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**CHAN CHUAN CHANG METAL WORKS**

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## SINGLE DEFLECTION GRILLES



**Brand : CCC**

**AIR DIFFUSION EQUIPMENT  
SINGLE DEFLECTION GRILLES  
Series : CCC-RWG**

## CHAN CHUAN CHANG METAL WORKS



### VISION

“To produce high quality products, high standard of creativity in design and excellent credibility in reputation”

### MISSION

“Serve customer with satisfactory and reliable works and products”

Chan Chuan Chang Metal Works was established in 1975, committed to the vision to manufacture good quality Air Diffusion Equipment. After building up its reputation in the industry as a top manufacturer, the company registered the logo with the Registry of Trade and Patents (Singapore). From then onwards, all equipment which has the trade mark symbolise our commitment to serve our customer with satisfactory and reliable works and products.


Our products have been tested by VIPAC, testing laboratory at Victorian technology Centre, Port Melbourne, Victoria. Furthermore, the results are NATA Certified (National Association of Testing Authorities, Australia) to ADC 10623 R3 (Air Diffusion Council, USA) and are officially endorsed in countries which are signatories to the I.L.A.C agreement-namely, Australia, New Zealand, Britain, USA and Malaysia.

We were proud to introduce the **Heavy Duty Aluminium Computer Floor Grille**, Series : CR to the industry in 1991. This has been a breakthrough as the grille are able to provide adequate air flow whilst maintaining the weight of any person or equipment. This is verified by the Comprehensive Loading Test performed by Singapore Institute of Standard & Industrial Research (SISIR), currently known as Spring Singapore. Series : CR has since then been installed in many computer rooms, wafer manufacturing plant and places which require the product.



### COMPANY MILESTONE

**1975** Established with the vision to manufacture high quality Air Diffusion Equipment to meet future needs and demands. Together with a team of experienced Engineers & Craftsman dedicated to Chan Chuan Chang's Motto – Commitment, Creativity & Credibility, we produced good quality products with high standard of creativity in design and maintained excellent credibility in reputation.

**1982** Registered with the Registry of Trade and Patents (Singapore), CCC Trade Mark  has since become a household name in its industry.

**1986** Chan Chuan Chang (CCC) products are tested by VIPAC, a testing laboratory at Victorian Technology Centre, Port Melbourne, Victoria. These results are NATA Certified (National Association of Testing Authorities, Australia) to ADC 10623 R3 (Air Diffusion Council, USA) and are officially endorsed in countries which are signatories to the I.L.A.C agreement – namely, Australia, New Zealand, Britain, USA and Malaysia.

**1991** CCC Aluminium Computer Floor Air Grille was sent for Comprehensive Loading Test conducted by Singapore Institute of Standard & Industrial Research (SISIR) and achieved excellent results.

**1997** CCC was awarded ISO 9002 Certification. Our impressive list of satisfied clients is testimony to CCC's motto – Commitment, Creativity and Credibility.

**2005** CCC has improved its quality management system with respect to the ISO 9001:2000 standard due to our commitment towards quality improvement in our products and customer satisfaction. We thank you for your faith and support in our products. We will continue to strive harder to exceed your demand & satisfaction.

**2012** CCC was awarded ISO 9001:2008 Certification by BVQI Accreditation. CCC also became a certified member of Air Movement and Control Association International (AMCA). Our Low Leakage dampers were tested according to AMCA standards and received certifications.

**Model: RWG/02**



**Construction**

- High quality extruded aluminium sections.
- Core sections can be made totally removable upon request.
- Blades are fully adjustable.
- Finishing will be in white powder coating.

**Description**

- These grilles are designed for use in fresh, return or exhaust air applications and are recommended for side wall sill or ceiling mounting.
- All grilles are attractively designed to blend with architectural features and are manufactured from high quality extruded aluminium.
- Bars have been specially designed by CCC Specialist to provide the optimum in airflow and low sound level characteristics.

- Core sections can also be made totally removable by the use of concealed spring fixing which eliminates screw fastening on the face of the grille.
- All units feature horizontal blades and vertical blades can be fitted of required to meet architectural requirements.
- Standard finish is in white powder coating.

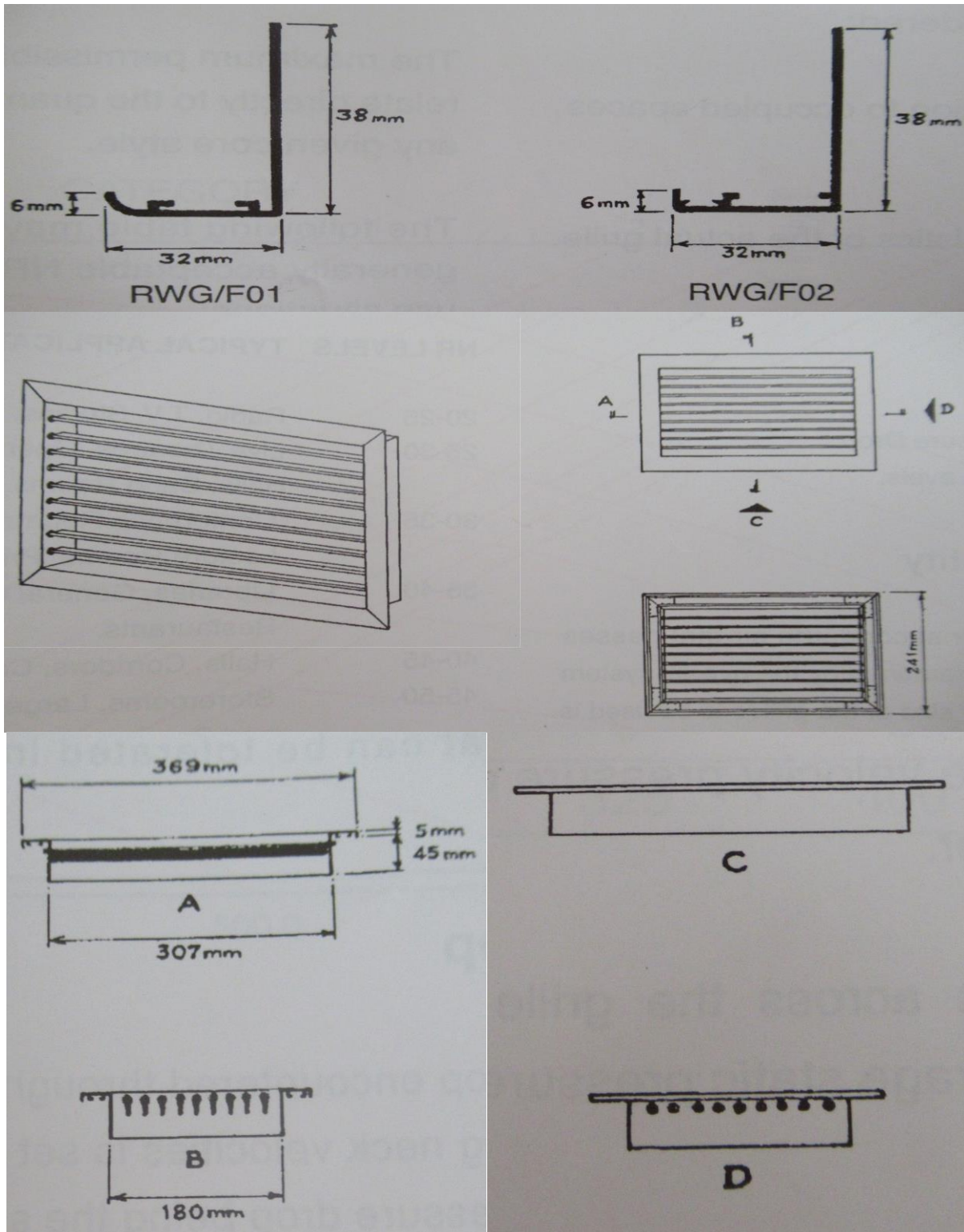
**Accessories**

- Opposed blade damper
- Plenum box
- Foam gasket
- Anti-condensation coating

**Other Optional Features**

- Other colours may be available upon request.
- Other material such as Natural Anodised, SS304 and SS316 are available upon request.
- Suggestions are also available on request from your CCC Specialist.

**Frame Style**



## Selecting a Single Deflection Grille

To select a grille suitable for your application, two sets of data should be considered:

- i. The application and its location to occupied spaces on both sides of the grille.
- ii. The performance characteristics of the actual grille.

Three important aspects evolve from these two sets of data.

1. The Air Quantity.
2. The allowable Pressure Drop
3. The Desired Noise Levels.

### 1. The Air Quantity

Measured in litres per second, the air that passes through the grille is determined by the overall system design. The number of size of the grilles to be used is selected by establishing the maximum pressure drop and noise level that can be tolerated in that application.

### 2. Pressure Drop

The total pressure drop encountered through each core pattern at varying neck velocities is set out in pascals – the total pressure drop being the sum of the static pressure drop of the air as it passes through the diffuser and the velocity pressure of the air at the neck of the diffuser.

The static pressure drops across the grille were measured by using the average static pressure in an oversized plenum box.

### 3. Noise Level

The maximum permissible NR levels from each grille relate directly to the quantity of air transmitted through any given core style.

The following table may be used as a guide to the generally acceptable NR levels for various common use situations:

NR LEVELS	TYPICAL APPLICATIONS
20 – 25	Radio, TV, Studios, Churches.
25 - 30	Live Theatres, Opera Halls, Concert Halls, Band Rooms
30 - 35	Conference Rooms, Movie Theatres, Lecture Rooms, Private Offices.
35 - 40	Libraries, General Offices, Laboratories, Restaurants.
40 - 45	Halls, Corridors, Cafeterias.
45 - 50	Storerooms, Large Department Stores and Supermarkets.
Over 50	Manufacturing Areas.

### Performance Graphs

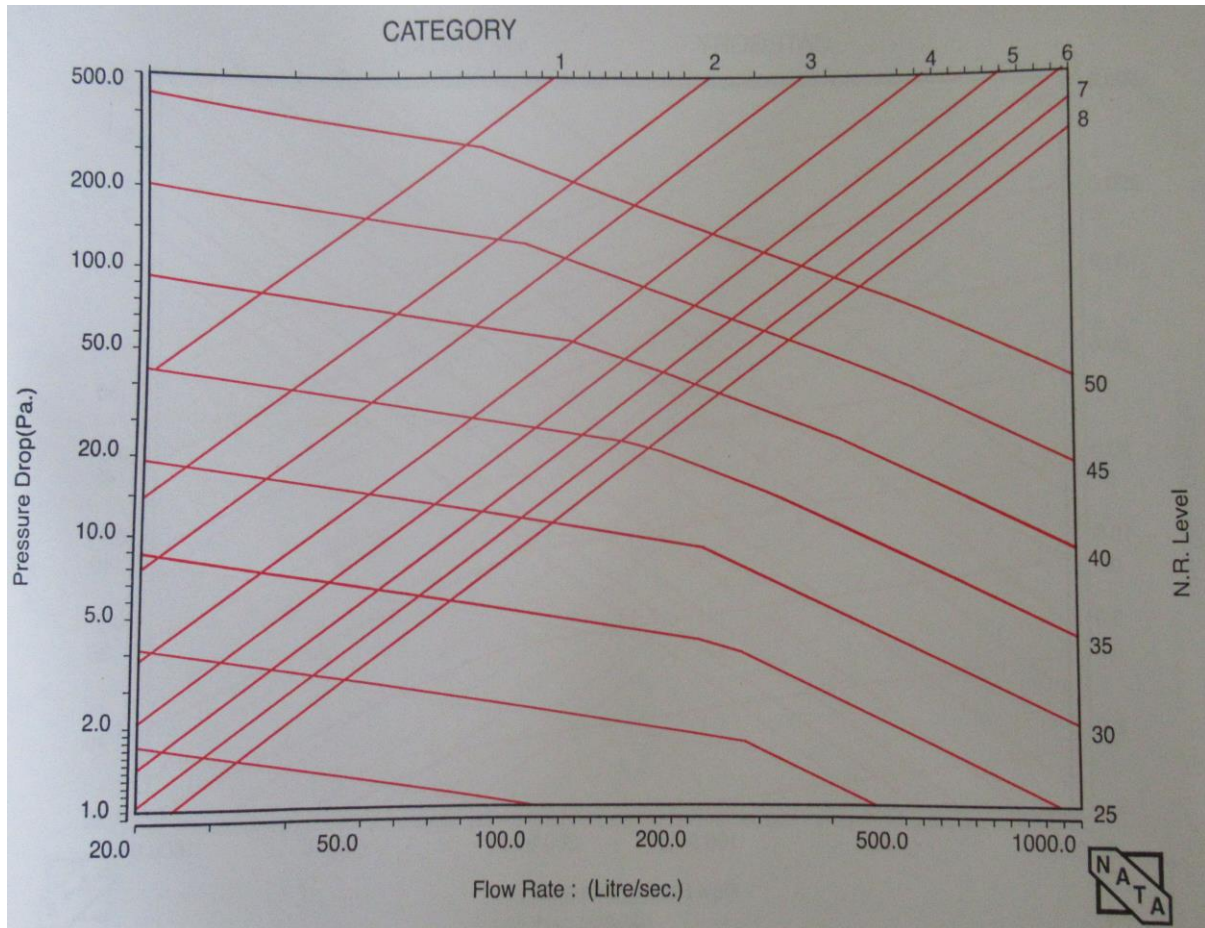
The performance graphs show Airflow, pressure drop sound levels and throws for each size of the product.

Pressure drops are shown as total pressure in Pascals (Pa)

Sound Levels are presented as Noise Ratings (N.R.) in dB, including a 6db room absorption.

**Performance Graph**

300MM Long

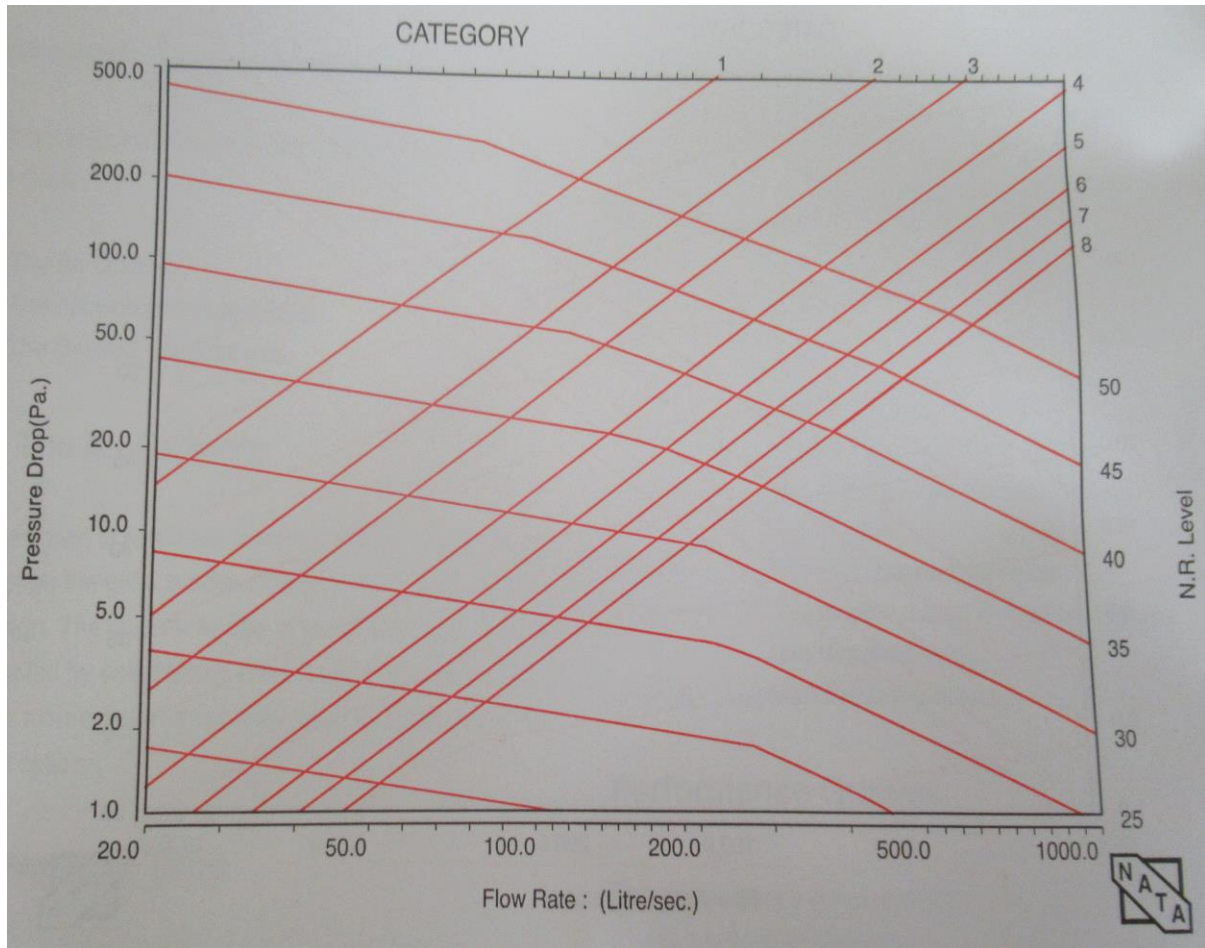


Aspect Table								
CATEGORY	1	2	3	4	5	6	7	8
GRILLE HEIGHT	100	125	175	250	325	400	500	575

(in mm)

**Performance Graph**

600MM Long



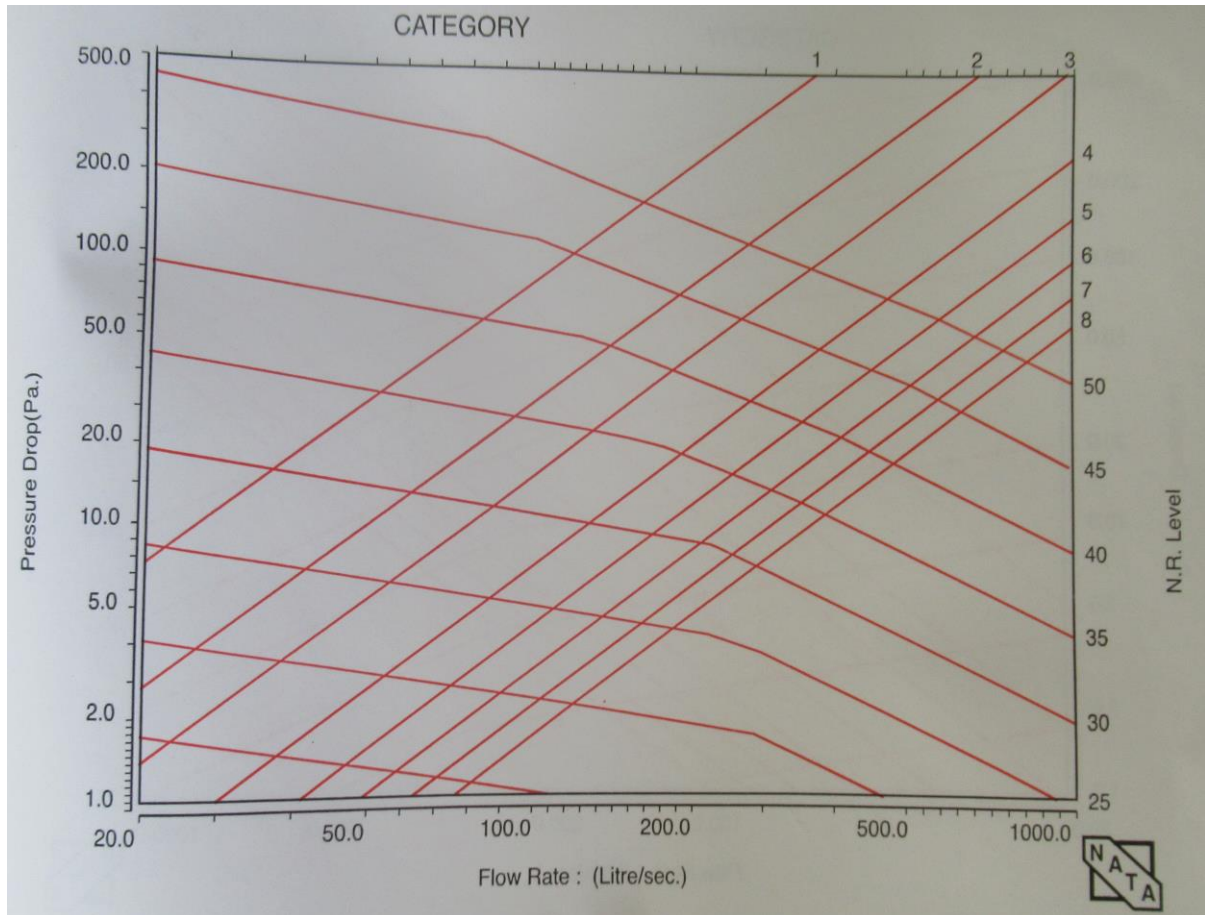
Aspect Table								
CATEGORY	1	2	3	4	5	6	7	8
GRILLE HEIGHT	100	125	175	250	325	400	500	575

(in mm)



**Performance Graph**

900MM Long

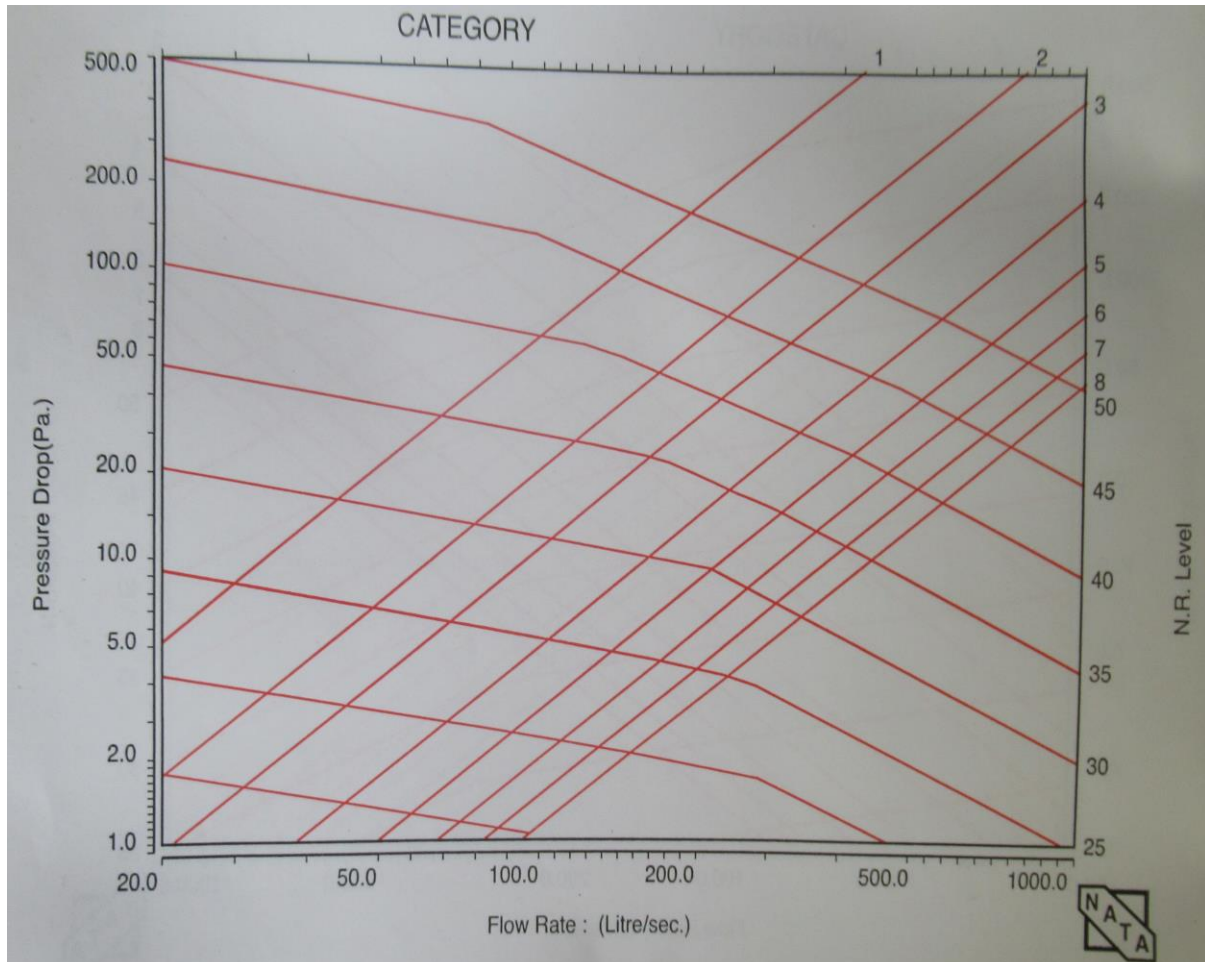


Aspect Table								
CATEGORY	1	2	3	4	5	6	7	8
GRILLE HEIGHT	100	125	175	250	325	400	500	575

(in mm)

**Performance Graph**

1200MM Long



Aspect Table								
CATEGORY	1	2	3	4	5	6	7	8
GRILLE HEIGHT	100	125	175	250	325	400	500	575

(in mm)

### Optional Accessories

These are some of our optional accessories for your references:



## Opposed-Blade Damper

To vary and control the supply air volume providing a sustained discharge velocity throughout the volume range.



## Fan-Type Damper

To vary and control the supply air volume providing a sustained discharge velocity throughout the volume range.



## Plenum Box

A junction to join various ducts. It is a closed space space inteded to store air and also helps to reduce noise level of the airflow.



## Anti Condensation

Anti-Condensation coating to reduce and prevent sweating for your grilles and diffusers due to the differences of temperature in the surrounding.