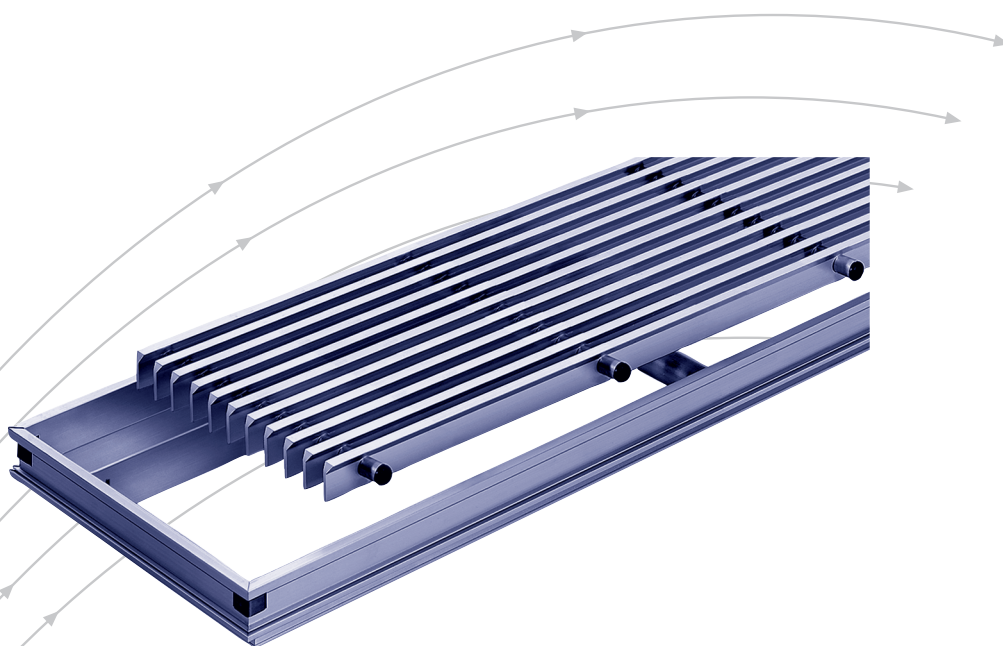


Linear and Floor Grilles

Dimensioning



TROX[®] / TECHNIK



The art of handling air

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Definitions

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

μ		Contraction number = 0.95
α		Air stream divergence angle = 20°
δ		Inclination of the stream axis ~ 24°
v _L	m/s	Air velocity on the stream axis at the end of the jet = 0.5 m/s
v _{Lm}	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_{eff} = max. 2.5 m/s

Grille size: B × H = 1000 × 107 mm
 Throw L = 3.5 m
 Air velocity v_{eff} = 2.3 m/s
 Pressure drop Δp_s = 1.7 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_{eff} = 1.5 ./ 2.0 m/s

Height of grille H = 57 mm
 Throw L = ~ 2.0 m
 Air velocity v_{eff} = 1.6 m/s
 Pressure drop Δp_s = 1 Pa

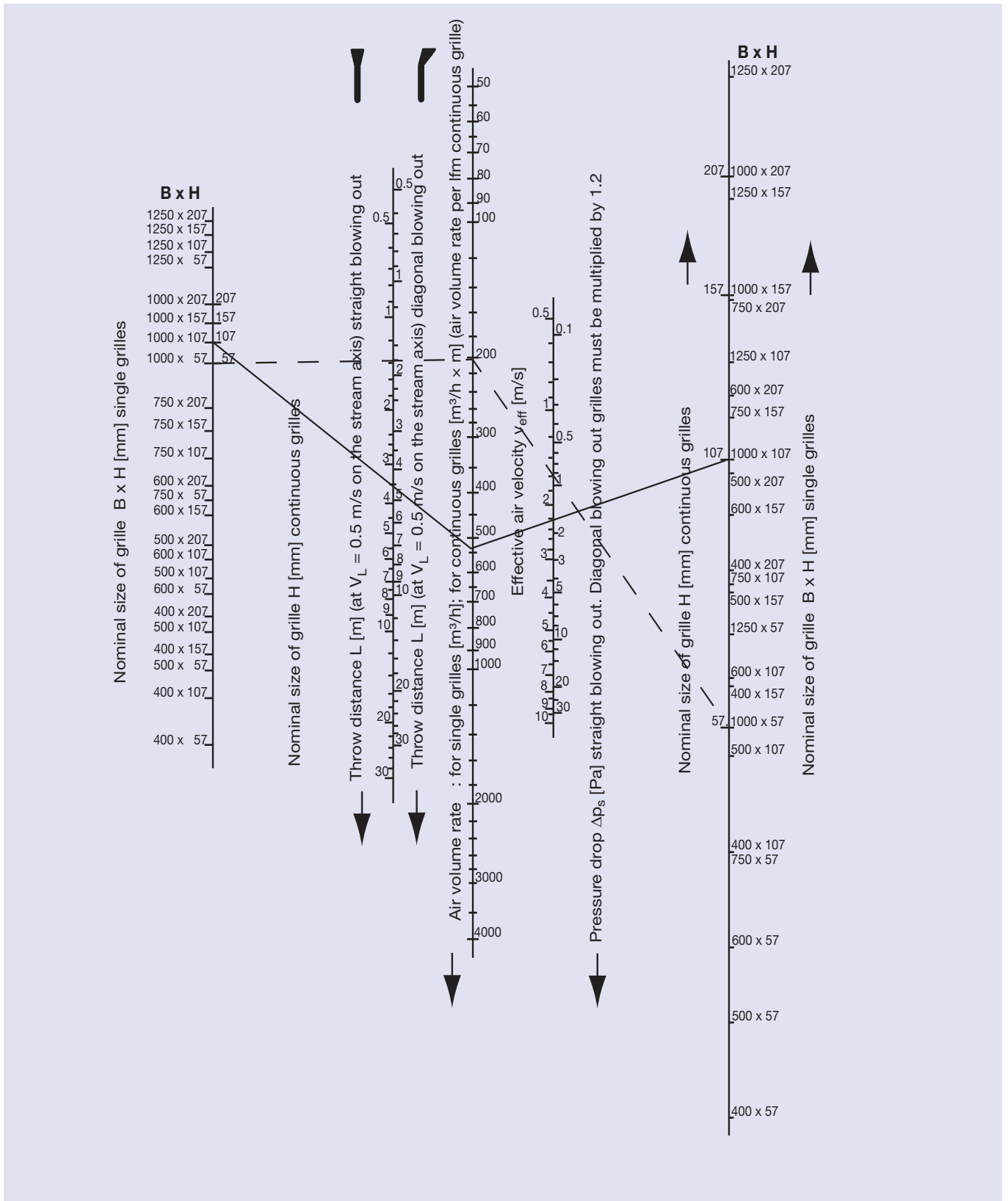
Attention

Throw of continuous grille is only valid by air velocity v_{eff} = 1.0 - 3.0 m/s.

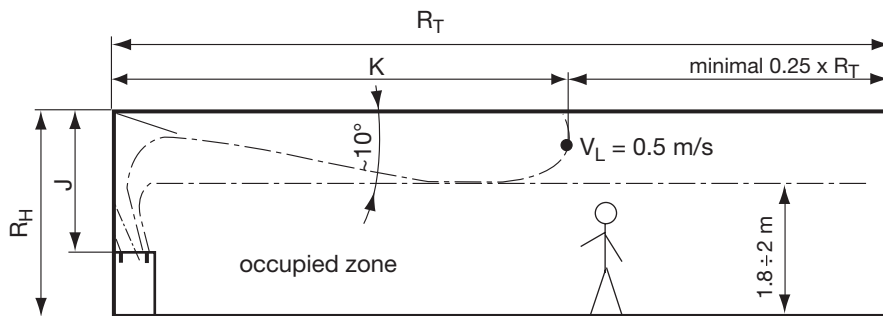
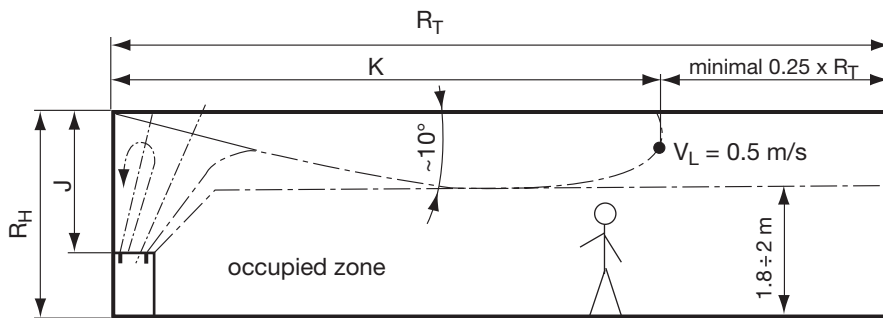
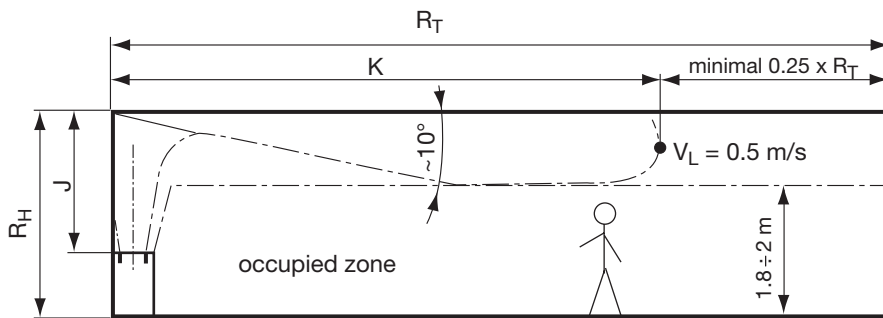
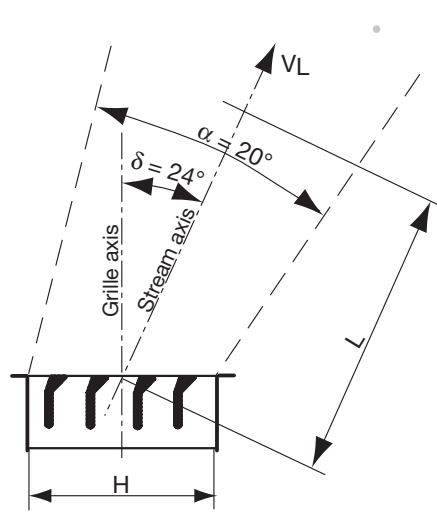
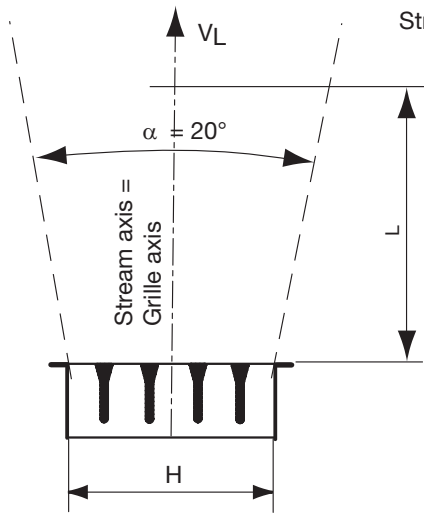
Attention

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 -
 - RT = Deep of the room m
 - RH = Height of the room (for floor grille J = RH) m

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

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