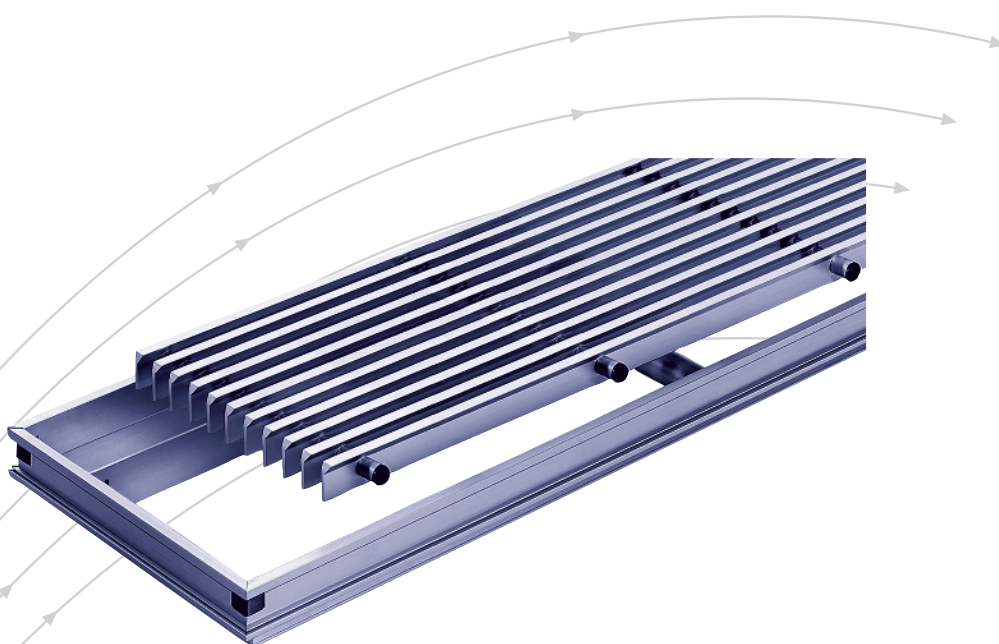


# Linear and Floor Grilles

## Dimensioning



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## Definitions

B	mm	Nominal width of grille
H	mm	Nominal height of grille
A	m <sup>2</sup>	Nominal surface = B × H
A'	m <sup>2</sup>	Free surface = A × r
r		Proportion $\frac{A'}{A} = 0.63 = 63\%$ (from H > 57)
$\dot{V}$	m <sup>3</sup> /h	Air volume rate
v <sub>eff</sub>	m/s	Effective air velocity

$$v_{\text{eff}} = \frac{\dot{V}}{B \times H \times 2150} \quad \text{m/s}$$

it is: B and H in m

$\mu$		Contraction number = 0.95
$\alpha$		Air stream divergence angle = 20°
$\delta$		Inclination of the stream axis ~ 24°
v <sub>L</sub>	m/s	Air velocity on the stream axis at the end of the jet = 0.5 m/s
v <sub>Lm</sub>	m/s	middle air velocity at the end of the jet ~ 0.15 - 0.2 m/s
L	m	Air throw

## Calculation examples

### Single grille (———)

Straight blowing out, 10 off  
Total air volume rate,  $\dot{V} = 5300 \text{ m}^3/\text{h}$   
Air volume rate per grille  $\dot{V} = 530 \text{ m}^3/\text{h}$   
Throw L = 3 ./ 4 m  
Air velocity v<sub>eff</sub> = max. 2.5 m/s

Grille size: B × H = 1000 × 107 mm  
Throw L = 3.5 m  
Air velocity v<sub>eff</sub> = 2.3 m/s  
Pressure drop  $\Delta p_s = 1.7 \text{ Pa}$

### Continuous grille (-----)

Diagonal blowing out, 1 off, B = 10 m  
Air volume rate  $\dot{V} = 200 \text{ m}^3/\text{h} \times 1 \text{ fm}$   
Air velocity v<sub>eff</sub> = 1.5 ./ 2.0 m/s

Height of grille H = 57 mm  
Throw L = ~ 2.0 m  
Air velocity v<sub>eff</sub> = 1.6 m/s  
Pressure drop  $\Delta p_s = 1 \text{ Pa}$

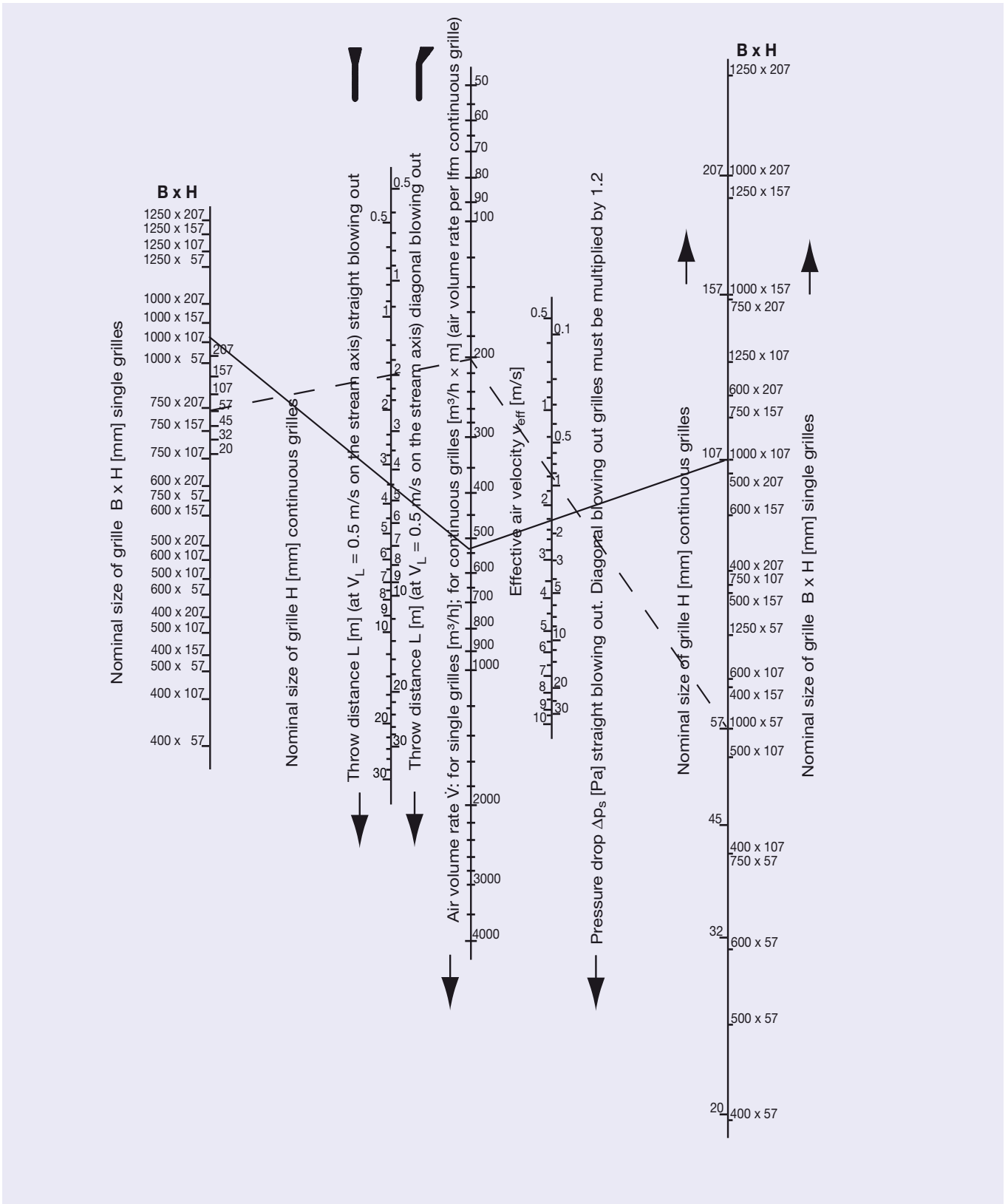
### Attention

Throw of continuous grille is only valid by air velocity v<sub>eff</sub> = 1.0 - 3.0 m/s.

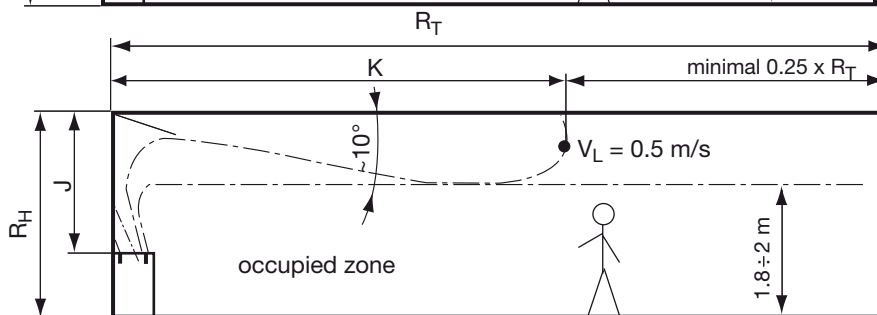
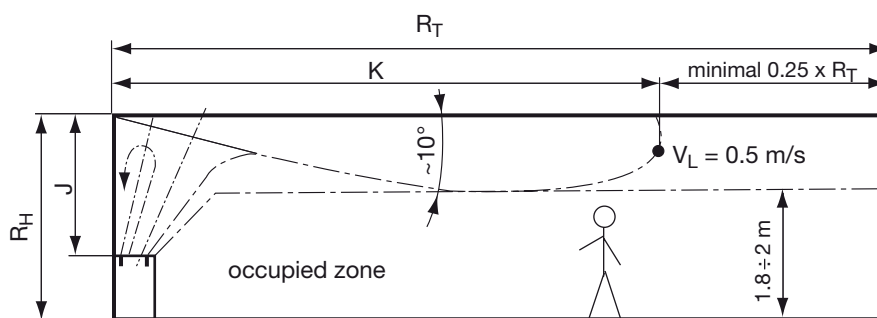
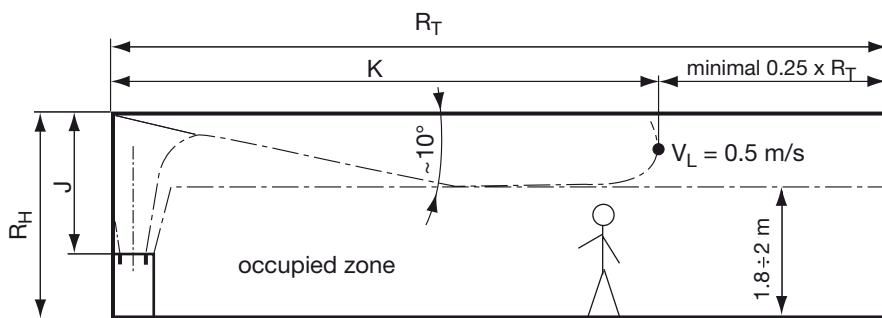
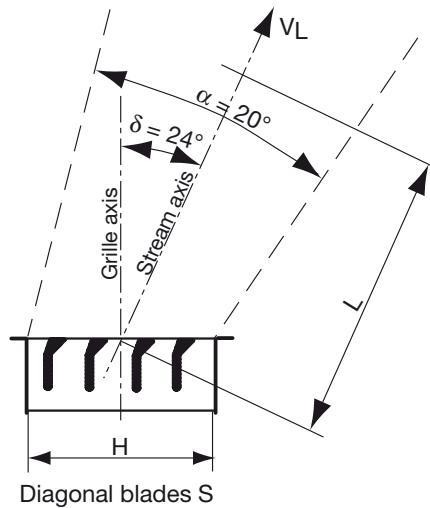
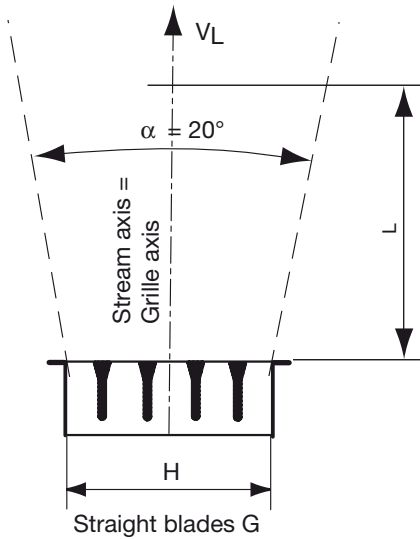
## Attention

For type BG-U please count additional to the width B + 50 mm and for the height H + 38 mm.

f.e. Grille size according to diagram = 1000 × 107 mm  
 Grille size for BG-U = 1050 × 145 mm



# Technical Data



Legend: L = Throw m  
 J, K = Parts of the throw m  
 e = Returning factor -  
 $R_T$  = Deep of the room m  
 $R_H$  = Height of the room (for floor grille  $J = R_H$ ) m

$$L = J + \left(\frac{K}{e}\right)$$

$$K = (L - J) \times e$$