



BCA

Linear Grilles

Description

The BCA type grilles are designed for wall applications. They can be used for supply or extract air.

Properties

The BCA type grilles have fixed blades. For supply air purposes, they are characteristically suitable for horizontal air throws. Where "Coanda effect" is required, they should be installed close to the ceiling.

Materials

The frame and the blades are manufactured from ETIAL-60 norm aluminium extruded profile.

Surface Treatment

The surfaces of the grilles are first cleaned, then treated with chromating process; after which, are painted electrostatically, with 20% gloss RAL 9010 (white) as standard. Other colours are also available upon request.

Accessories

Damper With Opposed Blades

Depending on application characteristics, an opposed blade damper can be installed on the back side of the grille. This damper is a separate item which can be operated by its special tool from the face of the grille. Opposed blade dampers are manufactured from ETIAL-60 norm aluminium extruded profiles. To prevent reflection, they are painted RAL 9005 (matt black) as standard.

Damper With Parallel Blades

Depending on application characteristics, a parallel blade damper can be installed on the back side of the grille. This damper is a separate item which can be operated by its special tool from the face of the grille. It can also be manufactured as fixed to the grille frame. Parallel blade dampers are manufactured from ETIAL-60 norm aluminium extruded profiles. To prevent reflection, they are painted RAL 9005 (matt black) as standard, if manufactured separately. If manufactured as a unit with the grille, then they are painted the same colour with the grille.

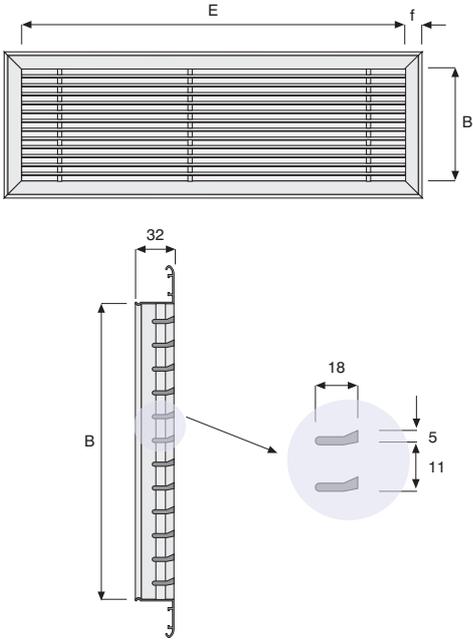
Plenum Box

The plenum box is used to achieve optimum throw characteristics. It has the inlet either at the top or at one side. Depending on request, a damper can be installed at the inlet, which can be operated internally or externally (has to be specified with the order). The plenum boxes are made from 0.6 mm thick galvanized steel sheets and have 4 hanging brackets on their body. Optionally, a 6 mm thick acoustic foam can be laid inside the plenum box.

Installation Subframe

On customer request, an installation subframe is given with the grille for easy installation. This subframe is made of galvanized steel sheet and is painted the same colour with the grille.

Dimensions



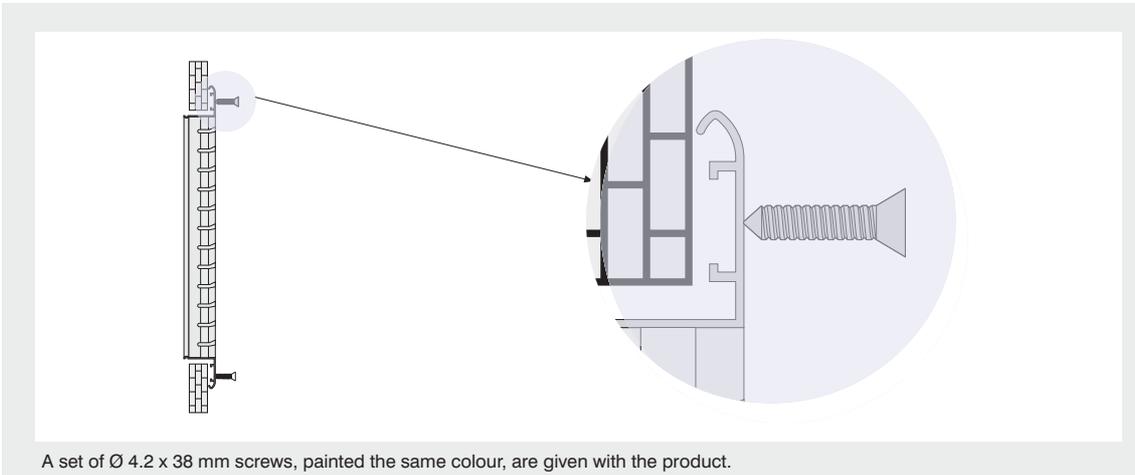
E (mm)	B (mm)
500	100
600	200
700	300
800	400
900	
1000	
1100	
1200	
1300	
1400	
1500	

Net Area ($A_{eff.}$) (cm²)

		E (mm)										
		500	600	700	800	900	1000	1100	1200	1300	1400	1500
B (mm)	100	340	408	476	544	612	680	748	816	884	952	1020
	200	697	836	976	1115	1255	1394	1533	1673	1812	1952	2091
	300	1054	1265	1476	1686	1897	2108	2319	2530	2740	2951	3162
	400	1360	1632	1904	2176	2448	2720	2992	3264	3536	3808	4080

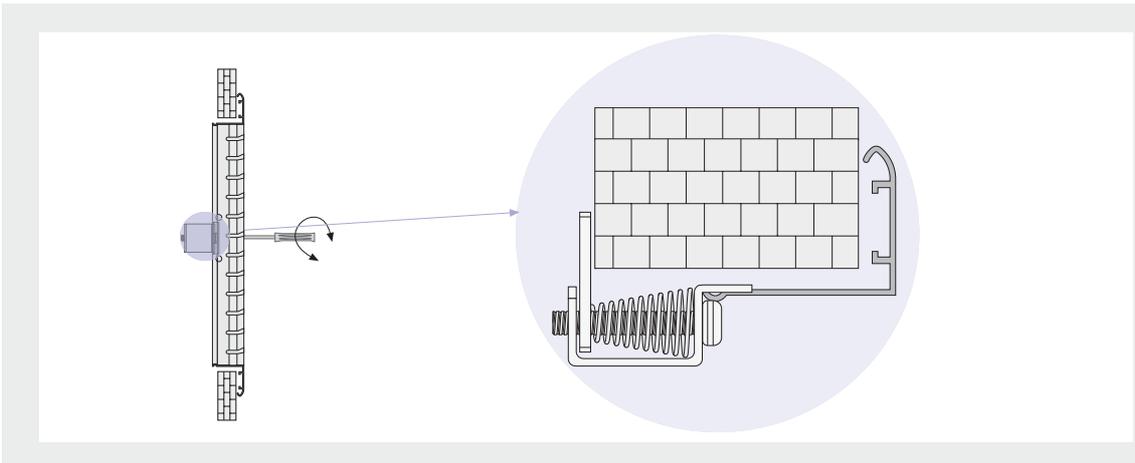
Installation

With Screws



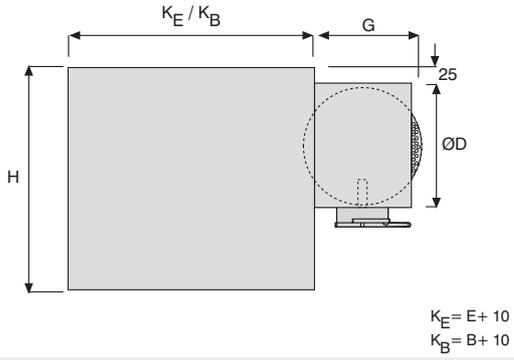
A set of $\varnothing 4.2 \times 38$ mm screws, painted the same colour, are given with the product.

Concealed Fixing

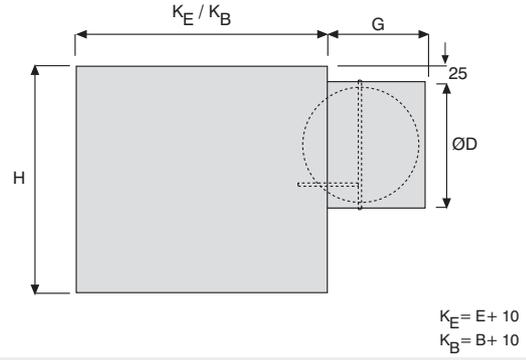


Plenum Box

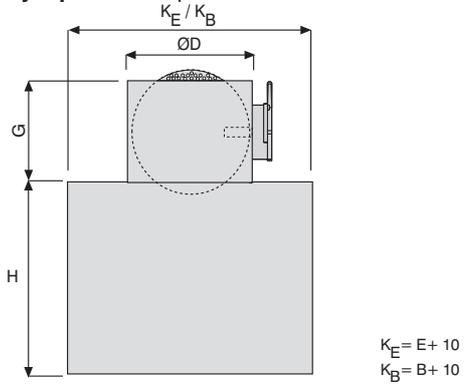
Externally Operated Side Inlet



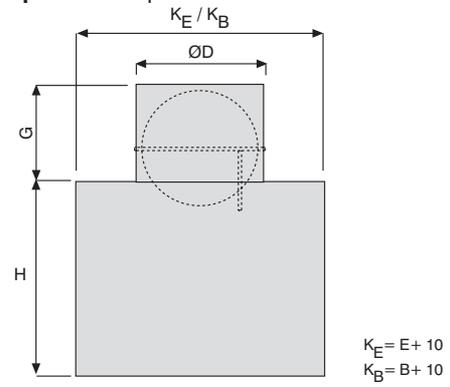
Internally Operated Side Inlet



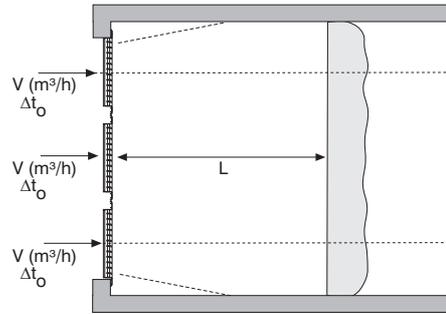
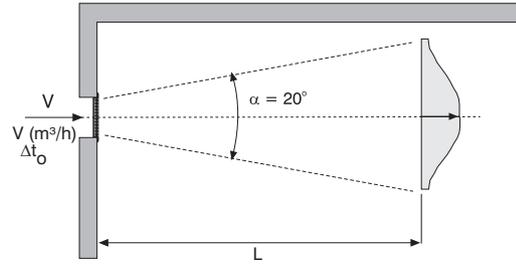
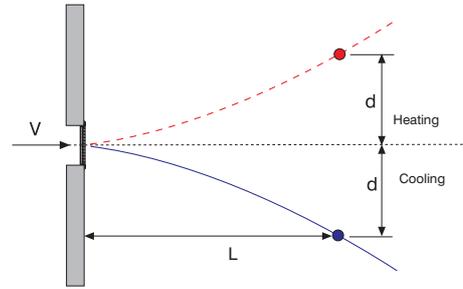
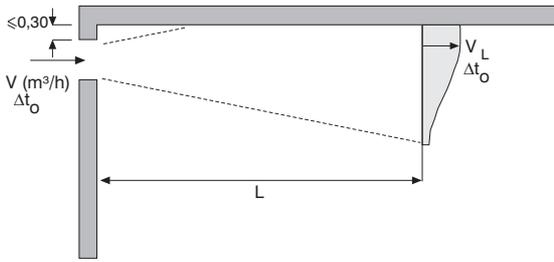
Externally Operated Top Inlet



Internally Operated Top Inlet



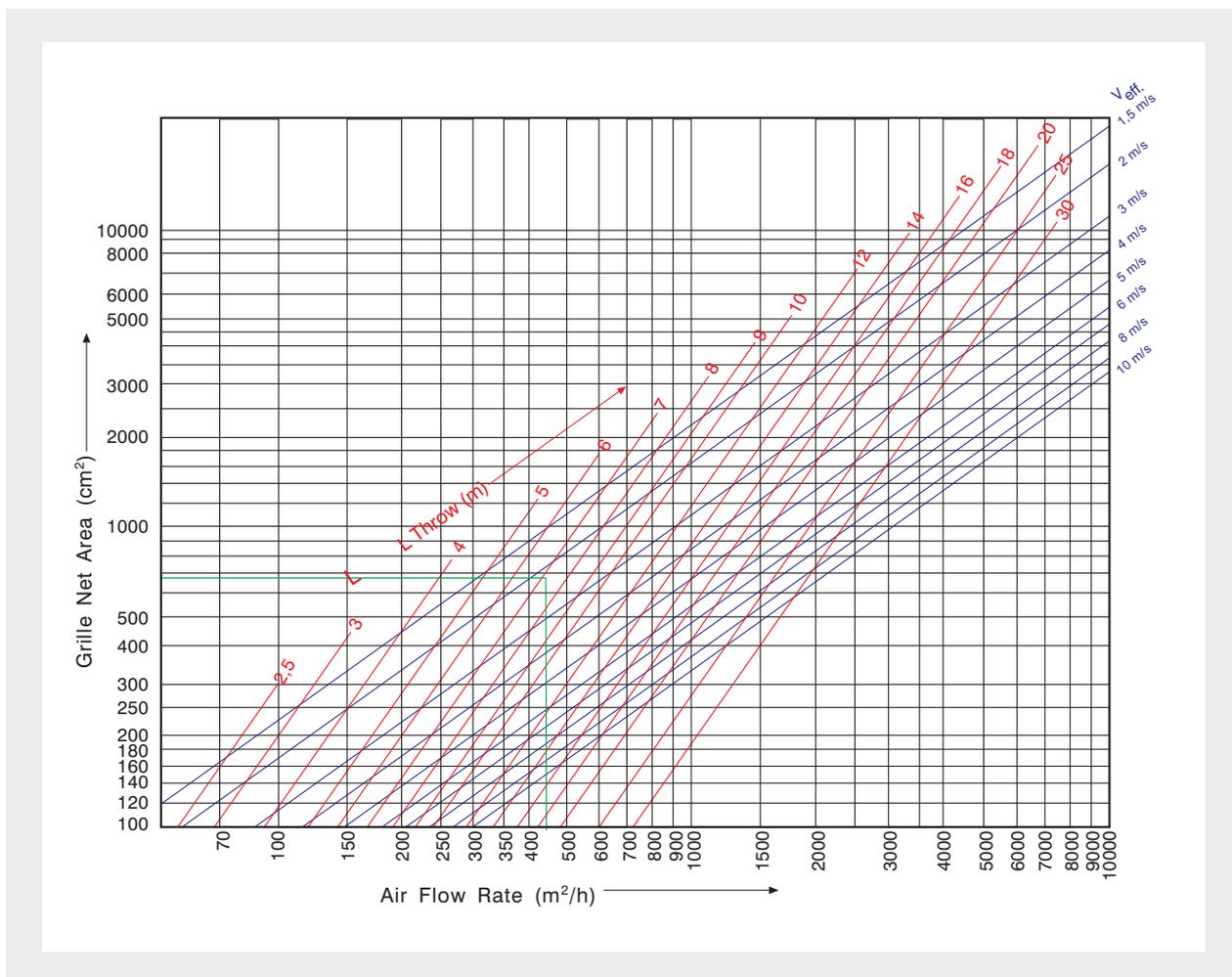
Nomenclature



A_{eff}	Effective area (cm ²)
v_{eff}	Effective discharge velocity (m/s)
v_L	Velocity at distance L
d	Vertical deflection of air (m)
V_T	Total air flow rate (m ³ /h)
Δt_L	Difference between core and room temperature at distance L (°C)
Δt_0	Difference between supply air and room temperatures (°C)
L	Throw length (m)
α	Air discharge angle (°)

Technical Data

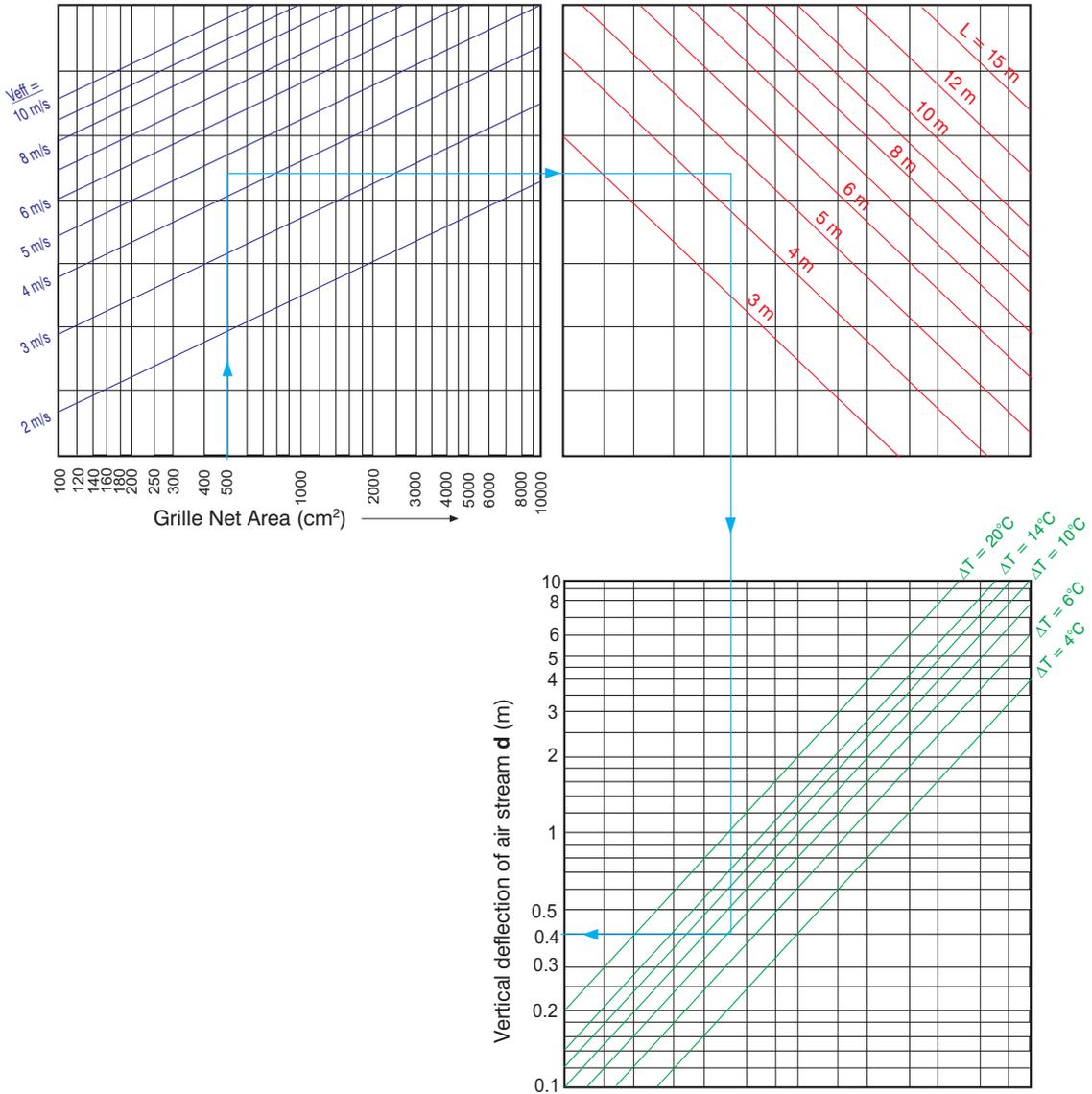
Note: This chart is valid for the condition that the top of the grilles is closer than 300 mm to the ceiling. For farther locations from the ceiling, the throw must be multiplied by 0.7. Pressure loss and sound power level values are valid for 100% open damper position.



Supply Air			Extract Air		
V _{eff.} (m/s)	Pressure loss ΔP(Pa)	Sound power level dB(A)	V _{eff.} (m/s)	Pressure loss ΔP(Pa)	Sound power level dB(A)
2	3	<20	2	1	<20
3	7	20	3	3	20
4	13	28	4	5	23
5	20	35	5	8	33
6	29	40	6	12	38
7	37	43	7	17	42
8	44	47	8	21	45
9	60	50	9	30	48
10	80	55	10	36	51

Note: This chart is valid for the condition that the top of the grille is located farther than 300 mm from the ceiling. Deflection (d) is upwards for heating and downwards for cooling.

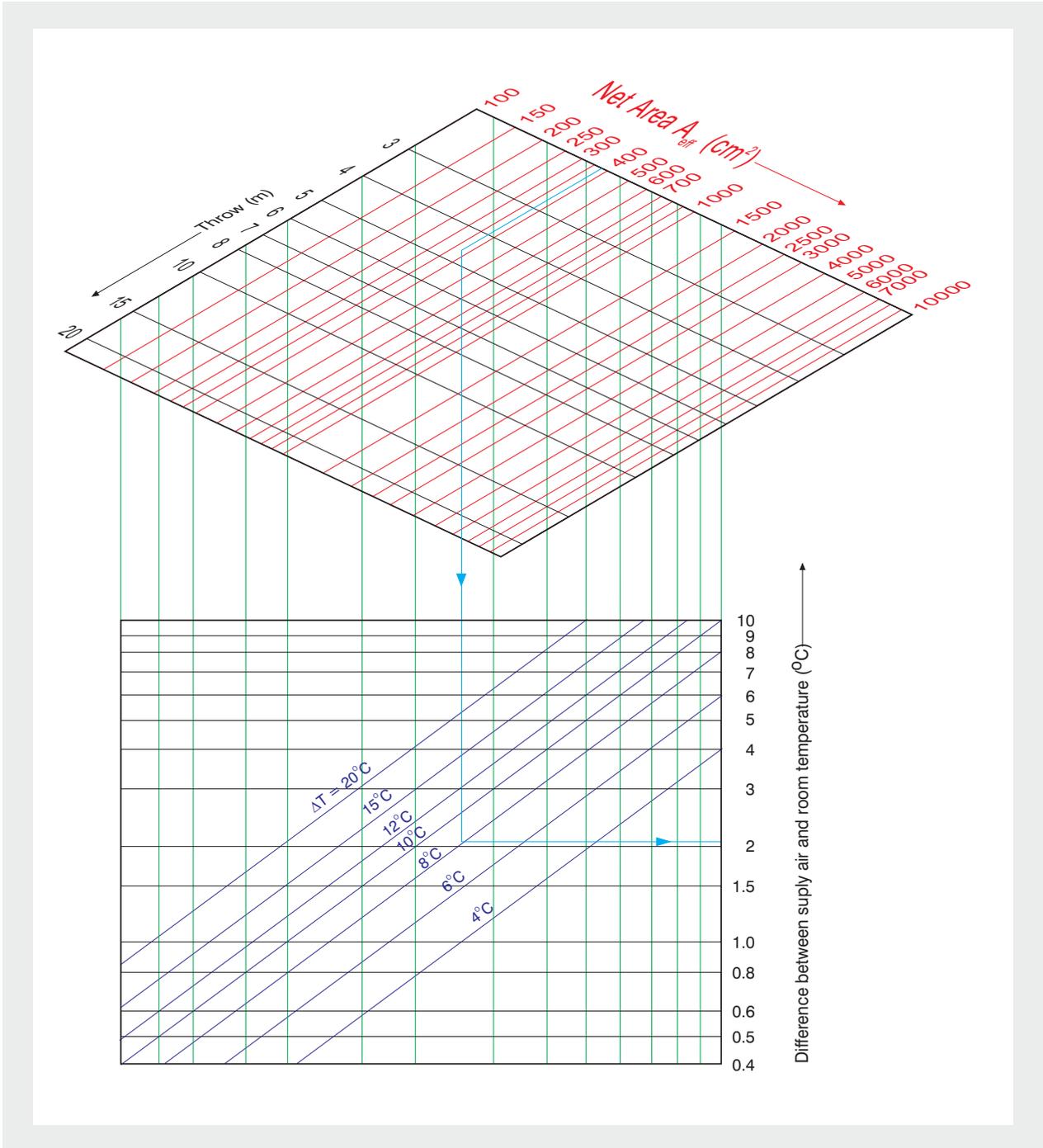
Vertical Deflection of Air Stream



Technical Data

Note: This chart is valid for the condition that the top of the grille is closer than 300 mm to the ceiling. For farther locations the temperature gradients value must be multiplied by 0.7.

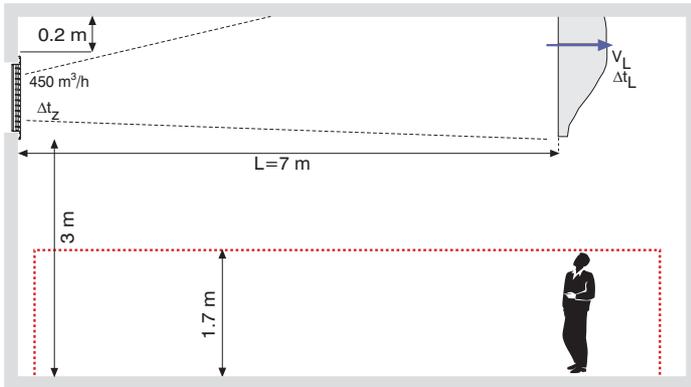
Temperature gradients Along The Throw Path



Example:

Air at 3600 m³/h from an 8 m long linear grille on a wall, is to be supplied into a room. The grilles are 20 cm below the ceiling and 3 m above the floor. The required throw is 7 m.

Supplied air temperature is 8°C below room temperature. Choose a suitable linear grille size.

**Solution:**

- 1) Air flow rate per metre of grille is found to be $3600 / 8 = 450 \text{ m}^3/\text{h}$.
- 2) Throw length for lookup on the graph is taken as 7 m, since there is ceiling effect.
- 3) From the graph on page 6, V_{eff} is read as 2 m/s; for 450 m³/h and 7 m throw.
- 4) From the same graph on page 6, net grille area is read as 680 cm²
- 5) From the table on page 3, the size 1000x100 mm is read for a net area of 680 cm².
- 6) Since the throw is with ceiling effect, the graph on page 7 for vertical deflection is not used.
- 7) From the graph on page 8, the temperature gradient is read as 1.3°C for 7 m throw, 680 cm² net area and 8°C temperature difference.
- 8) From the tables on page 6, for 2 m/s outlet velocity, the pressure loss is read as 3 Pa and sound power level as <20 dB(A)
- 9) It is decided that we can use 8 units of 1000x100 mm linear grilles.

Specification Text

Linear grille for wall installation. The grille will be manufactured from ETIAL-60 norm aluminium profiles, and chromated; then, will be painted to ordered request with electrostatic powder paint and a minimum thickness of 60µ. The linear grille will be composed of two parts, the frame and the blades. Optionally, opposed or parallel blade dampers will be installed at the back of the grille. The dampers will be manufactured from ETIAL-60 norm aluminium profile, and painted. The dampers will be adjusted from the front of the grille by its special tool (opposed blades) or by a small lever arm (parallel blades). Optionally, the installation subframe will be given with the product. The plenum box will be manufactured from 0.6 mm galvanized steel sheets by seams. There will be 4 hanging brackets on the box. Optionally, the entry spigot will be equipped with a volume

control damper, operated externally or internally, depending on request. Also, optionally, 6-mm thick acoustic foam (according to BS 476 Part 6 & 7 Class 0) will be installed inside the plenum box.

Order Code

Model		BCA.32.AA.1 1-500 x 300-9010	
Frame	22 mm 32 mm	E x B (mm) Refer to page 3	Indicate RAL Colour Code
Accessories	AA ..Single Row of Blades PA ..Parallel Blade Damper ZA ..Opposed Blade Damper		
Installation	0.....Without Screw Holes 1.....With Screw Holes 2.....With Clips 3.....Concealed Fixing		
Installation Accessories	0.....Without Installation Subframe 1.....With Installation Subframe		
		Standard Dimensions	Colour Code

Plenum Box Order Code

Model		PLA.10.S B.01-520 x 320 x 300 x 193 x 1	
Installation Type	10...With Screws 30...Concealed Fixing	Please indicate if special dimensions are requested. $K_E \times K_B \times H \times \varnothing D$ (mm) x s (no. of inlet spigots)	
Box Inlet	S.....Side Inlet T.....Top Inlet		
Perforated Rectifier Plate	A.....Without Damper B.....Externally Operated C.....Internally Operated		
Insulation	00...Without Insulation 01...With Acoustic Insulation		
			Plenum Box Dimensions

B

BCA

Linear Grilles

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