

DATE: AUGUST 2001  
PRODUCT GRILLES AND REGISTERS  
SUBJECT: OVERSIZED (MULTIPLE SECTION) GRILLES – PERFORMANCE DATA NOTES  
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## DETERMINING THE PERFORMANCE OF OVERSIZED (MULTIPLE SECTION) GRILLES

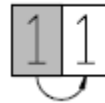
1. Calculate the neck velocity of the nominal size you are looking at.
2. Select a nominal single section size from the catalog data.
3. Read the data at the corresponding neck velocity.
4. To calculate the NC Level – add 3 NC each time the selected single section size is doubled.
5. To calculate the Throw values (at 150, 100, or 50 fpm terminal velocity), use the correction factor of x 1.4 each time the selected single section size is doubled.

### Example 1. 51DV or 51DH Double Deflection Grille

Grille Size = 72" x 48"  
Volume = 17,000 cfm

1.  $Velocity = \frac{Volume}{Area} = 708 \text{ fpm}$

2. Section Size = 36" x 48"  
Section Qty. = 2  
Selected section size is doubled once



3. Catalog data for 36" x 48" at 700 fpm  
NC = 37  
Throw (@ 50 fpm terminal velocity) = 149 ft.

4. NC Calculation = Add 3 NC per doubling  
37 NC + 3 = 40 NC

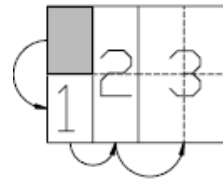
5. Throw calculation – Multiply cataloged data x 1.40 per doubling.  
Throw = 149 x 1.4 = 213 ft.

Example 2. 81DV or 81DH Double Deflection Industrial Grille

Grille Size = 80" x 60"  
Volume = 23,000 fpm

1. Velocity =  $\frac{\text{Volume}}{\text{Area}}$  = 690 fpm

2. Section Size = 20" x 30"  
Section Qty. = 8  
Selected section size is double three times



3. Catalog data for 20" x 30" at 700 fpm  
NC = 26  
Throw (@ 50 fpm terminal velocity) = 94

4. NC Calculation = Add 3 NC per doubling  
3 x 3 NC = 9 NC Add  
NC + 9 NC = 35 NC

5. Throw calculation = Multiply cataloged data x 1.40 per doubling  
Throws =  $94 \times (1.4)^3 = 258$  ft  
(i.e.  $94 \times 1.4 \times 1.4 \times 1.4 = 258$ )