



Supply Grilles & Registers دریچه‌های هوای رفت (دیواری)

Type : SG , SR





SUPPLY GRILLES & REGISTERS

SINGLE DEFLECTION

Constructed of heavy aluminium extrusion , or steel. These single deflection Grilles are attractively designed and provide a maximum control of air deflection. Single row of individually adjustable face bars are pivoted at the front to provide uniformity of appearance, regardless of angle of setting. The Grilles are especially suited to low ceiling rooms, where a minimum drop of air stream is desired and volume control is unnecessary.

SINGLE DEFLECTION WITH DAMPER .

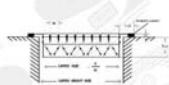
Ideal for installations in which air flow in either direction, horizontal or vertical , is required. The registers of this series have a single row of individually adjustable face bars with opposed or parallel blade damper.

Like all SHAHROKHI standard registers and grilles , they have heavy-duty aluminium or steel margins and frames, with extruded face bars and control dampers .

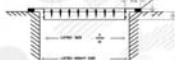
MODELS OF GRILLES & REGISTERS

SG 1 GRILLE : Horizontal face bars with «AF» blade.

SR 1 REGISTER : Horizontal face bars with «AF» blade , and damper .



SR 1



SG 1



SG 2 GRILLE : Vertical face bars with «AF» blade

SR 2 REGISTER : Vertical face bars with «AF» blade , and damper .



SR 2



SG 2

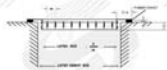


SG 3 GRILLE : Horizontal face bars with «L» blade.

SR 3 REGISTER : Horizontal face bars with «L» blade , and damper .



SR 3

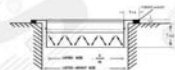


SG 3



SG 4 GRILLE : Vertical face bars with «L» blade

SR 4 REGISTER : Vertical face bars with «L» blade , and damper .



SR 4



SG 4



Types of Blades



Air Foil Blade



Lens Blade

DOUBLE DEFLECTION.

These grilles offer maximum flexibility with two rows of individually adjustable bars that are designed to direct the air flow in both the vertical and horizontal planes.

Bars are heavy extruded aluminium or steel of the teardrop design to minimize resistance.

DOUBLE DEFLECTION WITH DAMPER.

Double deflection registers have two rows of face bars individually adjustable to provide any desired air flow in both the horizontal and vertical planes .

The sturdy extruded aluminium or steel bars are teardrop designed for minimum resistance .

The opposed and parallel dampers distributes the air flow evenly to the entire face , and provides accurate volume control .

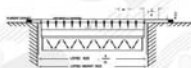


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MODELS OF GRILLES & REGISTERS :

SG 5 GRILLE : Horizontal face bars, vertical rear bars with «AF» blade.

SR 5 REGISTER: Horizontal face bars, vertical rear bars with «AF» blade and damper.



SR 5

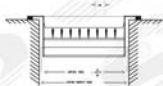


SG 5



SG 6 GRILLE : Vertical face bars, horizontal rear bars with «AF» blade.

SR 6 REGISTER: Vertical face bars, horizontal rear bars with «AF» blade and damper.



SR 6



SG 6



SG 7 GRILLE : Horizontal face bars, vertical rear bars with «L» blade.

SR 7 REGISTER: Horizontal face bars, vertical rear bars with «L» blade and damper.



SR 7



SG 7

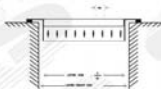


SG 8 GRILLE : Vertical face bars, horizontal rear bars with «L» blade

SR 8 REGISTER: Vertical face bars, horizontal rear bars with «L» blade and damper.



SR 8



SG 8



Types of Blades



Air Foil Blade



Lens Blade

SIZE SELECTION CHART

INSTRUCTIONS FOR USE OF CHART

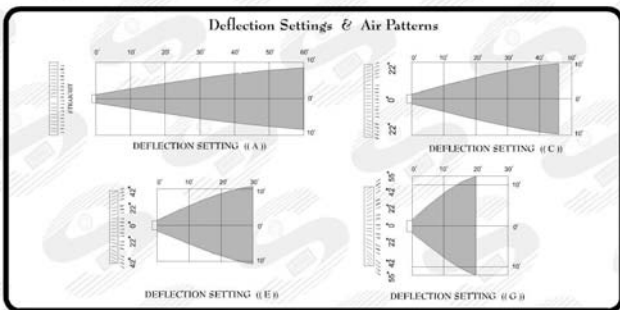


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- 1- Select proper deflection setting from engineering data. For long throws and close lines, use "A" or "C" deflection. For shorter throws and greater center line distances, use "E" or "G" deflection, for average condition, use a "C" deflection Setting.
- 2- Locate the required throw in feet and proceed horizontally to the intersection of the required CFM line. If this intersection does not fall directly on a vertical size line, proceed diagonally along the CFM line to the nearest size line.
- 3- The jet velocity and total pressure at the operating point apply to a "C" deflection setting. To determine the exact jet velocity for other deflection settings, multiply the jet velocity shown on the chart by the following factor:
 "A" deflection 0.9; "E" deflection 1.1; "G" deflection 1.2.
 Using this new velocity, the equivalent total pressure can be read directly from the chart.
- 4- The operating point should fall at or below the recommended jet velocity for various design applications as shown on engineering data. If the operating point falls above the recommended velocity, proceed diagonally downward on the CFM Line to a larger size grille within the recommended velocity limits.
- 5- Chart must be used in conjunction with DROP CHART



ENGINEERING DATA



General Conclusions on Air Distribution

As a result of studies on the throw, drop and temperature rise of an air stream, the following conclusions have been derived:

- (1) The throw from a straight flow grille varies with the square root of the daylight area of the grille and with the face velocity.
- (2) The aspect ratio of a grille has no appreciable effect on the distance of air throw.
- (3) If the air streams from a grille are converged, it results only in cutting down the effective area of the grille.
- (4) Breaking the air stream up into jets has no effect on either the rate of mixing or the throw.
- (5) Fanning out the air stream shortens the throw, the amount depending on the degree of deflection.
- (6) The drop, for a given throw, of an air stream below room temperature varies about inversely as the face velocity and directly as the temperature differential.
- (7) For any given velocity neither the aspect ratio of the grille, breaking the air stream up into jets nor impinging the air streams together equally have any effect on the drop of the air stream.

Recommended Delivery Velocities

Many sources may be responsible for the total sound energy delivered to any room such as blower, refrigeration equipment, excessive air velocities or turbulence in the duct system, or excessive pressure drops across dampening devices. Basically the sound caused by an air outlet is directly proportional to the velocity of the air passing through it. Therefore, by selecting outlet of the proper size, the velocities through the device will not add any appreciable noise to the sound level already existing in the ductwork behind the outlet. The table gives recommended outlet velocities for various applications.

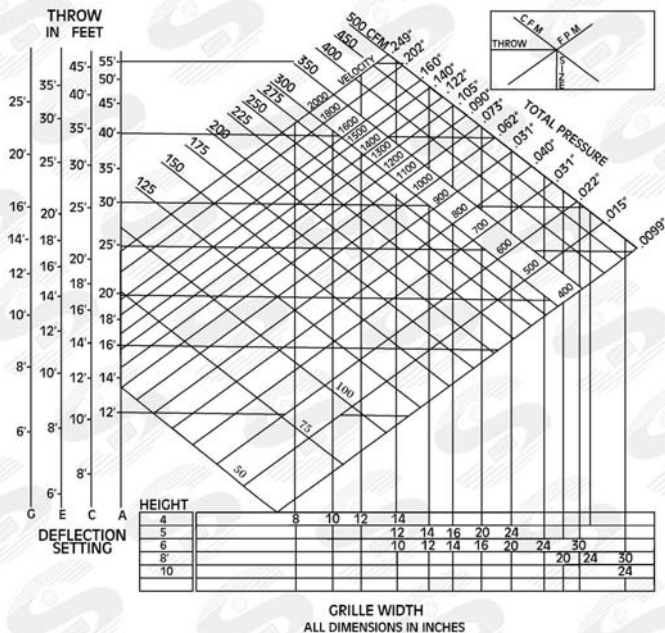
Application

Recommended
Velometer Velocities

Broadcasting studios	500	500 FPM
Residences	500 to 750	FPM
Apartments	500 to 750	FPM
churches	500 to 750	FPM
Hotel Bedrooms	500 to 750	FPM
Legitimate Theatres	500 to 1000	FPM
Private offices, acoustically treated	500 to 1000	FPM
Motion picture Theatres	1000 to 1250	FPM
Private offices, not treated	1000 to 1250	FPM
General offices	1250 to 1500	FPM
Stores, upper floors	1500	FPM
Stores, main floors	1500	FPM
Industrial buildings	1500 to 2000	FPM

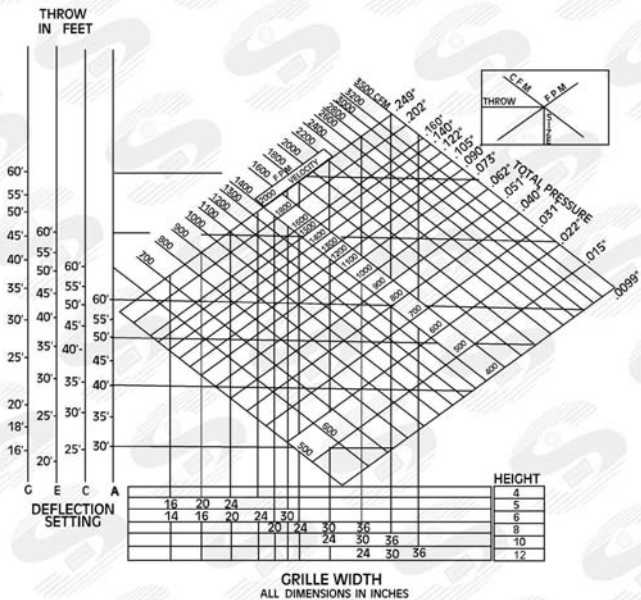


Size Selection Chart 50-500 CFM





Size Selection Chart 500-3500 CFM



DROP CHART FOR SUPPLY GRILLES AND REGISTERS

Air drops after ejection from a grille because of: (1) Expansion of the air stream after it leaves a grille; and (2) Temperature differential between the primary and secondary air. Failure to analyze what the drop will be may result in unsatisfactory distribution. If it is found that the air stream will fall into the occupied zone before the end of the throw, horizontal rear bars should be selected so that the air stream can be arched above the occupied zone. If such procedure is not possible, or where drop is exorbitant, another grille layout should be considered.

INSTRUCTION FOR USE OF CHART

A 16" x 5" grille with "C" deflection has been selected to discharge 225 cfm with an 18' throw.

The resultant Jet velocity of 600 fpm can be read from the Selection Chart.

PROBLEM: Determine the drop at 15 temperature differential.

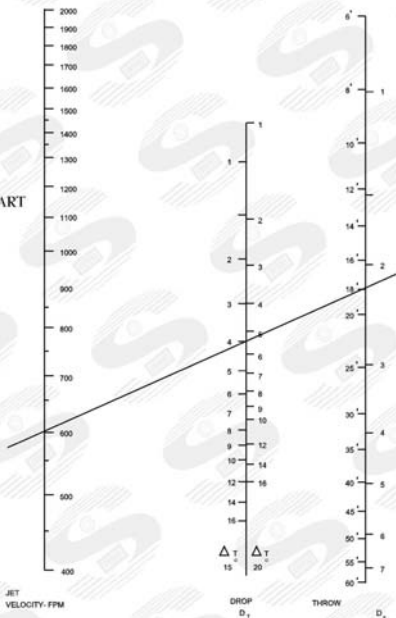
SOLUTION: Lay straight edge on throw and velocity ordinates connecting values from example above (shown by dotted line). Total drop of air stream is found by adding drop due to temperature differential (D_t scale) and drop due to spread of the air stream (D_s Scale).

$$D_s = 4'$$

$$D_t = 2.25'$$

therefore:

$$D_{\text{total}} = 4' + 2.25' = 6.25'$$



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TYPES OF DAMPERS USE FOR SUPPLY REGISTERS :

The volume control dampers are two kinds of opposed - blade and parallel - blade . Volume - control units designed for installation in rectangular neck diffusers . The blades are rigid, rolled forms , set in a frame formed for strength and stiffness.

The blades overlap when in the closed position. The volume control unit should be installed before the duct ring is in place. The blades of the volume control unit are adjusted by means of a screw driver after the center section of the diffuser is removed .



Model : PD1



Model : PD2

The PD type dampers use for where the air stream in the main duct flow parallel with the straight side.

The OD type dampers use for where the air flow in the main duct is perpendicular to the straight side.



Model : OD