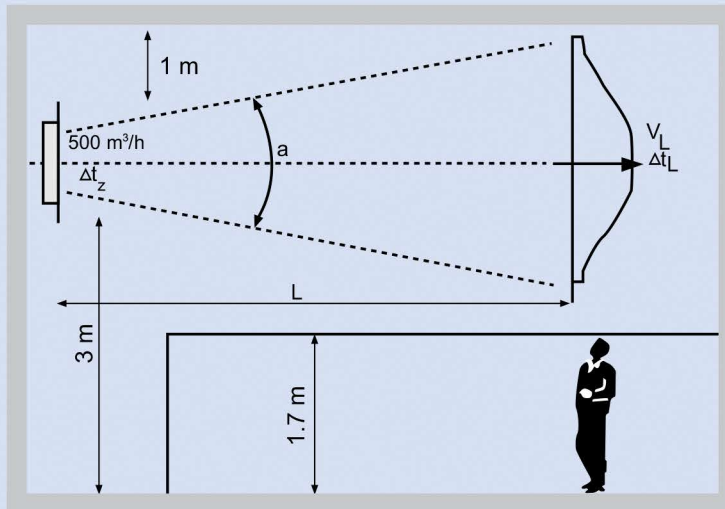## Selection

Example

In an environment winged grilles that are placed in double array will supply 500 m³/h of air. Grilles are 3 meters above from the ground and 1 meter below from the ceiling and the desired shoot length is 5 meters. The first array of grilles are adjusted straigth and the vertical second array are adjusted such that they have 45° angle. The temperature of the cooling air is 8°C lower than the environment. Select suitable size of the grilles.

Solution

1. From the table at page 13, coefficient is found as 0,7 for the given grille angle.

2. Shooting length is calculated as 5 / 0,7 = 7,14 m for the selection graph.

3. Shooting length is calculated as 7,14 / 0,7 = 10,2 m due to ceiling unaffected layout.

4. From the graph at page 13, the net grille area is found as 320 cm² for 500m³/h air flow rate and 10,2m shooting legth.

5. From the table at page 14 the nearest grille size is found as 300 x 200mm.

6. From the graph at page 13, shooting length for air flow rate of 500m³/h and 300x200 mm (384 cm²) grille area is found as 9,5 meters.

7. After the proper coefficients are applied real shooting length is calculated as 9,5 x 0,7 x 0,7 = 4,65 meters.

8. From the graph at page 14, vertical declination for air flow rate of 500 m³/h, air speed of 4,5 m/s, shooting length of 4,65 is found as 0,4 meter. Air profile is suitable since it is not falling into and temperature difference of 8°C comfort zone.

9. From page 15, the temperature difference between the environment and air profile for net area of 384m³/h, shooting length of 4,65m and temperature difference of 8°C is found as 2,1°C.

10. From the tables at page 13, for 4.5 m/s

   Pressure loss = 16.5 Pa

   Sound level = 31dB (A)

11. With the application of correction coefficients for wing angles

   Pressure loss = 16.5x1.1 = 18Pa

   Sound level = 31+1 = 32 dB (A)