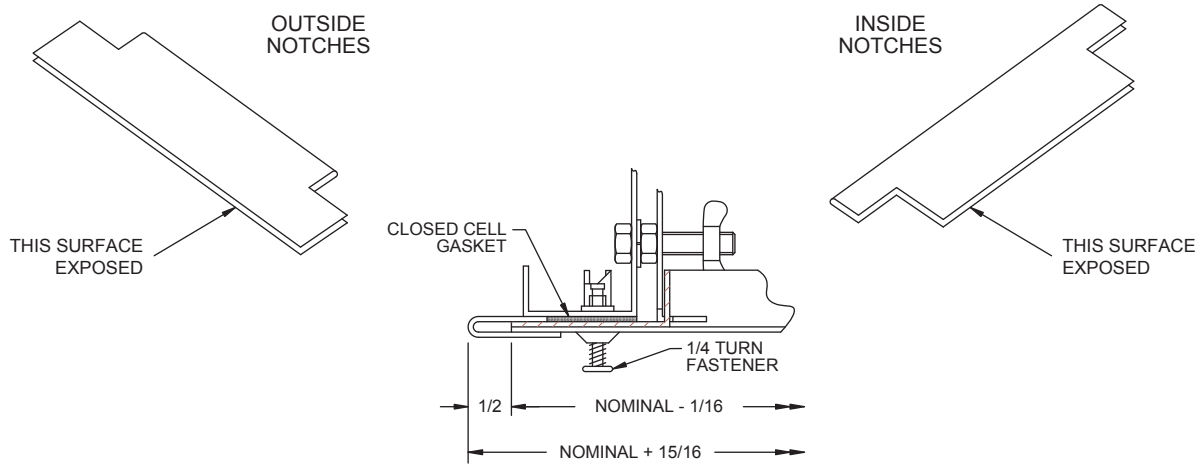
The details for both batten edges and adjacent panels are shown below:



The joint detail between two adjacent HCR Diffusers shows sheet metal screws and speed nuts used to fasten the units together. The sheet metal screws are installed from below, with the face plate lowered. Pilot dimples are provided in each HCR Diffusers for locating the sheet metal screws. Gasketing is applied at the factory for a leak tight joint.

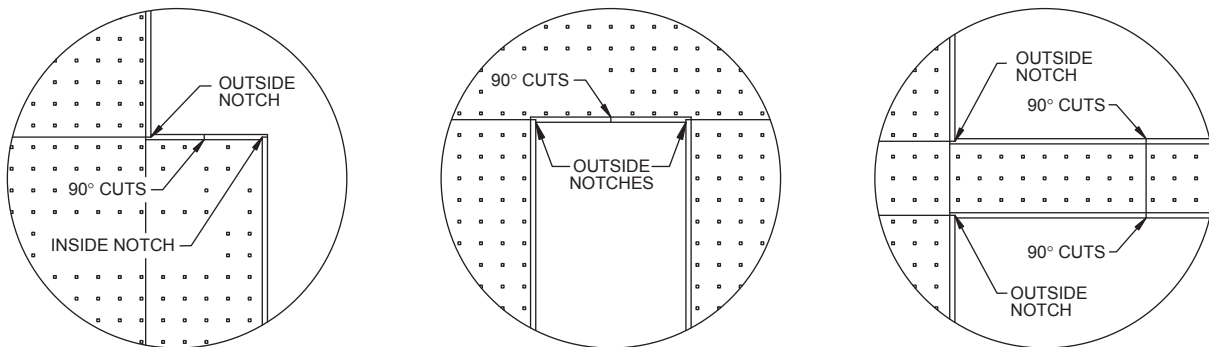
## Slip-On Battens

For ceiling arrangements with inside corners, slip-on battens should be used and require custom field cutting after the entire ceiling assembly is installed. This method provides the best appearance, while allowing for installed dimensional tolerance. The Slip-On Batten is shipped in lengths, requiring field cutting. Slip-on battens are provided with outside or inside notches as shown:



SLIP-ON BATTEN DETAIL

### TYPICAL ARRANGEMENT REQUIRING SLIP-ON BATTENS

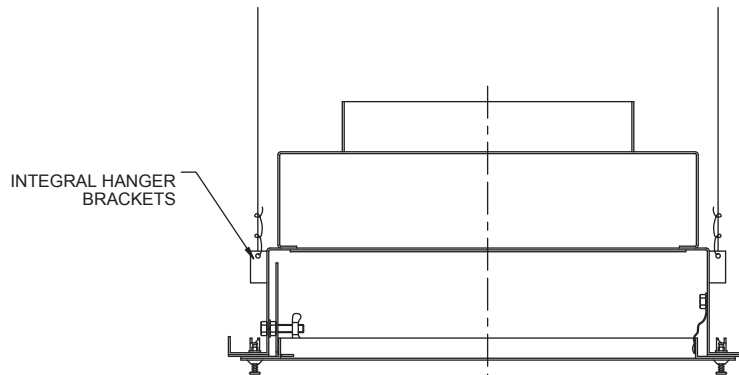


## Ceiling Opening

The ceiling opening size is the nominal size of the HCR High Capacity Radial Diffuser, or the sum of the nominal sizes for adjacent, butting units in a built-up assembly. For example, the ceiling opening for a single, 24" x 48" panel is 24" x 48". For (2) 24" x 48" panels arranged to form an overall assembly of 48" x 48", the ceiling opening required is 48" x 48".

## Installation

Each HCR Diffusers shall be individually supported by threaded rod, straps, or hanger wire. Hanger Wires are preferred, as both threaded rod and straps require field drilling of the frame body, and present obstacles which make routine cleaning more difficult. Methods and materials, gauge & size, # of supports, and spacing shall be in accordance with applicable codes and as specified in contract documents & drawings. Each HCR Diffuser comes with integral hanger brackets that can be used with the hanger wire method of support. These "bend out" hanger brackets are located at the four corners of the frame body:



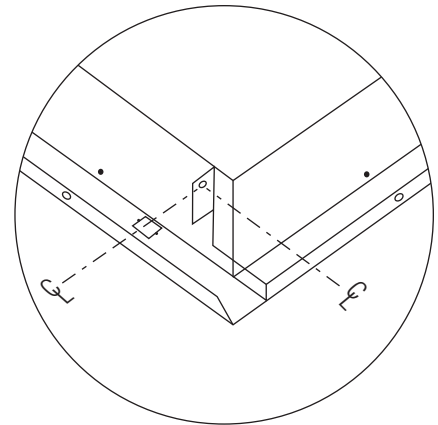
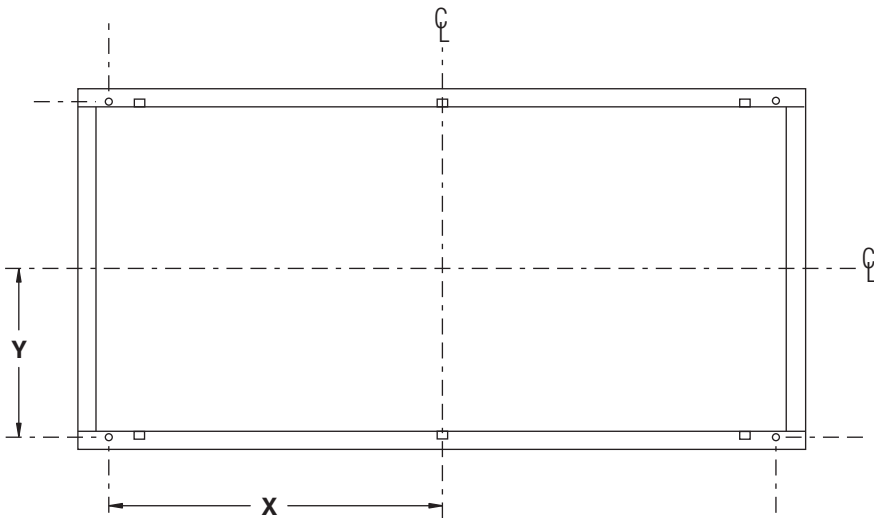
The sheet metal screws and speed nuts (shown in Butt Joint edge detail) are used to pull adjacent HCR Diffusers together, in the horizontal plane. and are not designed to carry vertical loads.

With the proper ceiling opening and support straps, wires, or rods located and attached to the structure above, installation is easiest by hanging individual HCR Diffusers, one at a time. Access above the ceiling will be required, either through a formal access door, or through some other opening. The panel face may be removed from the unit at the floor level, for easier handling and to access the inside of the frame body to screw attach adjacent units together. As each unit is suspended & leveled within the ceiling opening, duct attachment can conveniently be made with minimal "reach". Adjacent units are subsequently suspended, leveled, screw attached to other units, etc., until the assembly is completed. Sealant may be required between the HCR units and ceiling cut-out edge to prevent leakage between the ceiling plenum and space below.

## Hanger Bracket Hole Location

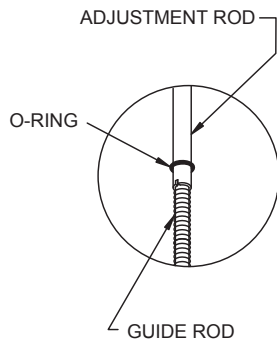
For the location of the integral hanger bracket holes on the HCR Diffusers, see the table and drawing below. The X & Y dimensions reference the distances from the center of the frame body (which is typically the center of the top supply air inlet collar) to the center of the hole on the hanger bracket, in the plan view.

HCR Size	X	Y
12 x 48	21-15/16	5-1/16
24 x 24	9-15/16	11-1/16
24 x 48	21-15/16	11-1/16

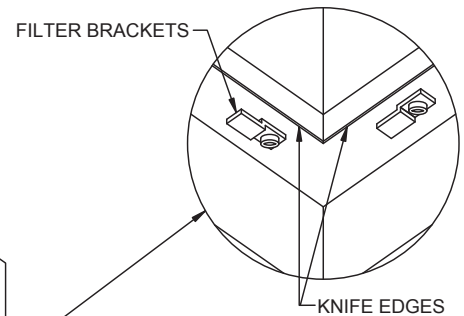


## Model HCRF - HEPA Filter Installation

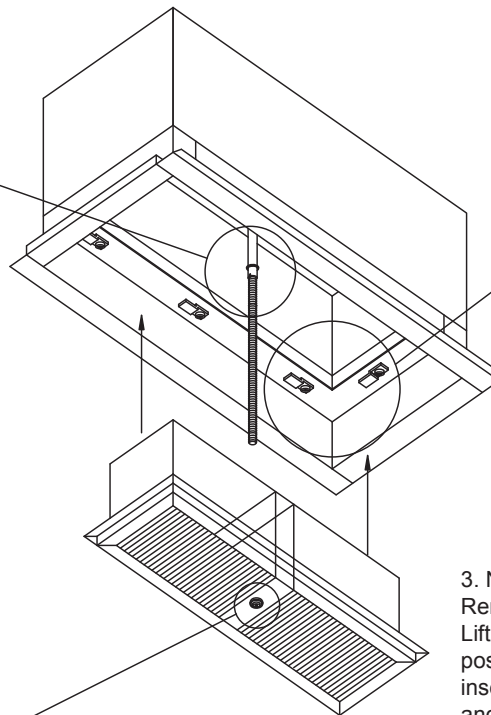
- Typical for units with top inlet.
- Units with end inlets do not utilize center rod.



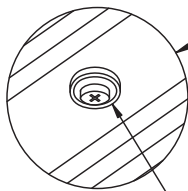
2. Thread #6-32 x 12" guide rod into adjustment rod. Don't fully tighten for ease of removal. When in place, guide rod will project about 10" below ceiling.



1. Loosen all socket head screws and rotate brackets as shown.

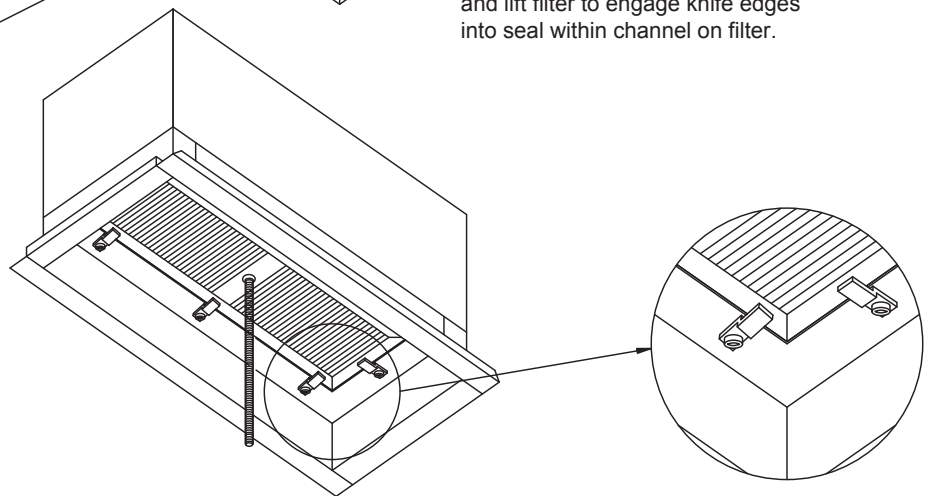


3. Note hole through filter. Remove expansion plug from filter. Lift filter below diffuser, then position #6-32 guide rod for insertion through hole in filter and lift filter to engage knife edges into seal within channel on filter.

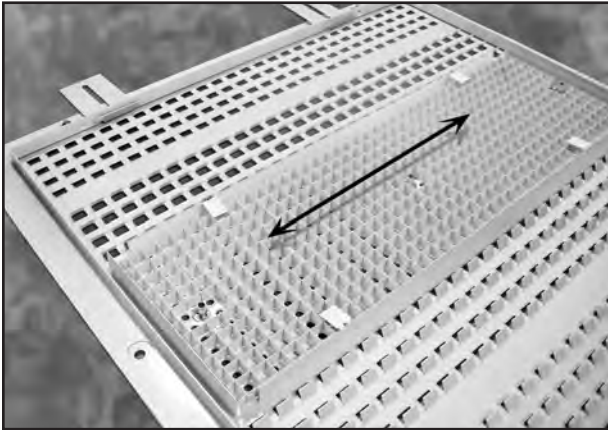


EXPANSION PLUG  
(DO NOT DISCARD)

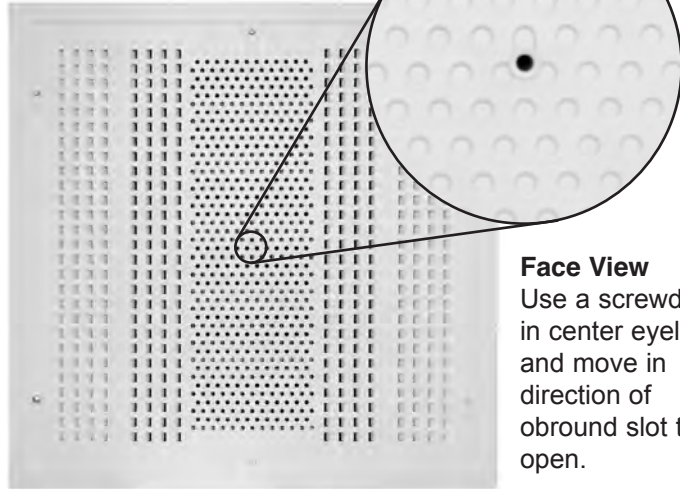
4. Rotate Brackets as shown on flange of filter. Tighten all socket head screws. Remove #6-32 x 12" rod and replace expansion plug.



## Pattern Adjustment



Slider plate moves 1/4" linearly to change open area for vertical pattern



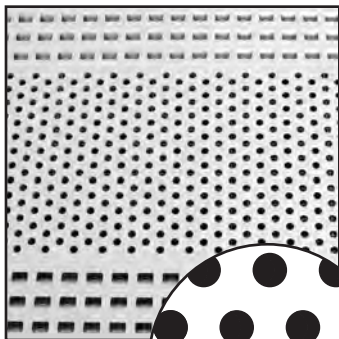
**Face View**  
Use a screwdriver in center eyelet and move in direction of obround slot to open.

### 100% VERTICAL EFFECTIVE AREA

*Typical Design Criteria*

Vertical Projection:	Maximum
Horizontal Throw :	Minimum
Air Flow Rates:	High
Differential Temps:	0 - 5° F

**RADIAL DIFFUSER**

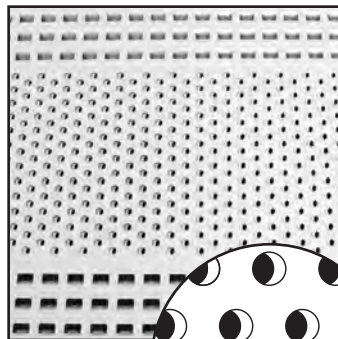


### 50 % VERTICAL EFFECTIVE AREA

*Typical Design Criteria*

Vertical Projection:	Moderate
Horizontal Throw :	Moderate
Air Flow Rates:	Moderate
Differential Temps:	10° - 15° F

**RADIAL DIFFUSER**

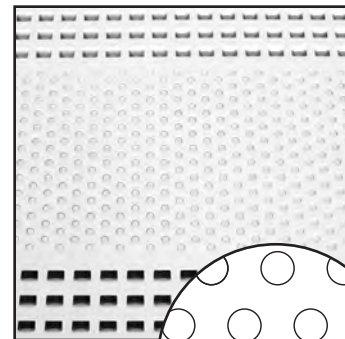


### 0 % VERTICAL EFFECTIVE AREA

*Typical Design Criteria*

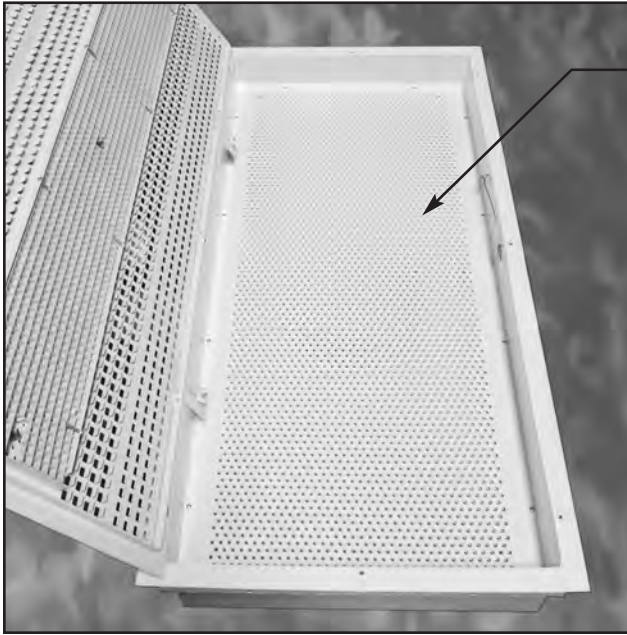
Vertical Projection:	Minimum
Horizontal Throw :	Maximum
Air Flow Rates:	Low
Differential Temps:	20° F

**RADIAL DIFFUSER**





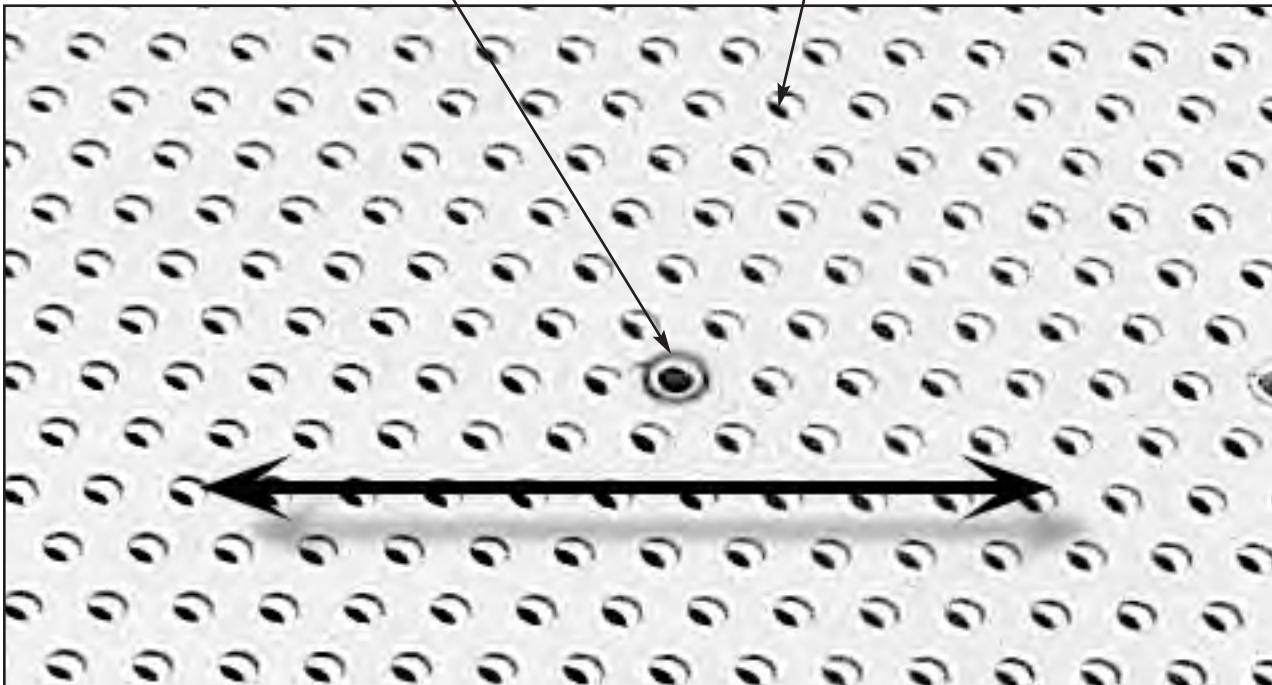
## Volume Adjustment (*Optional Feature*)



There are two plates where holes align or misalign for volume control

**Adjustment Option "A":**  
Back plate slides by inserting screw driver into this eyelet and moving plate in this obround slot.

**Adjustment Option "B":**  
Put screw driver in a partially open hole and twist to slide plate.



This photo shows about 50% open volume adjustment.