



**air master**

ISO 9001 CERTIFIED COMPANY



# CEILING DIFFUSERS



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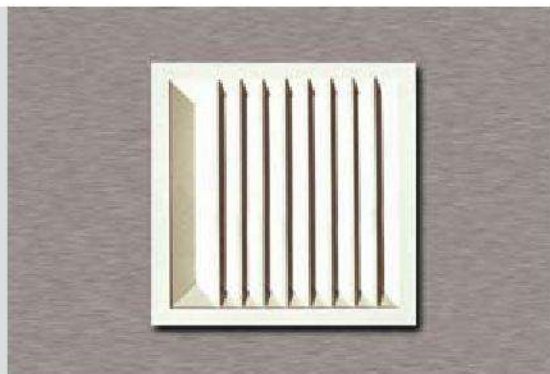
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## CONSTRUCTION:

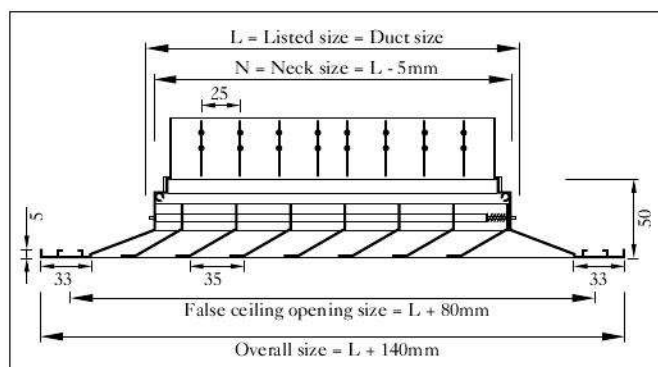
**Frame and core:** High quality extruded aluminium profile with 33 mm flange width.

**Damper frame and core:** High quality extruded aluminium profile with natural aluminium finish. Black matt finish as option.



## Description:

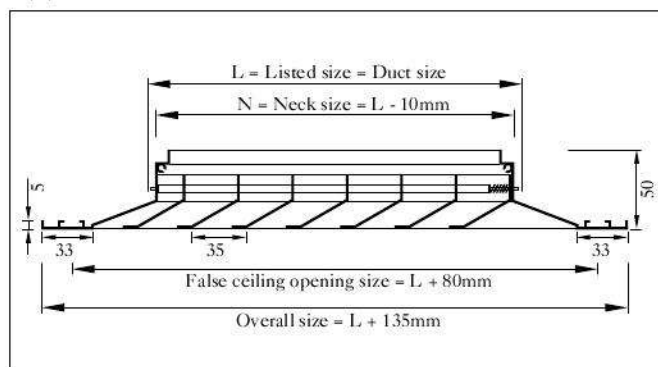
- The frame and blades are of high quality extruded aluminium profiled construction with the advantages of corrosion resistance and rigidity.
- Louvered type core is fixed to the frame with aluminium pins loaded with steel springs. Core can be easily removable and interchangeable to allow for maximum flexibility in installation, maintenance and damper adjustment.
- Damper is fixed rigidly to the frame by aluminium rivets. Fixing by spring clips as option.
- Damper blades are separated from its frame by nylon bushes.
- Opposed blade damper is screw operated from the face opening of the diffuser after removing the internal core. Lever operated damper as option.
- Discharges air horizontally in one way, either X or Y directions as per pattern arrangement.
- Foam gasket is sealed around the back of the frame as option to avoid air leakage.
- Available in rectangular sizes as option.
- Suitable for flush mounting in lay in type ceiling.



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### Model ACD1:

Same as ACD1+D, but without opposed blade damper and foam gasket. Suitable for return air applications.



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**SUPPLY AIR SQUARE  
CEILING DIFFUSER**

Two Way Throw

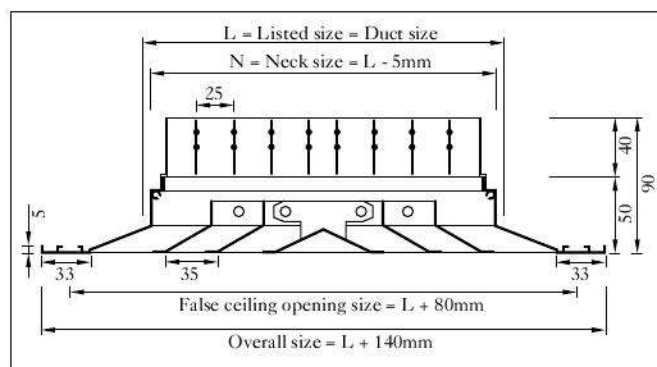
**CONSTRUCTION:**

**Frame and core:** High quality extruded aluminium profile with 33 mm flange width.

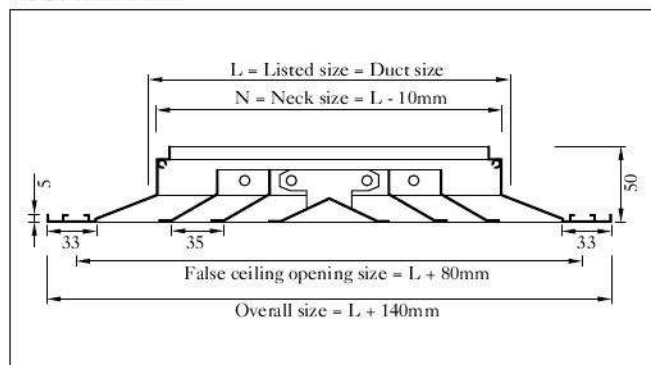
**Damper frame and core:** High quality extruded aluminium profile with natural aluminium finish. Black matt finish as option.

**Description:**

- The frame and blades are of high quality extruded aluminium profiled construction with the advantages of corrosion resistance and rigidity.
- Louvered type core is fixed to the frame with aluminium pins loaded with steel springs. Core can be easily removable and interchangeable to allow for maximum flexibility in installation, maintenance and damper adjustment.
- Damper is fixed rigidly to the frame by aluminium rivets. Fixing by spring clips as option.
- Damper blades are separated from its frame by nylon bushes.
- Opposed blade damper is screw operated from the face opening of the diffuser after removing the internal core. Lever operated damper as option.
- Discharges air in both the ways, either X or Y directions as per pattern arrangement.
- Foam gasket is sealed around the back of the frame as option to avoid air leakage.
- Available in rectangular sizes as option.
- Suitable for flush mounting in lay in type ceiling.

**Model ACD2:**

Same as ACD2+D, but without opposed blade damper and foam gasket. Suitable for return air applications.



## CONSTRUCTION:

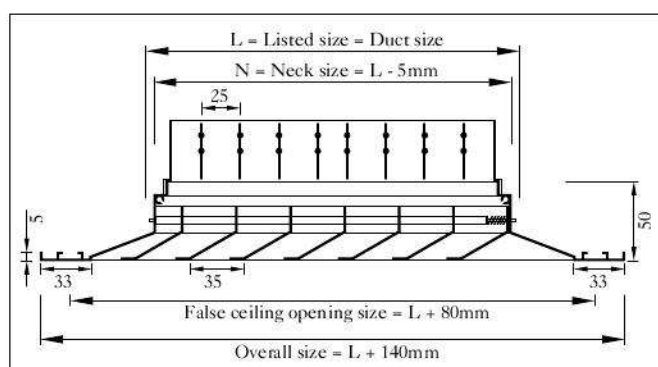
**Frame and core:** High quality extruded aluminium profile with 33 mm flange width.

**Damper frame and core:** High quality extruded aluminium profile with natural aluminium finish. Black matt finish as option.



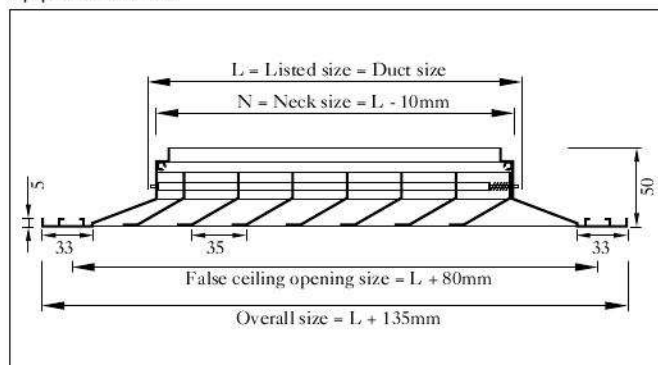
## Description:

- The frame and blades are of high quality extruded aluminium profiled construction with the advantages of corrosion resistance and rigidity.
- Louvered type core is fixed to the frame with aluminium pins loaded with steel springs. Core can be easily removable and interchangeable to allow for maximum flexibility in installation, maintenance and damper adjustment.
- Damper is fixed rigidly to the frame by aluminium rivets. Fixing by spring clips as option.
- Damper blades are separated from its frame by nylon bushes.
- Opposed blade damper is screw operated from the face opening of the diffuser after removing the internal core. Lever operated damper as option.
- Discharges air in one way, equally in X and Y direction.
- Foam gasket is sealed around the back of the frame as option to avoid air leakage.
- Available in rectangular sizes as option.
- Suitable for flush mounting in lay in type ceiling.



## Model ACD2C:

Same as ACD2C+D, but without opposed blade damper and foam gasket. Suitable for return air applications.



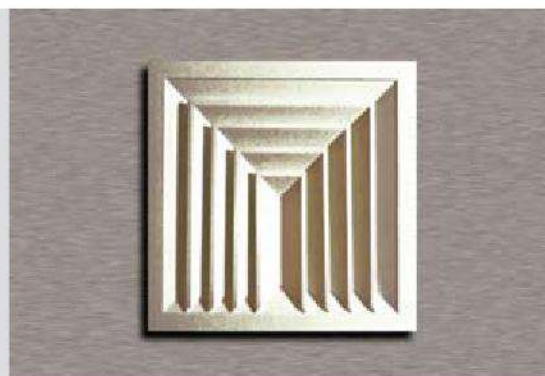
**SUPPLY AIR SQUARE  
CEILING DIFFUSER**

Three Way Throw

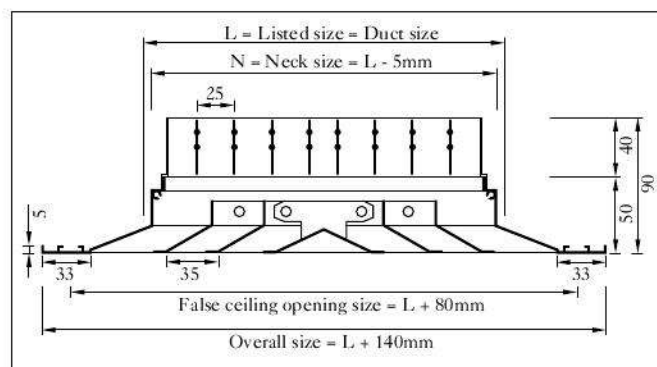
**CONSTRUCTION:**

**Frame and core:** High quality extruded aluminium profile with 33 mm flange width.

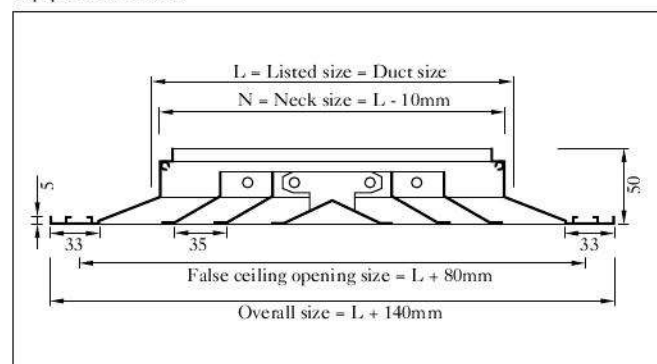
**Damper frame and core:** High quality extruded aluminium profile with natural aluminium finish. Black matt finish as option.

**Description:**

- The frame and blades are of high quality extruded aluminium profiled construction with the advantages of corrosion resistance and rigidity.
- Louvered type core is fixed to the frame with aluminium pins loaded with steel springs. Core can be easily removable and interchangeable to allow for maximum flexibility in installation, maintenance and damper adjustment.
- Damper is fixed rigidly to the frame by aluminium rivets. Fixing by spring clips as option.
- Damper blades are separated from its frame by nylon bushes.
- Opposed blade damper is screw operated from the face opening of the diffuser after removing the internal core. Lever operated damper as option.
- Frame with multicore assembly, discharges air horizontally in three directions.
- Foam gasket is sealed around the back of the frame as option to avoid air leakage.
- Available in rectangular sizes as option.
- Suitable for flush mounting in lay in type ceiling.

**Model ACD3:**

Same as ACD3+D, but without opposed blade damper and foam gasket. Suitable for return air applications.



## CONSTRUCTION:

**Frame and core:** High quality extruded aluminium profile with 33 mm flange width.

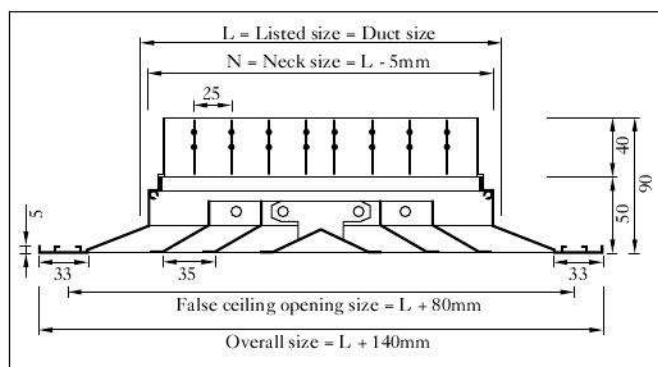
**Damper frame and core:** High quality extruded aluminium profile with natural aluminium finish. Black matt finish as option.

**Optional diffuser frame:** Stamped aluminium core.



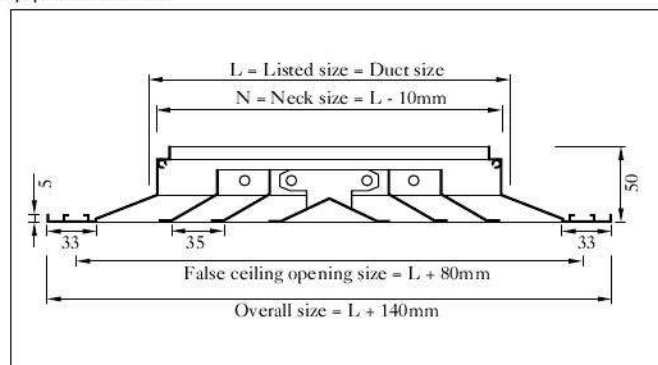
## Description:

- The frame and blades are of high quality extruded aluminium profiled construction with the advantages of corrosion resistance and rigidity.
- Diffusers shall be coned type with each cone manufactured by extruded aluminium louvered profiles or one piece die formed aluminium construction – arranged in concentric cones to deflect air equally in four directions.
- Louvered type core is fixed to the frame with aluminium pins loaded with steel springs. Core can be easily removable and interchangeable to allow for maximum flexibility in installation, maintenance and damper adjustment.
- Damper is fixed rigidly to the frame by aluminium rivets. Fixing by spring clips as option.
- Damper blades are separated from its frame by nylon bushes
- Opposed blade damper is screw operated from the face opening of the diffuser after removing the internal core. Lever operated damper as option.
- Discharge air equally in four horizontal directions.
- Foam gasket is sealed around the back of the frame as option to avoid air leakage.
- Available in rectangular sizes as option. Suitable for flush mounting in lay in type ceiling.



### Model ACD4:

Same as ACD4+D, but without opposed blade damper and foam gasket. Suitable for return air applications.



**ANTI-SMUDGE  
CEILING DIFFUSER****CONSTRUCTION:**

**Frame and core:** High quality die formed aluminium construction as standard. High quality extruded aluminium profiles as option.

**Damper frame and core:** High quality extruded aluminium profile with natural aluminium finish. Black matt finish as option.

**Description:**

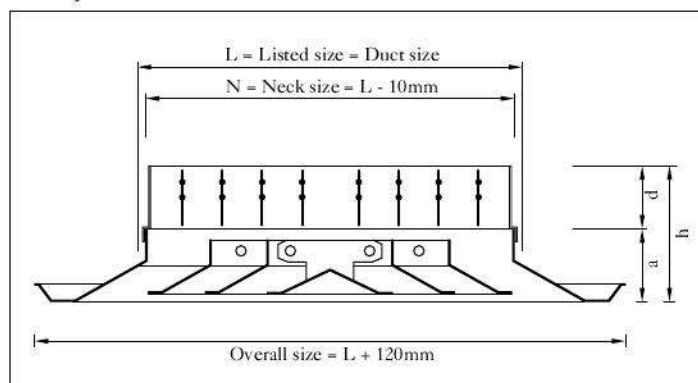
- Outer cone design minimizes smudging by reducing the dust accumulation on the ceiling around the diffuser.
- The frame and core are of high quality stamped aluminium construction as standard or high quality extruded aluminium profiles as option with the advantages of corrosion resistance and rigidity.
- Louvered type core is fixed to the frame with aluminium pins loaded with steel springs. Complete inner core assembly can be easily removed to allow for maximum flexibility in installation, maintenance and damper adjustment.
- Damper is fixed rigidly to the frame by aluminium rivets. Fixing by spring clips as option.
- Damper blades are separated from the frame by nylon bushes.
- Opposed blade damper is screw operated from the face opening of the diffuser after removing the inner core.
- Discharge air equally in four horizontal directions.
- Foam gasket is sealed around the back of the frame to avoid air leakage.

**Standard finishes:**

- Natural aluminium anodized finish.
- Powder coated colour finish as per RAL colour codes.
- Flexibility of finishing is available as option.

**Models ACD4(AS):**

- Same as ACD4+D(AS) but without damper and foam gasket.
- Also available in one way, two way and three way throws.



## CONSTRUCTION:

**Frame and core:** High quality extruded aluminium profile with 33 mm flange width.

**Damper frame and core:** High quality extruded aluminium profile with natural aluminium finish. Black matt finish as option.



## Description:

- The frame and blades are of high quality extruded aluminium profiled construction with the advantages of corrosion resistance and rigidity.
- Diffusers shall be coned type with each cone manufactured by extruded aluminium louvered profiles, arranged in concentric cones to deflect air equally in four directions.
- Damper is fixed rigidly to the frame by aluminium rivets. Fixing by spring clips as option.
- Damper blades are separated from its frame by nylon bushes.
- Foam gasket is sealed around the back of the frame as option to avoid air leakage.
- This product can be manufactured for one, two, three and four way throws.
- Diffusers are available in rectangular sizes as per clients choice.

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### Model ACD4R:

Construction same as ACD4R+D, without opposed blade damper and foam gasket.

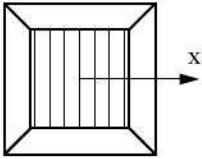
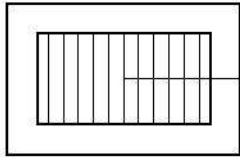
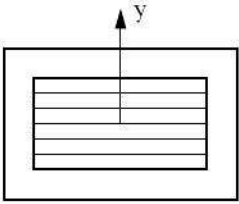
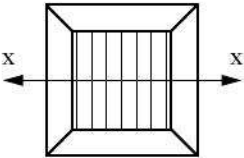
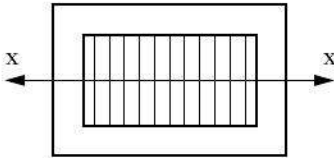
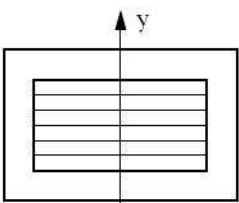
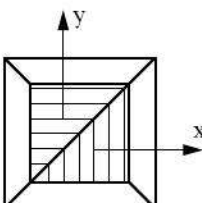
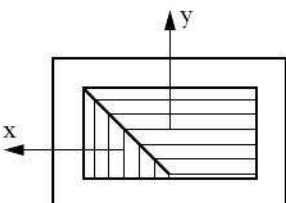
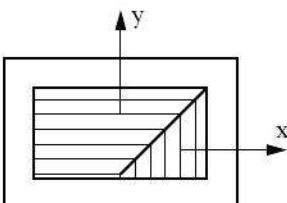
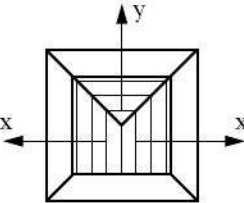
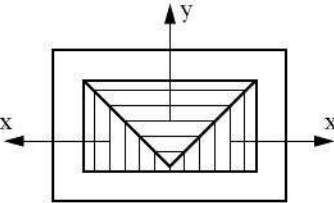
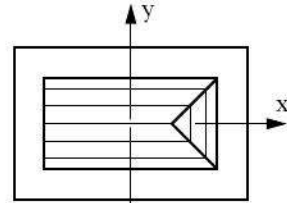
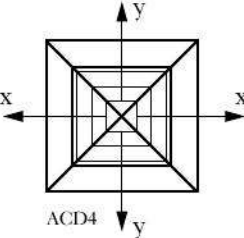
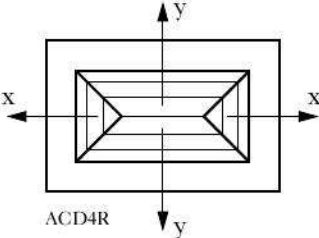
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# CORE PATTERN CEILING DIFFUSER



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## Core pattern:

| Air pattern    | Square   | Rectangular  |  |
|----------------|--|--|--|
| One way        |  <p>ACD1</p>    |  <p>ACD1R - X</p>               |  <p>ACD1R - Y</p>               |
| Two way        |  <p>ACD2</p>    |  <p>ACD2R - X</p>              |  <p>ACD2R - Y</p>               |
| Two way corner |  <p>ACD2C</p> |  <p>ACD2R - C<sub>1</sub></p> |  <p>ACD2R - C<sub>2</sub></p> |
| Three way      |  <p>ACD3</p>  |  <p>ACD3R - X</p>            |  <p>ACD3R - Y</p>             |
| Four way       |  <p>ACD4</p>  |  <p>ACD4R</p>               |  |

## CONSTRUCTION:

**Frame and core:** High quality die formed aluminium sheets with suitable flange as outer frame.

**Damper frame and blades:** High quality extruded aluminium profile with natural finish. Black matt finish as option.



## Description:

- The basic concept of having ACD module type is to replace a ceiling tile by diffuser of any neck size. Thus the alignment of tiles are not altered.
- The frame and blades are of high quality extruded aluminium profiled construction with the advantages of corrosion resistance and rigidity.
- Diffusers are coned type, each cone is manufactured as one piece die formed aluminium construction arranged in concentric pattern to deflect air in four directions.
- 3 way, 2 way, 1 way, cones are available as option and are manufactured of high quality extruded aluminium.
- Louvered type core is fixed to the outer frame, which has a constant outer size (600mm x 600mm) for different neck sizes, with steel springs core can be easily removable and interchangeable to allow for maximum flexibility in installation, maintenance and damper adjustment.
- Damper is fixed rigidly to the frame by aluminium rivets. Fixing by spring clips as option.
- Damper blades are separated from its frame by nylon bushes.
- Opposed blade damper is screw operated from the face opening of the diffuser after removing the internal core. Lever operated damper as option.

- Discharge air equally in four horizontal directions.
- Foam gasket is sealed around the back of the frame as option to avoid air leakage.

## Finishes:

- Natural aluminium anodized finish.
- Powder coated colour finish as per RAL colour codes.



**ACD** Module return diffusers are available without damper and foam gasket for return air applications.

| S.No | Neck Size (in mm) | Outer flange size (in mm) |
|------|-------------------|---------------------------|
| 1.   | 150 x 150         | 600 x 600                 |
| 2.   | 225 x 225         | 600 x 600                 |
| 3.   | 300 x 300         | 600 x 600                 |
| 4.   | 375 x 375         | 600 x 600                 |
| 5.   | 450 x 450         | 600 x 600                 |

| Models |       |
|--------|-------|
| ACDM-4 | 4 way |
| ACDM-3 | 3 way |
| ACDM-2 | 2 way |
| ACDM-1 | 1 way |

**COMBINED  
CEILING DIFFUSER****CONSTRUCTION:**

**Frame:** High quality extruded aluminium profile with 33 mm flange width.

**Core:** High quality extruded aluminium profile with natural aluminium finish.

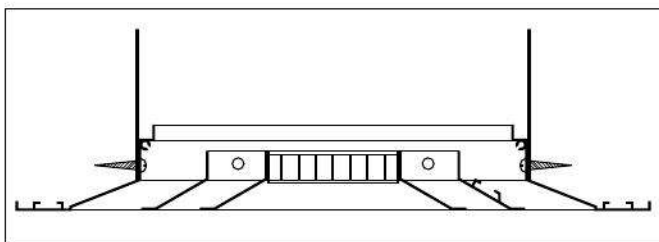
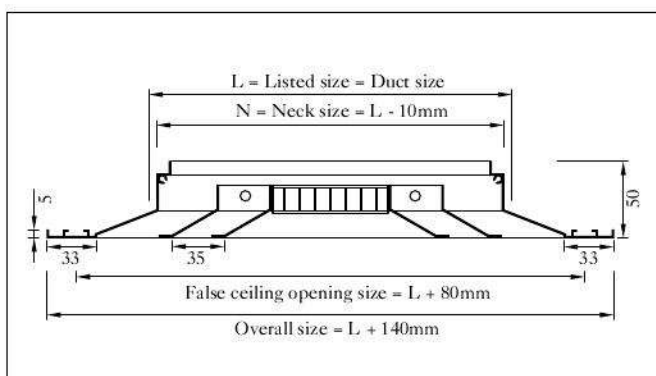
**Return air core:** 12.5 mm x 12.5 mm x 12.5 mm aluminium egg crate grid.

**Description:**

- Frame and core is of high quality extruded aluminium profiled construction with the advantages of corrosion resistance and rigidity.
- Return air grid is located centrally in the diffuser.
- Supply air inner cores are mounted to the frame by 4 machine screws and two steel springs.
- Return air egg crate grid is rigidly fixed to inner core by rivets.
- Core and return air grid can be easily removed as a single piece to allow for maximum flexibility in installation and maintenance.
- Foam gasket is sealed around the back of the frame as option to avoid air leakage.
- Available in square size as standard. Rectangular sizes as option.

**Standard finishes:**

- Natural anodized aluminium finish.
- Powder coated colour finish as per RAL colour codes.
- Flexibility of finish is available as option.

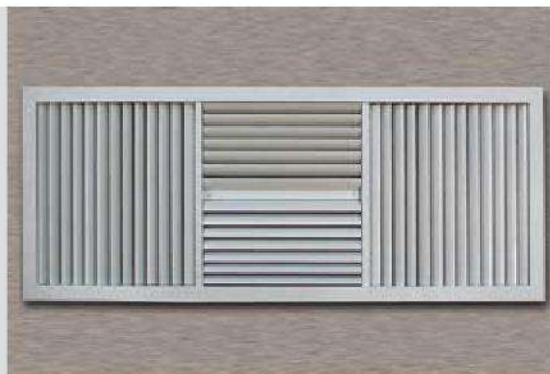
**Fixing details:**

Concealed screw fixing from neck of the diffuser to the duct.

## CONSTRUCTION:

**Frame:** High quality extruded aluminium profile with 30mm flange width.

**Blades:** Aerofoil blades from aluminium profiles.

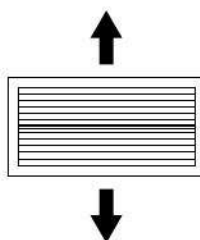
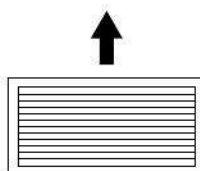
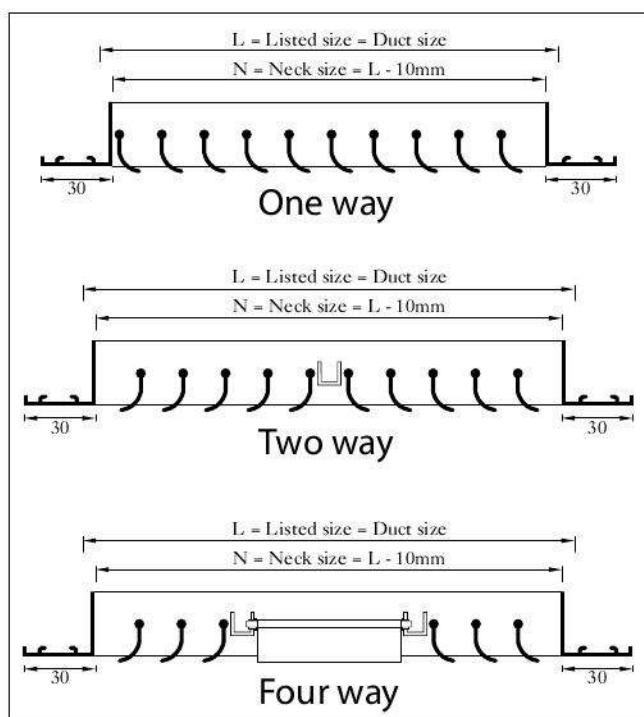


## Description:

- The frame and blades are of high quality extruded aluminium profiled construction with the advantages of corrosion resistance and rigidity.
- Frame is separated from aerofoil blades by nylon bushings. This ensures quiet, smooth and rattle free operation.
- Frame gasket is sealed around the back of the frame as option to avoid air leakage.

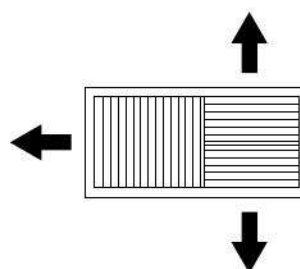
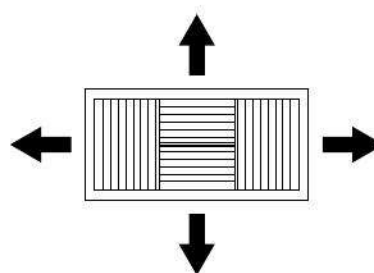
## Standard finishes:

- Powder coated as per RAL colour codes.
- Flexibility of finishing is available as option.



**CURVED BLADE**  
**CEILING DIFFUSER**

Adjustable Pattern

**Three way****Four way****Standard sizes:**

|        |      | Height |     |     |     |     |     |
|--------|------|--------|-----|-----|-----|-----|-----|
|        |      | 100    | 200 | 300 | 400 | 500 | 600 |
| Length | 200  | x      | x   |     |     |     |     |
|        | 300  | x      | x   | x   |     |     |     |
|        | 400  |        | x   | x   | x   |     |     |
|        | 500  |        | x   | x   | x   | x   |     |
|        | 600  |        | x   | x   | x   | x   | x   |
|        | 800  |        | x   | x   | x   | x   | x   |
|        | 1000 |        |     | x   | x   | x   | x   |
|        | 1200 |        |     | x   | x   | x   | x   |

Other sizes available on request.

## CONSTRUCTION:

**Diffuser:** 1.2mm (or) 1.5mm thick aluminium sheet.

**Diffuser Blades:** Easily rotatable plastic blades

**Neck:** Standard size 250 dia.

**Module:** 600mmx600mm, 595mmx595mm.

**Plenum:** 20 gauge (or) 22 gauge thick GI sheet.

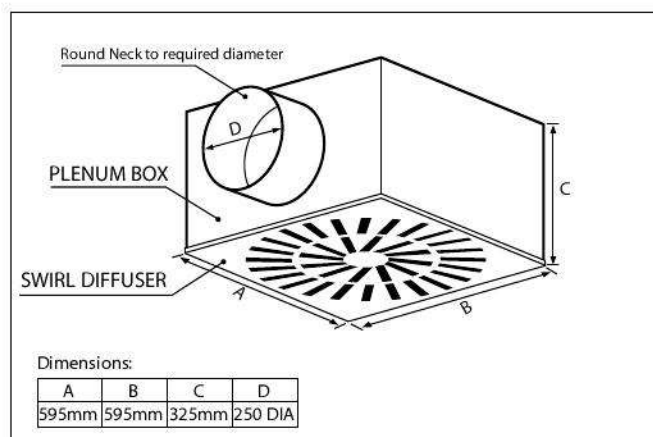


## Description:

- Diffuser is made by punching high quality aluminium sheet and fixed with easily rotatable plastic blades.
- The slotted circular face design with easily adjustable plastic blades provides both horizontal and vertical projection of air discharge all over the occupant area.
- Supply air jet velocity is effectively reduced due to high mixing effect.
- Ability to create either an external or internal swirl.
- Diffuser can be fixed up to a height of 4.5m.

## Standard finishes:

- Powder coated as per RAL colour codes.



## Plenum Neck size 250dia, Module size 600x600mm

| Air flow in CFM                  | 186     | 234     | 280     | 327     | 374     | 419     | 464     | 511     | 566     |
|----------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Air flow in m <sup>3</sup> /sec  | 0.088   | 0.111   | 0.132   | 0.154   | 0.176   | 0.197   | 0.219   | 0.241   | 0.267   |
| Face velocity in m/sec           | 2.0     | 2.5     | 3.0     | 3.5     | 4.0     | 4.5     | 5.0     | 5.5     | 6.0     |
| P loss in mm of H <sub>2</sub> O | 0.410   | 0.640   | 0.922   | 1.26    | 1.64    | 2.05    | 2.46    | 2.96    | 3.57    |
| Throw in meters                  | 1.3-2.0 | 1.8-2.6 | 2.1-3.2 | 2.4-3.6 | 2.6-4.3 | 3.1-4.7 | 3.6-5.4 | 4.2-6.2 | 5.0-6.8 |
| NC                               | <15     | 18      | 23      | 28      | 31      | 35      | 39      | 43      | 50      |

- Neck velocity is measured in m/sec.
- P<sub>s</sub>: Static pressure loss across the diffuser in mm of H<sub>2</sub>O.
- Throw (meters) is measured for terminal velocities of 0.75, 0.5 & 0.25 m/sec.
- Noise criteria (NC) based on a room attenuation of 10 dB.

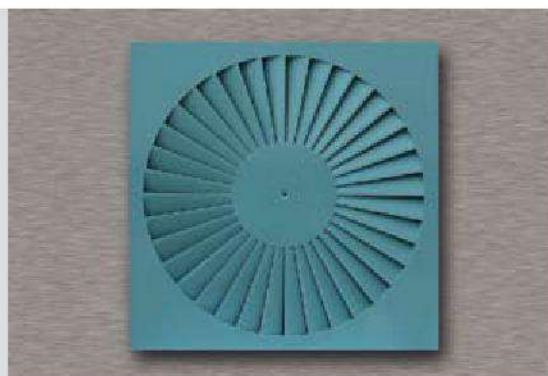
**FIXED SWIRL  
CEILING DIFFUSER****CONSTRUCTION:**

**Diffuser:** 1.2mm (or) 1.5mm thick aluminium sheet.

**Neck:** Standard size 250 dia.

**Module:** 600mmx600mm, 595mmx595mm.

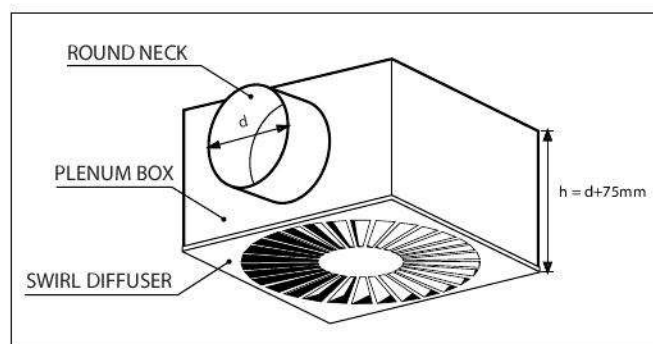
**Plenum:** 20 gauge (or) 22 gauge thick GI sheet.

**Description:**

- Diffuser is made by punching high quality aluminium sheet.
- The slotted rotary face design and the circular pattern of the radial fixed vanes provide the swirl air horizontal distribution all over the occupant area.
- Supply air jet velocity is effectively reduced due to high mixing effect.
- The diffuser can be fixed upto a height of 4.5m.

**Standard finishes:**

- Powder coated as per RAL colour codes.

**Plenum Neck size 250dia, Module size 600x600mm**

| Air flow in CFM                  | 212     | 265     | 318     | 371     | 424     | 477     | 530     | 583     | 636     |
|----------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Air flow in m <sup>3</sup> /sec  | 0.100   | 0.125   | 0.150   | 0.175   | 0.200   | 0.225   | 0.250   | 0.275   | 0.300   |
| Face velocity in m/sec           | 2       | 2.5     | 3       | 3.5     | 4       | 4.5     | 5       | 5.5     | 6       |
| P loss in mm of H <sub>2</sub> O | 0.315   | 0.563   | 0.811   | 1.103   | 1.441   | 1.808   | 2.175   | 2.675   | 3.475   |
| Throw in meters                  | 0.9-1.6 | 1.3-2.0 | 1.6-2.5 | 2.0-2.9 | 2.3-3.4 | 2.6-3.9 | 3.1-4.4 | 3.7-5.0 | 4.0-5.7 |
| NC                               | 16      | 20      | 26      | 30      | 34      | 39      | 45      | 50      | >50     |

- Neck velocity is measured in m/sec.
- $P_s$ : Static pressure loss across the diffuser in mm of H<sub>2</sub>O.
- Throw (meters) is measured for terminal velocities of 0.75, 0.5 & 0.25 m/sec.
- Noise criteria (NC) based on a room attenuation of 10 dB.

### Standard finishes:

- Natural aluminium anodized finish.
- Powder coated colour finish as per RAL colour codes.
- Flexibility of finishing is available as option.

### Standard sizes:

- Available in square and rectangular sizes
- Any combination of W x D.

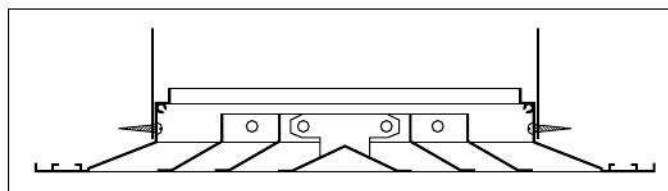
| W = width in mm | 150 | 225 | 300 | 375 | 450 | 525 | 600 |
|-----------------|-----|-----|-----|-----|-----|-----|-----|
| D = Depth in mm | 150 | 225 | 300 | 375 | 450 | 525 | 600 |

### False ceiling sizes:

| Duct size in mm x mm       | 150 x 150 | 225 x 225 | 300 x 300 | 375 x 375 | 450 x 450 | 525 x 525 | 600 x 600 |
|----------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| False ceiling opening size | 230 x 230 | 305 x 305 | 380 x 380 | 455 x 455 | 530 x 530 | 605 x 605 | 605 x 605 |

### Fixing details:

- Concealed screw fixing from neck of the diffuser to the duct, after removing the inner core.



### Product summary:

| Model Number | Product Description                | Remarks   |
|--------------|------------------------------------|---|
| ACD1+D       | Supply Air Diffuser – 1 way        | <ul style="list-style-type: none"> <li>• With damper</li> <li>• Optional accessories</li> <li>• Filter</li> <li>• Equalizing grid</li> <li>• Plenum (chapter 15)</li> </ul> |
| ACD2+D       | Supply Air Diffuser – 2 way        |   |
| ACD2C+D      | Supply Air Diffuser – 2 way corner |   |
| ACD3+D       | Supply Air Diffuser – 3 way        |   |
| ACD4+D       | Supply Air Diffuser – 4 way        |   |
| ACD4+D(AS)   | Supply Air Diffuser – Anti smudge  |   |
| ACD4R+D      | Supply Air Diffuser – rectangular  |   |
| ACD1         | Return Air Diffuser – 1 way        | <ul style="list-style-type: none"> <li>• Without damper</li> <li>• Without foam gasket</li> <li>• Optional accessories</li> <li>• Filter</li> </ul>                         |
| ACD2         | Return Air Diffuser – 2 way        |   |
| ACD2C        | Return Air Diffuser – 2 way corner |   |
| ACD3         | Return Air Diffuser – 3 way        |   |
| ACD4         | Return Air Diffuser – 4 way        |   |
| ACD4(AS)     | Return Air Diffuser – Anti smudge  |   |
| ACD4R        | Return Air Diffuser – rectangular  |   |
| ACCD         | Combined Ceiling Diffuser          |   |
| ACDM         | Ceiling Tile Replacement Diffuser  |   |
| ACBD         | Curved Blade Adjustable Diffuser   |   |
| ASD-A        | Swirl Diffuser – Adjustable        |   |
| ASD-F        | Swirl Diffuser – Fixed             |   |

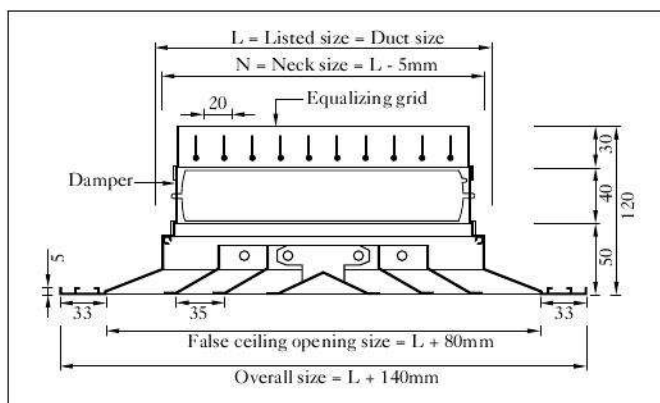
### Product order checklist:

- Model number (please refer product summary).
- Size.
- Colour (RAL 9010, 9016, Anodized aluminium finish or other RAL Colours)
- Quantity.
- Optional accessories.

## DIFFUSER ACCESSORIES

**1. EQUALIZING GRID:**

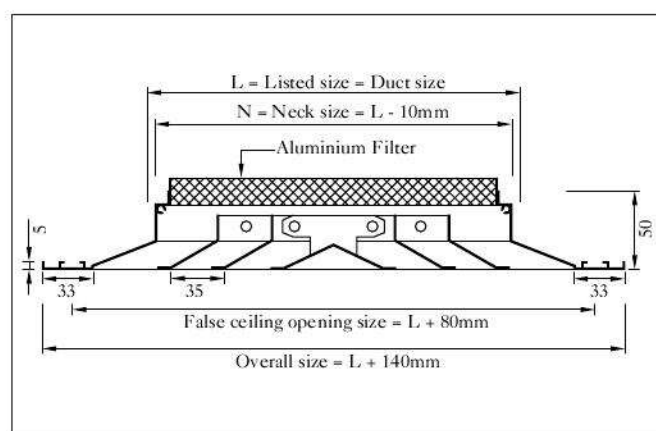
- Equalizing grid is fixed to the damper by rivets.
- Equalizing grid is manufactured from high quality aluminium profiles with aerofoil blades connected by plastic bushes. Finish will be same as damper.



- This assembly will provide uniform air distribution over the neck of the diffuser, which ensures reduction in pressure drop, noise and turbulence.
- To order, mention model from Product summary + E.

**2. FILTERS:**

- Ceiling diffusers available with removable type washable aluminium filters with aluminium mesh as the filter media.
- Fabricated from 1 mm thick aluminium sheet with aluminium mesh as the filter media.
- Filter frame is screw fixed to the diffuser.
- Generally available in 12, 25, 40 and 50 mm thickness as standard.
- Structure will have high dust holding capacity and low resistance to air flow.
- Other insulating materials available as option.
- To order, mention model from product summary + F.



**Table 6.1 Air flow data**

| Neck size in<br>mm x mm<br>Area factor<br>In m <sup>2</sup> | Neck vel in<br>m/sec                  | 1.0          | 1.5          | 2.0          | 2.5          | 3.0          | 3.5           |
|---|---------------------------------------|--------------|--------------|--------------|--------------|--------------|---------------|
| <b>150 x 150</b>  | Cfm                                   | 47           | 72           | 95           | 119          | 144          | 167           |
|   | M <sup>3</sup> /sec.                  | 0.023        | 0.034        | 0.045        | 0.056        | 0.068        | 0.079         |
|   | P <sub>s</sub> in mm H <sub>2</sub> O | 0.69         | 1.05         | 2.11         | 3.54         | 4.98         | 6.44          |
|   | Throw in m                            | 1.3-2-2.7    | 2-2.8-3.6    | 2.8-3.7-4.4  | 3.3-4.2-4.9  | 4-4.7-5.9    | 4.4-5.5-6.2   |
|   | NC                                    | <15          | 16           | 21           | 27           | 34           | 39            |
| <b>225 x 225</b>  | Cfm                                   | 108          | 161          | 214          | 269          | 322          | 375           |
|   | M <sup>3</sup> /sec.                  | 0.051        | 0.076        | 0.101        | 0.127        | 0.152        | 0.177         |
|   | P <sub>s</sub> in mm H <sub>2</sub> O | 0.69         | 1.37         | 2.8          | 4.26         | 6.05         | 8.23          |
|   | Throw in m                            | 1.3-2-2.7    | 2.0-2.8-3.9  | 2.9-3.7-5.2  | 3.8-5.3-6.8  | 5.1-7-9.3    | 7-8.6-11.6    |
|   | NC                                    | <15          | 17           | 24           | 30           | 36           | 41            |
| <b>300 x 300</b>  | Cfm                                   | 191          | 286          | 381          | 476          | 572          | 667           |
|   | M <sup>3</sup> /sec.                  | 0.09         | 0.135        | 0.18         | 0.225        | 0.27         | 0.31          |
|   | P <sub>s</sub> in mm H <sub>2</sub> O | 0.69         | 1.75         | 3.17         | 5.31         | 7.46         | 10.4          |
|   | Throw in m                            | 2.4-3.5-5.5  | 3.6-5.0-7.1  | 4.8-5.9-8.8  | 5.7-7.2-9.8  | 6.3-7.4-11   | 7-8.6-12.5    |
|   | NC                                    | <15          | 17           | 26           | 33           | 38           | 43            |
| <b>375 x 375</b>  | Cfm                                   | 299          | 447          | 595          | 745          | 893          | 1042          |
|   | M <sup>3</sup> /sec.                  | 0.141        | 0.211        | 0.281        | 0.352        | 0.422        | 0.492         |
|   | P <sub>s</sub> in mm H <sub>2</sub> O | 1.03         | 2.09         | 3.52         | 5.66         | 8.18         | 11.46         |
|   | Throw in m                            | 2.7-4.1-6.2  | 4.6-6.4-8.8  | 6.2-7.3-10.6 | 7.2-8.7-12.5 | 7.8-9-7-14.5 | 8.6-10.5-15.6 |
|   | NC                                    | <15          | 18           | 28           | 35           | 40           | 44            |
| <b>450 x 450</b>  | Cfm                                   | 430          | 644          | 858          | 1071         | 1287         | 1501          |
|   | M <sup>3</sup> /sec.                  | 0.203        | 0.304        | 0.405        | 0.506        | 0.608        | 0.709         |
|   | P <sub>s</sub> in mm H <sub>2</sub> O | 1.03         | 2.09         | 3.86         | 6.38         | 9.24         | 11.46         |
|   | Throw in m                            | 3.5-5.2-8.5  | 5.3-7.4-10.6 | 7.9-9.1-12.8 | 8.3-10.5-15  | 9.7-11.8-17  | 10.5-13-18    |
|   | NC                                    | <15          | 20           | 30           | 36           | 41           | 44            |
| <b>525 x 525</b>  | Cfm                                   | 585          | 875          | 1165         | 1461         | 1757         | 2033          |
|   | M <sup>3</sup> /sec.                  | 0.276        | 0.413        | 0.55         | 0.69         | 0.83         | 0.96          |
|   | P <sub>s</sub> in mm H <sub>2</sub> O | 1.03         | 2.45         | 4.22         | 6.74         | 9.6          | 11.83         |
|   | Throw in m                            | 4.1-5.8-9.5  | 6-8.8-12.6   | 8.4-10.2-15  | 9.8-12-17.4  | 10.9-14-20   | 12-14.8-21.5  |
|   | NC                                    | 15           | 23           | 32           | 37           | 42           | 45            |
| <b>600 x 600</b>  | Cfm                                   | 762          | 1143         | 1524         | 1906         | 2287         | 2668          |
|   | M <sup>3</sup> /sec.                  | 0.36         | 0.54         | 0.72         | 0.9          | 1.08         | 1.26          |
|   | P <sub>s</sub> in mm H <sub>2</sub> O | 1.03         | 2.45         | 4.22         | 6.74         | 9.6          | 11.83         |
|   | Throw in m                            | 4.5-6.5-11.6 | 6.7-9.1-14   | 9.1-12-17.1  | 10.5-14-20   | 12-16-23     | 12.8-17.2-24  |
|   | NC                                    | 16           | 26           | 33           | 38           | 42           | 45            |

- Neck velocity is measured in m/sec.
- P<sub>s</sub>: Static pressure loss across the diffuser in mm of H<sub>2</sub>O.
- Throw (meters) is measured for a terminal velocities of 0.75, 0.5 & 0.25 m/sec.
- Noise criteria (NC) based on a room attenuation of 10 dB.

**SUPPLY AIR SQUARE  
CEILING DIFFUSER**

Two Way Throw

**air master**  
ISO 9001 CERTIFIED COMPANY**Table 6.2 Air flow data**

| Neck size in<br>mm x mm<br>Area factor<br>In m <sup>2</sup> | Neck vel in<br>m/sec                  | 1.0         | 1.5         | 2.0          | 2.5          | 3.0          | 3.5          |
|---|---------------------------------------|-------------|-------------|--------------|--------------|--------------|--------------|
| <b>150 x 150</b>  | Cfm                                   | 47          | 72          | 95           | 119          | 144          | 167          |
|   | M <sup>3</sup> /sec.                  | 0.023       | 0.034       | 0.045        | 0.056        | 0.068        | 0.079        |
|   | P <sub>s</sub> in mm H <sub>2</sub> O | 0.64        | 0.87        | 2.02         | 3.41         | 4.83         | 6.1          |
|   | Throw in m                            | 1.3-2-2.7   | 2-2.8-3.6   | 2.8-3.7-4.4  | 3.2-4-4.8    | 3.8-4.5-5.6  | 4.1-5.2-6    |
|   | NC                                    | <15         | 16          | 21           | 27           | 34           | 39           |
| <b>225 x 225</b>  | Cfm                                   | 108         | 161         | 214          | 269          | 322          | 375          |
|   | M <sup>3</sup> /sec.                  | 0.051       | 0.076       | 0.101        | 0.127        | 0.152        | 0.177        |
|   | P <sub>s</sub> in mm H <sub>2</sub> O | 0.64        | 1.29        | 2.7          | 4.1          | 5.86         | 7.77         |
|   | Throw in m                            | 1.3-2-2.7   | 2-2.8-3.9   | 2.8-3.7-5.1  | 3.7-5.2-6.6  | 4.8-6.7-9    | 6.7-8.2-11   |
|   | NC                                    | <15         | 17          | 24           | 30           | 36           | 41           |
| <b>300 x 300</b>  | Cfm                                   | 191         | 286         | 381          | 476          | 572          | 667          |
|   | M <sup>3</sup> /sec.                  | 0.09        | 0.135       | 0.18         | 0.225        | 0.27         | 0.315        |
|   | P <sub>s</sub> in mm H <sub>2</sub> O | 0.64        | 1.64        | 3.05         | 5.1          | 7.23         | 9.81         |
|   | Throw in m                            | 2.4-3.5-5.5 | 3.6-4.9-7   | 4.7-5.8-8.6  | 5.5-6.9-9.5  | 5.9-7.1-11   | 6.7-8.4-12   |
|   | NC                                    | <15         | 17          | 26           | 33           | 38           | 43           |
| <b>375 x 375</b>  | Cfm                                   | 299         | 447         | 595          | 745          | 893          | 1042         |
|   | M <sup>3</sup> /sec.                  | 0.141       | 0.211       | 0.281        | 0.352        | 0.422        | 0.492        |
|   | P <sub>s</sub> in mm H <sub>2</sub> O | 0.96        | 1.96        | 3.71         | 5.5          | 7.92         | 10.81        |
|   | Throw in m                            | 2.7-4.1-6.2 | 4.6-6.3-8.7 | 6.1-7.2-10.4 | 6.9-8.4-12.1 | 7.4-9.3-14   | 8.1-10-14.9  |
|   | NC                                    | <15         | 18          | 28           | 35           | 40           | 44           |
| <b>450 x 450</b>  | Cfm                                   | 430         | 644         | 858          | 1071         | 1287         | 1501         |
|   | M <sup>3</sup> /sec.                  | 0.203       | 0.304       | 0.405        | 0.506        | 0.608        | 0.709        |
|   | P <sub>s</sub> in mm H <sub>2</sub> O | 0.96        | 1.96        | 4.06         | 6.68         | 8.9          | 12.16        |
|   | Throw in m                            | 3.4-5.1-8.5 | 5.3-7.4-10  | 8.3-10-15    | 8-10.2-14.6  | 9.3-11-16.3  | 10-12.3-17   |
|   | NC                                    | <15         | 20          | 30           | 36           | 41           | 44           |
| <b>525 x 525</b>  | Cfm                                   | 585         | 875         | 1165         | 1461         | 1757         | 2033         |
|   | M <sup>3</sup> /sec.                  | 0.276       | 0.413       | 0.55         | 0.69         | 0.83         | 0.96         |
|   | P <sub>s</sub> in mm H <sub>2</sub> O | 0.96        | 2.29        | 4.06         | 6.49         | 9.31         | 11.1         |
|   | Throw in m                            | 4.1-5.8-9.5 | 6-8.7-12.6  | 8.3-10-15    | 9.5-11.8-17  | 10.4-13.4-19 | 11.6-14.1-20 |
|   | NC                                    | 15          | 23          | 32           | 37           | 42           | 45           |
| <b>600 x 600</b>  | Cfm                                   | 762         | 1143        | 1524         | 1906         | 2287         | 2668         |
|   | M <sup>3</sup> /sec.                  | 0.36        | 0.54        | 0.72         | 0.9          | 1.08         | 1.26         |
|   | P <sub>s</sub> in mm H <sub>2</sub> O | 0.96        | 2.29        | 4.06         | 6.49         | 9.31         | 11.1         |
|   | Throw in m                            | 4.5-6.5-11  | 6.6-9-14    | 9-11.8-16.9  | 10.2-13.6-19 | 11.4-15.2-22 | 12.2-16-23   |
|   | NC                                    | 16          | 26          | 33           | 38           | 42           | 45           |

- Neck velocity is measured in m/sec.
- P<sub>s</sub>: Static pressure loss across the diffuser in mm of H<sub>2</sub>O.
- Throw (meters) is measured for a terminal velocities of 0.75, 0.5 & 0.25 m/sec.
- Noise criteria (NC) based on a room attenuation of 10 dB.

**Table 6.3 Air flow data**

| Neck size<br>in mm x mm<br>Area factor<br>In m <sup>2</sup> | Neck vel in m/sec                        | 1.0         | 1.5         | 2.0         | 2.5          | 3.0          | 3.5          |
|---|--|-------------|-------------|-------------|--------------|--------------|--------------|
| <b>150 x 150</b><br><br><b>0.0095</b>                       | Total CFM                                | 47          | 72          | 95          | 119          | 144          | 167          |
|   | Total M <sup>3</sup> / S e c             | 0.023       | 0.034       | 0.045       | 0.056        | 0.068        | 0.079        |
|   | M <sup>3</sup> /Sec each side of X       | 0.008       | 0.013       | 0.017       | 0.021        | 0.025        | 0.03         |
|   | M <sup>3</sup> /Sec in Y side            | 0.007       | 0.008       | 0.011       | 0.014        | 0.018        | 0.019        |
|   | P <sub>s</sub> in mm of H <sub>2</sub> O | 0.56        | 0.85        | 1.72        | 2.87         | 4.06         | 5.29         |
|   | Throw in each side of X-(M)              | 1.2-1.8-2.4 | 1.8-2.4-3.1 | 2.4-3.1-3.7 | 2.7-3.4-4    | 3.1-3.7-4.6  | 3.4-4.3-4.9  |
|   | Throw in Y side-(M)                      | 1.2-1.8-2.5 | 1.8-2.6-3.4 | 2.6-3.4-4.0 | 3.0-3.7-4.4  | 3.5-4.1-5.0  | 3.7-4.7-5.4  |
|   | N C                                      | <15         | 16          | 21          | 27           | 34           | 39           |
| <b>225 x 225</b><br><br><b>0.0172</b>                       | Total CFM                                | 108         | 161         | 214         | 269          | 322          | 375          |
|   | Total M <sup>3</sup> / S e c             | 0.051       | 0.076       | 0.101       | 0.127        | 0.152        | 0.177        |
|   | M <sup>3</sup> /Sec each side of X       | 0.019       | 0.028       | 0.038       | 0.048        | 0.057        | 0.066        |
|   | M <sup>3</sup> /Sec in Y side            | 0.013       | 0.020       | 0.025       | 0.031        | 0.038        | 6.72         |
|   | P <sub>s</sub> in mm of H <sub>2</sub> O | 0.56        | 1.12        | 2.29        | 3.45         | 4.92         | 5.84         |
|   | Throw in each side of X-(M)              | 1.2-1.8-2.4 | 1.8-2.4-3.4 | 2.4-3.1-4.3 | 3.1-4.3-5.5  | 4.0-5.5-7.3  | 5.5-6.7-9.1  |
|   | Throw in Y side-(M)                      | 1.2-1.8-2.5 | 1.8-2.6-3.7 | 2.6-3.4-4.7 | 3.4-4.8-6.1  | 4.4-6.1-8.2  | 6.1-7.5-10.1 |
|   | N C                                      | <15         | 17          | 24          | 30           | 36           | 41           |
| <b>300 x 300</b><br><br><b>0.028</b>                        | Total CFM                                | 191         | 286         | 381         | 476          | 572          | 667          |
|   | Total M <sup>3</sup> / Sec               | 0.09        | 0.135       | 0.18        | 0.225        | 0.27         | 0.315        |
|   | M <sup>3</sup> /Sec each side of X       | 0.033       | 0.051       | 0.068       | 0.084        | 0.101        | 0.118        |
|   | M <sup>3</sup> /Sec in Y side            | 0.024       | 0.033       | 0.044       | 0.057        | 0.068        | 0.079        |
|   | P <sub>s</sub> in mm of H <sub>2</sub> O | 0.56        | 1.45        | 2.59        | 4.36         | 6.08         | 8.48         |
|   | Throw in each side of X-(M)              | 2.1-3.1-4.9 | 3.1-4.3-6.1 | 4.0-4.9-7.3 | 4.6-5.8-7.9  | 4.9-5.8-9.1  | 5.5-6.7-9.8  |
|   | Throw in Y side-(M)                      | 2.1-3.3-5.2 | 3.4-4.6-6.5 | 4.3-5.4-8.0 | 5.1-6.3-8.5  | 5.4-6.6-10.1 | 6.2-7.7-10.6 |
|   | N C                                      | <15         | 17          | 26          | 33           | 38           | 43           |
| <b>375 x 375</b><br><br><b>0.044</b>                        | Total CFM                                | 299         | 447         | 595         | 745          | 893          | 1042         |
|   | Total M <sup>3</sup> / Sec               | 0.141       | 0.211       | 0.281       | 0.352        | 0.422        | 0.492        |
|   | M <sup>3</sup> /Sec each side of X       | 0.053       | 0.079       | 0.105       | 0.132        | 0.158        | 0.185        |
|   | M <sup>3</sup> /Sec in Y side            | 0.035       | 0.053       | 0.071       | 0.088        | 0.106        | 0.122        |
|   | P <sub>s</sub> in mm of H <sub>2</sub> O | 0.84        | 1.70        | 2.87        | 4.59         | 6.66         | 9.35         |
|   | Throw in each side of X-(M)              | 2.4-3.7-5.5 | 4.0-5.5-7.6 | 5.2-6.1-8.8 | 5.8-7.0-10.1 | 6.1-7.6-11.3 | 6.7-8.2-12.2 |
|   | Throw in Y side-(M)                      | 2.5-3.9-5.8 | 4.3-5.9-8.2 | 5.6-6.7-9.4 | 6.4-7.6-10.9 | 6.7-8.3-12.5 | 7.4-9.1-13.4 |
|   | N C                                      | <15         | 18          | 28          | 35           | 40           | 44           |

**SUPPLY AIR SQUARE  
CEILING DIFFUSER**

Three Way Throw

**Table 6.3 (cont.) Air flow data**

| Neck size<br>in mm x mm<br>Area factor<br>In m <sup>2</sup> | Neck vel in m/sec                        | 1.0          | 1.5          | 2.0           | 2.5           | 3.0           | 3.5            |
|---|--|--------------|--------------|---------------|---------------|---------------|----------------|
| <b>450 x 450</b><br><br><b>0.067</b>                        | Total CFM                                | 430          | 644          | 858           | 1071          | 1287          | 1501           |
|   | Total M <sup>3</sup> / Sec               | 0.203        | 0.304        | 0.405         | 0.506         | 0.608         | 0.709          |
|   | M <sup>3</sup> /Sec each side of X       | 0.076        | 0.114        | 0.151         | 0.19          | 0.228         | 0.267          |
|   | M <sup>3</sup> /Sec in Y side            | 0.051        | 0.076        | 0.103         | 0.126         | 0.152         | 0.175          |
|   | P <sub>s</sub> in mm of H <sub>2</sub> O | 0.84         | 1.70         | 3.16          | 5.16          | 7.52          | 10.51          |
|   | Throw in each side of X-(M)              | 3.1-4.6-7.6  | 4.6-06.4-9.1 | 6.6-7.6-10.7  | 6.7-8.5-12.2  | 7.6-9.2-13.4  | 8.2-10.1-14    |
|   | Throw in Y side-(M)                      | 3.2-4.9-8.1  | 4.9-6.8-9.5  | 7.2-8.7-12.5  | 7.2-9.2-13.4  | 8.3-10.2-15.4 | 9.1-11.3-15.6  |
|   | N C                                      | <15          | 20           | 30            | 36            | 41            | 44             |
| <b>525 x 525</b><br><br><b>0.095</b>                        | Total CFM                                | 585          | 875          | 1165          | 1461          | 1757          | 2033           |
|   | Total M <sup>3</sup> / Sec               | 0.276        | 0.413        | 0.55          | 0.69          | 0.83          | 0.96           |
|   | M <sup>3</sup> /Sec each side of X       | 0.103        | 0.155        | 0.206         | 0.259         | 0.311         | 0.36           |
|   | M <sup>3</sup> /Sec in Y side            | 0.07         | 0.103        | 0.138         | 0.172         | 0.208         | 0.24           |
|   | P <sub>s</sub> in mm of H <sub>2</sub> O | 0.84         | 1.99         | 3.5           | 5.46          | 7.82          | 9.65           |
|   | Throw in each side of X-(M)              | 3.7-5.2-8.5  | 5.2-7.6-11   | 7.0-8.5-12.5  | 7.9-9.8-14    | 8.5-11-15.9   | 9.5-11.6-16.8  |
|   | Throw in Y side-(M)                      | 3.9-5.6-9.2  | 5.6-8.2-11.9 | 7.6-9.3-13.7  | 8.5-10.4-5.4  | 9.4-12.5-17.7 | 10.6-13.1-17.8 |
|   | N C                                      | 15           | 23           | 32            | 37            | 42            | 45             |
| <b>600 x 600</b><br><br><b>0.133</b>                        | Total CFM                                | 762          | 1143         | 1524          | 1906          | 2287          | 2668           |
|   | Total M <sup>3</sup> / Sec               | 0.36         | 0.54         | 0.72          | 0.9           | 1.08          | 1.26           |
|   | M <sup>3</sup> /Sec each side of X       | 0.135        | 0.202        | 0.27          | 0.338         | 0.405         | 0.472          |
|   | M <sup>3</sup> /Sec in Y side            | 0.09         | 0.136        | 0.18          | 0.224         | 0.270         | 0.316          |
|   | P <sub>s</sub> in mm of H <sub>2</sub> O | 0.84         | 1.99         | 3.5           | 5.46          | 7.82          | 9.65           |
|   | Throw in each side of X-(M)              | 4-5.8-10.4   | 5.8-8-12.2   | 7.6-10-14.3   | 8.5-11.3-16.1 | 9.4-12.5-18   | 10-13.4-19.5   |
|   | Throw in Y side-(M)                      | 4.2-6.2-10.7 | 6.2-8.3-13.1 | 8.4-10.9-15.4 | 9.3-12.1-17.6 | 10.2-14.0-20  | 11.2-15.0-21.6 |
|   | N C                                      | 16           | 26           | 33            | 38            | 42            | 45             |

- Neck velocity is measured in m/sec.
- P<sub>s</sub>: Static pressure loss across the diffuser in mm of H<sub>2</sub>O.
- Throw (meters) is measured for terminal velocities of 0.75, 0.5 & 0.25 m/sec.
- Noise criteria (NC) based on a room attenuation of 10 dB.

**Table 6.4 Air flow data**

| Neck size in<br>mm x mm<br>Area factor<br>in m <sup>2</sup> | Neck vel in<br>m/sec                    | 1.0         | 1.5         | 2.0          | 2.5           | 3.0          | 3.5           |
|---|---|-------------|-------------|--------------|---------------|--------------|---------------|
| <b>150 x 150</b><br><b>0.0093</b>                           | Cfm                                     | 47          | 72          | 95           | 119           | 144          | 167           |
|   | M <sup>3</sup> /sec.                    | 0.023       | 0.034       | 0.045        | 0.056         | 0.068        | 0.079         |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 0.51        | 0.76        | 1.52         | 2.54          | 3.56         | 4.57          |
|   | Throw in m                              | 1.2-1.8-2.4 | 1.8-2.4-3.1 | 2.4-3.1-3.7  | 2.7-3.4-4     | 3.1-3.7-4.6  | 3.4-4.3-4.9   |
|   | NC                                      | <15         | 16          | 21           | 27            | 34           | 39            |
| <b>225 x 225</b><br><b>0.0169</b>                           | Cfm                                     | 108         | 161         | 214          | 269           | 322          | 375           |
|   | M <sup>3</sup> /sec.                    | 0.051       | 0.076       | 0.101        | 0.127         | 0.152        | 0.177         |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 0.51        | 1.00        | 2.03         | 3.05          | 4.32         | 5.84          |
|   | Throw in m                              | 1.2-1.8-2.4 | 1.8-2.4-3.4 | 2.4-3.1-4.3  | 3.1-4.3-5.5   | 4-5.5-7.3    | 5.5-6.7-9.1   |
|   | NC                                      | <15         | 17          | 24           | 30            | 36           | 41            |
| <b>300 x 300</b><br><b>0.028</b>                            | Cfm                                     | 191         | 286         | 381          | 476           | 572          | 667           |
|   | M <sup>3</sup> /sec.                    | 0.09        | 0.135       | 0.18         | 0.225         | 0.27         | 0.315         |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 0.51        | 1.27        | 2.29         | 3.81          | 5.33         | 7.37          |
|   | Throw in m                              | 2.1-3.1-4.9 | 3.1-4.3-6.1 | 4.0-4.9-7.3  | 4.6-5.8-7.9   | 4.9-5.8-9.1  | 5.5-6.7-9.8   |
|   | NC                                      | <15         | 17          | 26           | 33            | 38           | 43            |
| <b>375 x 375</b><br><b>0.043</b>                            | Cfm                                     | 299         | 447         | 595          | 745           | 893          | 1042          |
|   | M <sup>3</sup> /sec.                    | 0.141       | 0.211       | 0.281        | 0.352         | 0.422        | 0.492         |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 0.76        | 1.52        | 2.54         | 4.06          | 5.84         | 8.13          |
|   | Throw in m                              | 2.4-3.7-5.5 | 4.0-5.5-7.6 | 5.2-6.1-8.8  | 5.8-7-10.1    | 6.1-7.6-11.3 | 6.7-8.2-12.2  |
|   | NC                                      | <15         | 18          | 28           | 35            | 40           | 44            |
| <b>450 x 450</b><br><b>0.065</b>                            | Cfm                                     | 430         | 644         | 858          | 1071          | 1287         | 1501          |
|   | M <sup>3</sup> /sec.                    | 0.203       | 0.304       | 0.405        | 0.506         | 0.608        | 0.709         |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 0.76        | 1.52        | 2.79         | 4.57          | 6.6          | 9.14          |
|   | Throw in m                              | 3.1-4.6-7.6 | 4.6-6.4-9.1 | 5.6-7.6-10.7 | 6.7-8.5-12.2  | 7.6-9.2-13.4 | 8.2-10.1-14   |
|   | NC                                      | <15         | 20          | 30           | 36            | 41           | 44            |
| <b>525 x 525</b><br><b>0.093</b>                            | Cfm                                     | 585         | 875         | 1165         | 1461          | 1757         | 2033          |
|   | M <sup>3</sup> /sec.                    | 0.276       | 0.413       | 0.55         | 0.69          | 0.83         | 0.96          |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 0.76        | 1.78        | 3.05         | 4.83          | 6.86         | 8.39          |
|   | Throw in m                              | 3.7-5.2-8.5 | 5.2-7.6-11  | 7.0-8.5-12.5 | 7.9-9.8-14    | 8.5-11-15.9  | 9.5-11.6-16.8 |
|   | NC                                      | 15          | 23          | 32           | 37            | 42           | 45            |
| <b>600 x 600</b><br><b>0.13</b>                             | Cfm                                     | 762         | 1143        | 1524         | 1906          | 2287         | 2668          |
|   | M <sup>3</sup> /sec.                    | 0.36        | 0.54        | 0.72         | 0.9           | 1.08         | 1.26          |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 0.76        | 1.78        | 3.05         | 4.83          | 6.86         | 8.39          |
|   | Throw in m                              | 4-5.8-10.4  | 5.8-8-12.2  | 7.6-10-14.3  | 8.5-11.3-16.1 | 9.4-12.5-18  | 10-13.4-19.5  |
|   | NC                                      | 16          | 26          | 33           | 38            | 42           | 45            |

- Neck velocity is measured in m/sec.
- P<sub>s</sub>: Static pressure loss across the diffuser in mm of H<sub>2</sub>O.
- Throw (meters) is measured for terminal velocities of 0.75, 0.5 & 0.25 m/sec.
- Noise criteria (NC) based on a room attenuation of 10 dB.

**RETURN AIR SQUARE  
CEILING DIFFUSER**

One Way

**Table 6.5 Air flow data**

| Neck size in<br>mm x mm<br>Neck Area<br>In m <sup>2</sup> | Neck vel in<br>m/sec                    | 1.0   | 1.25  | 1.5   | 1.75  | 2.0   | 2.5   | 3.0   | 3.5   | 4.0   |
|---|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>150 x 150</b><br><br><b>0.023</b>                      | CFM                                     | 49    | 61    | 74    | 85    | 97    | 123   | 146   | 171   | 195   |
|   | M <sup>3</sup> /sec.                    | 0.023 | 0.029 | 0.035 | 0.04  | 0.046 | 0.058 | 0.069 | 0.081 | 0.092 |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 0.65  | 1.04  | 1.51  | 2.06  | 2.66  | 4.25  | 6.12  | 8.54  | 11.18 |
|   | NC                                      | <15   | <15   | <15   | <15   | 19    | 25    | 30    | 34    | 40    |
| <b>225 x 225</b><br><br><b>0.051</b>                      | CFM                                     | 108   | 135   | 163   | 188   | 216   | 271   | 324   | 379   | 432   |
|   | M <sup>3</sup> /sec.                    | 0.051 | 0.064 | 0.077 | 0.089 | 0.102 | 0.128 | 0.153 | 0.179 | 0.204 |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 0.70  | 1.14  | 1.72  | 2.25  | 3.04  | 4.71  | 6.79  | 9.65  | 12.57 |
|   | NC                                      | <15   | <15   | <15   | 16    | 21    | 28    | 34    | 40    | 45    |
| <b>300 x 300</b><br><br><b>0.09</b>                       | CFM                                     | 193   | 239   | 286   | 335   | 381   | 476   | 572   | 667   | 762   |
|   | M <sup>3</sup> /sec.                    | 0.09  | 0.113 | 0.135 | 0.158 | 0.18  | 0.225 | 0.27  | 0.315 | 0.36  |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 0.81  | 1.26  | 1.85  | 2.51  | 3.34  | 5.25  | 7.61  | 10.47 | 13.97 |
|   | NC                                      | <15   | <15   | 16    | 21    | 25    | 32    | 38    | 43    | 48    |
| <b>375 x 375</b><br><br><b>0.141</b>                      | CFM                                     | 298   | 372   | 449   | 521   | 597   | 747   | 896   | 1046  | 1194  |
|   | M <sup>3</sup> /sec.                    | 0.141 | 0.176 | 0.212 | 0.246 | 0.282 | 0.353 | 0.423 | 0.494 | 0.564 |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 0.91  | 1.42  | 2.11  | 2.85  | 3.79  | 5.93  | 8.7   | 11.85 | 15.64 |
|   | NC                                      | <15   | <15   | 19    | 25    | 32    | 38    | 43    | 47    | 51    |
| <b>450 x 450</b><br><br><b>0.203</b>                      | CFM                                     | 430   | 538   | 646   | 752   | 860   | 1076  | 1289  | 1505  | 1719  |
|   | M <sup>3</sup> /sec.                    | 0.203 | 0.254 | 0.305 | 0.355 | 0.406 | 0.508 | 0.609 | 0.711 | 0.812 |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 0.99  | 1.52  | 2.27  | 3.09  | 4.14  | 6.46  | 9.24  | 12.95 | 17.04 |
|   | NC                                      | <15   | 17    | 24    | 31    | 36    | 40    | 45    | 48    | 52    |
| <b>525 x 525</b><br><br><b>0.276</b>                      | CFM                                     | 584   | 730   | 877   | 1023  | 1168  | 1461  | 1753  | 2045  | 2337  |
|   | M <sup>3</sup> /sec.                    | 0.276 | 0.345 | 0.414 | 0.483 | 0.552 | 0.69  | 0.828 | 0.966 | 1.104 |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 1.06  | 1.66  | 2.45  | 3.33  | 4.44  | 6.99  | 10.05 | 13.78 | 18.44 |
|   | NC                                      | 18    | 25    | 30    | 36    | 40    | 44    | 47    | 51    | 55    |
| <b>600 x 600</b><br><br><b>0.36</b>                       | CFM                                     | 762   | 953   | 1143  | 1334  | 1524  | 1905  | 2287  | 2668  | 3049  |
|   | M <sup>3</sup> /sec.                    | 0.36  | 0.45  | 0.54  | 0.63  | 0.72  | 0.9   | 1.08  | 1.26  | 1.44  |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 1.16  | 1.82  | 2.64  | 3.65  | 4.79  | 7.54  | 10.87 | 15.16 | 20.12 |
|   | NC                                      | 23    | 30    | 36    | 40    | 42    | 46    | 49    | 54    | 58    |

- Neck velocity is measured in m/sec.
- P<sub>s</sub>: Static pressure loss in mm of H<sub>2</sub>O.
- Noise criteria (NC) based on a room attenuation of 10 dB.

# RETURN AIR SQUARE CEILING DIFFUSER

Two Way

CEILING  
DIFFUSERS

model: **ACD2**

6.21

**Table 6.6 Air flow data**

| Neck size in<br>mm x mm<br>Neck Area<br>In m <sup>2</sup> | Neck vel in<br>m/sec                    | 1.0   | 1.25  | 1.5   | 1.75  | 2.0   | 2.5   | 3.0   | 3.5   | 4.0   |
|---|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>150 x 150</b><br><b>0.023</b>                          | CFM                                     | 49    | 61    | 74    | 85    | 97    | 123   | 146   | 171   | 195   |
|   | M <sup>3</sup> /sec.                    | 0.023 | 0.029 | 0.035 | 0.04  | 0.046 | 0.058 | 0.069 | 0.081 | 0.092 |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 0.65  | 1.04  | 1.49  | 2.04  | 2.61  | 4.17  | 6.00  | 8.34  | 10.77 |
|   | NC                                      | <15   | <15   | <15   | <15   | 19    | 25    | 30    | 34    | 40    |
| <b>225 x 225</b><br><b>0.051</b>                          | CFM                                     | 108   | 135   | 163   | 188   | 216   | 271   | 324   | 379   | 432   |
|   | M <sup>3</sup> /sec.                    | 0.051 | 0.064 | 0.077 | 0.089 | 0.102 | 0.128 | 0.153 | 0.179 | 0.204 |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 0.7   | 1.14  | 1.69  | 2.22  | 2.98  | 4.62  | 6.67  | 9.42  | 12.12 |
|   | NC                                      | <15   | <15   | <15   | 16    | 21    | 28    | 34    | 40    | 45    |
| <b>300 x 300</b><br><b>0.09</b>                           | CFM                                     | 193   | 239   | 286   | 335   | 381   | 476   | 572   | 667   | 762   |
|   | M <sup>3</sup> /sec.                    | 0.09  | 0.113 | 0.135 | 0.158 | 0.18  | 0.225 | 0.27  | 0.315 | 0.36  |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 0.80  | 1.26  | 1.83  | 2.48  | 3.28  | 5.15  | 7.47  | 10.23 | 13.46 |
|   | NC                                      | <15   | <15   | 16    | 21    | 25    | 32    | 38    | 43    | 48    |
| <b>375 x 375</b><br><b>0.141</b>                          | CFM                                     | 298   | 372   | 449   | 521   | 597   | 747   | 896   | 1046  | 1194  |
|   | M <sup>3</sup> /sec.                    | 0.141 | 0.176 | 0.212 | 0.246 | 0.282 | 0.353 | 0.423 | 0.494 | 0.564 |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 0.90  | 1.41  | 2.09  | 2.82  | 3.72  | 5.81  | 8.54  | 11.58 | 15.07 |
|   | NC                                      | <15   | <15   | 19    | 25    | 32    | 38    | 43    | 47    | 51    |
| <b>450 x 450</b><br><b>0.203</b>                          | CFM                                     | 430   | 538   | 646   | 752   | 860   | 1076  | 1289  | 1505  | 1719  |
|   | M <sup>3</sup> /sec.                    | 0.203 | 0.254 | 0.305 | 0.355 | 0.406 | 0.508 | 0.609 | 0.711 | 0.812 |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 0.98  | 1.52  | 2.25  | 3.06  | 4.07  | 6.33  | 9.07  | 12.66 | 16.42 |
|   | NC                                      | <15   | 17    | 24    | 31    | 36    | 40    | 45    | 48    | 52    |
| <b>525 x 525</b><br><b>0.276</b>                          | CFM                                     | 584   | 730   | 877   | 1023  | 1168  | 1461  | 1753  | 2045  | 2337  |
|   | M <sup>3</sup> /sec.                    | 0.276 | 0.345 | 0.414 | 0.483 | 0.552 | 0.69  | 0.828 | 0.966 | 1.104 |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 1.06  | 1.65  | 2.43  | 3.29  | 4.36  | 6.86  | 9.86  | 13.46 | 17.77 |
|   | NC                                      | 18    | 25    | 30    | 36    | 40    | 44    | 47    | 51    | 55    |
| <b>600 x 600</b><br><b>0.36</b>                           | CFM                                     | 762   | 953   | 1143  | 1334  | 1524  | 1905  | 2287  | 2668  | 3049  |
|   | M <sup>3</sup> /sec.                    | 0.36  | 0.45  | 0.54  | 0.63  | 0.72  | 0.9   | 1.08  | 1.26  | 1.44  |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 1.16  | 1.81  | 2.62  | 3.62  | 4.7   | 7.39  | 10.67 | 14.81 | 19.39 |
|   | NC                                      | 23    | 30    | 36    | 40    | 42    | 46    | 49    | 54    | 58    |

- Neck velocity is measured in m/sec.
- P<sub>s</sub>: Static pressure loss in mm of H<sub>2</sub>O.
- Noise criteria (NC) based on a room attenuation of 10 dB.

**RETURN AIR SQUARE  
CEILING DIFFUSER**

Three Way

**Table 6.7 Air flow data**

| Neck size in<br>mm x mm<br>Neck Area<br>in m <sup>2</sup> | Neck vel in<br>m/sec                    | 1.0   | 1.25  | 1.5   | 1.75  | 2.0   | 2.5   | 3.0   | 3.5   | 4.0   |
|---|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>150 x 150</b><br><br><b>0.023</b>                      | CFM                                     | 49    | 61    | 74    | 85    | 97    | 123   | 146   | 171   | 195   |
|   | M <sup>3</sup> /sec.                    | 0.023 | 0.029 | 0.035 | 0.04  | 0.046 | 0.058 | 0.069 | 0.081 | 0.092 |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 0.7   | 1.12  | 1.48  | 2.02  | 2.59  | 4.14  | 5.96  | 8.2   | 10.67 |
|   | NC                                      | <15   | <15   | <15   | <15   | 19    | 25    | 30    | 34    | 40    |
| <b>225 x 225</b><br><br><b>0.051</b>                      | CFM                                     | 108   | 135   | 163   | 188   | 216   | 271   | 324   | 379   | 432   |
|   | M <sup>3</sup> /sec.                    | 0.051 | 0.064 | 0.077 | 0.089 | 0.102 | 0.128 | 0.156 | 0.179 | 0.204 |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 0.76  | 1.23  | 1.68  | 2.20  | 2.96  | 4.58  | 6.62  | 9.27  | 12.00 |
|   | NC                                      | <15   | <15   | <15   | 16    | 21    | 28    | 34    | 40    | 45    |
| <b>300 x 300</b><br><br><b>0.09</b>                       | CFM                                     | 193   | 239   | 286   | 335   | 381   | 476   | 572   | 667   | 762   |
|   | M <sup>3</sup> /sec.                    | 0.09  | 0.113 | 0.135 | 0.158 | 0.18  | 0.225 | 0.27  | 0.315 | 0.36  |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 0.87  | 1.36  | 1.82  | 2.46  | 3.25  | 5.11  | 7.41  | 10.06 | 13.34 |
|   | NC                                      | <15   | <15   | 16    | 21    | 25    | 32    | 38    | 43    | 48    |
| <b>375 x 375</b><br><br><b>0.141</b>                      | CFM                                     | 298   | 372   | 449   | 521   | 597   | 747   | 896   | 1046  | 1194  |
|   | M <sup>3</sup> /sec.                    | 0.141 | 0.176 | 0.212 | 0.246 | 0.282 | 0.353 | 0.423 | 0.494 | 0.564 |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 0.98  | 1.53  | 2.07  | 2.79  | 3.69  | 5.77  | 8.48  | 11.38 | 14.93 |
|   | NC                                      | <15   | <15   | 19    | 25    | 32    | 38    | 43    | 47    | 51    |
| <b>450 x 450</b><br><br><b>0.203</b>                      | CFM                                     | 430   | 538   | 646   | 752   | 860   | 1076  | 1289  | 1505  | 1719  |
|   | M <sup>3</sup> /sec.                    | 0.203 | 0.254 | 0.305 | 0.355 | 0.406 | 0.508 | 0.609 | 0.711 | 0.812 |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 1.07  | 1.63  | 2.22  | 3.03  | 4.04  | 6.29  | 9.01  | 12.45 | 16.26 |
|   | NC                                      | <15   | 17    | 24    | 31    | 36    | 40    | 45    | 48    | 52    |
| <b>525 x 525</b><br><br><b>0.276</b>                      | CFM                                     | 584   | 730   | 877   | 1023  | 1168  | 1461  | 1753  | 2045  | 2337  |
|   | M <sup>3</sup> /sec.                    | 0.276 | 0.345 | 0.414 | 0.483 | 0.552 | 0.69  | 0.828 | 0.966 | 1.104 |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 1.14  | 1.79  | 2.41  | 3.26  | 4.33  | 6.81  | 9.79  | 13.24 | 17.59 |
|   | NC                                      | 18    | 25    | 30    | 36    | 40    | 44    | 47    | 51    | 55    |
| <b>600 x 600</b><br><br><b>0.36</b>                       | CFM                                     | 762   | 953   | 1143  | 1334  | 1524  | 1905  | 2287  | 2668  | 3049  |
|   | M <sup>3</sup> /sec.                    | 0.36  | 0.45  | 0.54  | 0.63  | 0.72  | 0.9   | 1.08  | 1.26  | 1.44  |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 1.25  | 1.97  | 2.59  | 3.58  | 4.67  | 7.34  | 10.59 | 14.56 | 19.2  |
|   | NC                                      | 23    | 30    | 36    | 40    | 42    | 46    | 49    | 54    | 58    |

- Neck velocity is measured in m/sec.
- P<sub>s</sub>: Static pressure loss in mm of H<sub>2</sub>O.
- Noise criteria (NC) based on a room attenuation of 10 dB.

**Table 6.8 Air flow data**

| Neck size in<br>mm x mm<br>Neck Area<br>in m <sup>2</sup> | Neck vel in<br>m/sec                    | 1.0   | 1.25  | 1.5   | 1.75  | 2.0   | 2.5   | 3.0   | 3.5   | 4.0   |
|---|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>150 x 150</b><br><b>0.023</b>                          | CFM                                     | 49    | 61    | 74    | 85    | 97    | 123   | 146   | 171   | 195   |
|   | M <sup>3</sup> /sec.                    | 0.023 | 0.029 | 0.035 | 0.04  | 0.046 | 0.058 | 0.069 | 0.081 | 0.092 |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 0.64  | 1.02  | 1.45  | 1.98  | 2.51  | 4.01  | 5.72  | 7.9   | 10.16 |
|   | NC                                      | <15   | <15   | <15   | <15   | 19    | 25    | 30    | 34    | 40    |
| <b>225 x 225</b><br><b>0.051</b>                          | CFM                                     | 108   | 135   | 163   | 188   | 216   | 271   | 324   | 379   | 432   |
|   | M <sup>3</sup> /sec.                    | 0.051 | 0.064 | 0.077 | 0.089 | 0.102 | 0.128 | 0.153 | 0.179 | 0.204 |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 0.69  | 1.12  | 1.65  | 2.16  | 2.87  | 4.44  | 6.35  | 8.89  | 11.43 |
|   | NC                                      | <15   | <15   | <15   | 16    | 21    | 28    | 34    | 40    | 45    |
| <b>300 x 300</b><br><b>0.09</b>                           | CFM                                     | 193   | 239   | 286   | 335   | 381   | 476   | 572   | 667   | 762   |
|   | M <sup>3</sup> /sec.                    | 0.09  | 0.113 | 0.135 | 0.158 | 0.18  | 0.225 | 0.27  | 0.315 | 0.36  |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 0.79  | 1.24  | 1.78  | 2.41  | 3.15  | 4.95  | 7.11  | 9.65  | 12.7  |
|   | NC                                      | <15   | <15   | 16    | 21    | 25    | 32    | 38    | 43    | 48    |
| <b>375 x 375</b><br><b>0.141</b>                          | CFM                                     | 298   | 372   | 449   | 521   | 597   | 747   | 896   | 1046  | 1194  |
|   | M <sup>3</sup> /sec.                    | 0.141 | 0.176 | 0.212 | 0.246 | 0.282 | 0.353 | 0.423 | 0.494 | 0.564 |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 0.89  | 1.39  | 2.03  | 2.74  | 3.58  | 5.59  | 8.13  | 10.9  | 14.22 |
|   | NC                                      | <15   | <15   | 19    | 25    | 32    | 38    | 43    | 47    | 51    |
| <b>450 x 450</b><br><b>0.203</b>                          | CFM                                     | 430   | 538   | 646   | 752   | 860   | 1076  | 1289  | 1505  | 1719  |
|   | M <sup>3</sup> /sec.                    | 0.203 | 0.254 | 0.305 | 0.355 | 0.406 | 0.508 | 0.609 | 0.711 | 0.812 |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 0.97  | 1.49  | 2.18  | 2.97  | 3.91  | 6.09  | 8.64  | 11.94 | 15.49 |
|   | NC                                      | <15   | 17    | 24    | 31    | 36    | 40    | 45    | 48    | 52    |
| <b>525 x 525</b><br><b>0.276</b>                          | CFM                                     | 584   | 730   | 877   | 1023  | 1168  | 1461  | 1753  | 2045  | 2337  |
|   | M <sup>3</sup> /sec.                    | 0.276 | 0.345 | 0.414 | 0.483 | 0.552 | 0.69  | 0.828 | 0.966 | 1.104 |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 1.04  | 1.63  | 2.36  | 3.2   | 4.19  | 6.6   | 9.39  | 12.7  | 16.76 |
|   | NC                                      | 18    | 25    | 30    | 36    | 40    | 44    | 47    | 51    | 55    |
| <b>600 x 600</b><br><b>0.36</b>                           | CFM                                     | 762   | 953   | 1143  | 1334  | 1524  | 1905  | 2287  | 2668  | 3049  |
|   | M <sup>3</sup> /sec.                    | 0.36  | 0.45  | 0.54  | 0.63  | 0.72  | 0.9   | 1.08  | 1.26  | 1.44  |
|   | - P <sub>s</sub> in mm H <sub>2</sub> O | 1.14  | 1.78  | 2.54  | 3.51  | 4.52  | 7.11  | 10.16 | 13.9  | 18.29 |
|   | NC                                      | 23    | 30    | 36    | 40    | 42    | 46    | 49    | 54    | 58    |

- Neck velocity is measured in m/sec.
- P<sub>s</sub>: Static pressure loss in mm of H<sub>2</sub>O.
- Noise criteria (NC) based on a room attenuation of 10 dB.



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