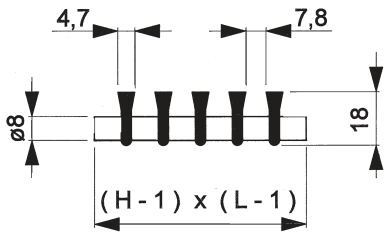
BAR GRILLE

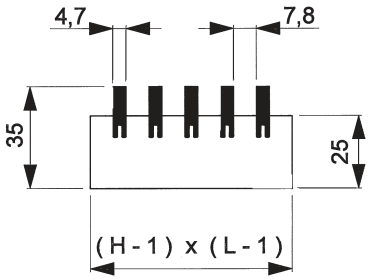
TYPE: AC300 • 400 • 500

Installation dimensions

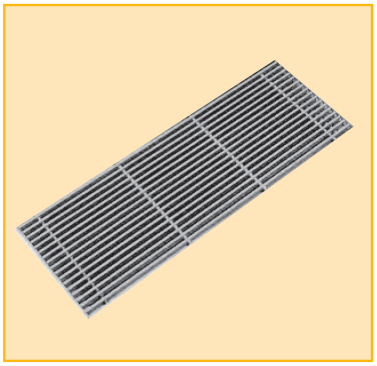
AC300



AC400/500



L: nominal length (mm)
H: nominal height (mm)
All dimensions in mm



Application

Bar grille type AC300 /400/500 is used for the supply and exhaust of cooled or heated air in facilities such as offices, shopping centres, ...
The grille consists of a core without flanges or system fixation.
The AC300/400 construction cannot be used for floor mounting; AC500 can.

Technical information

Characteristics:

- straight bars or with 15° deflection
- bars on 12,5 mm to centre
- available in multiples of 1 mm, in height as well as in length

  AC300:
  min L = 100 mm, max L = 2000 mm
  min H = 37,5 mm, max H = 600 mm

  AC400/500:
  min L = 100 mm, max L = 1500 mm
  min H = 37,5 mm, max H = 450 mm
- without frame or fixation system

Construction:

- extruded aluminium bars
- AC300: standard construction, sa-tin anodised
  AC400: robust construction, satin anodised
  AC500: robust construction for floor mounting, satin anodised

BAR GRILLE

TYPE: AC300 • 400 • 500

Specifications description

Example:

Aluminium grille without flanges with fixed horizontal extruded bars. Robust construction for floor mounting.

Type: **AC500**
nom. dim. (L x H) ... x ... mm

Accessories

- cannot be delivered with flow equalizer or damper
- acces door: see p. 1 181 and 1 201

Type of bars

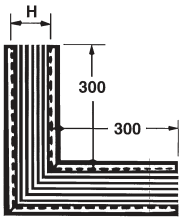
AC300
Deflection 0°

AC320
Deflection 15°

AC400/500
Deflection 0°

AC420/520
Deflection 15°

Corner sections



The corner sections are being manufactured in two pieces in an inner dimension of 300 x 300 mm nominal (see drawing).
The corner sections are standard 90°.

How to order:
AC300 corner section, height = 200 mm

A	C	3	0	0	C	-	0	3	0	0	0	2	0	0

3, 4 or 5
0: 0° deflection
2: 15° deflection
Size L x H
H
C: Corner section 0° deflection or 15° inwards
D: Corner section 0° deflection or 15° outwards

How to order

AC300, dimension 600 x 200 mm

A	C	3	0	0	-	-	0	6	0	0	0	2	0	0

L
H
0: bar grille
2: bar grille, 15° deflection
3: standard construction type 300
4: standard construction type 400
5: floor use reinforcement
C: core without frame

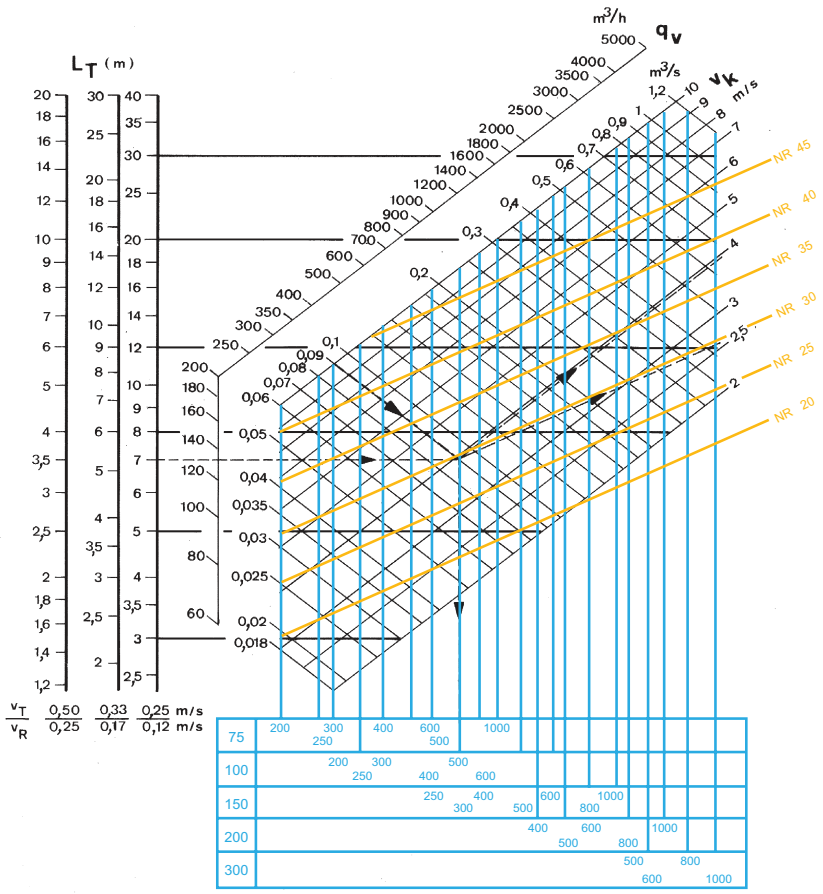
BAR GRILLE

TYPE: AC300 • 400 • 500

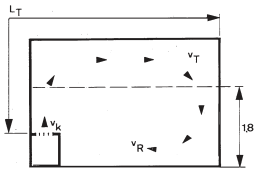
Selection diagram - supply

0° deflection

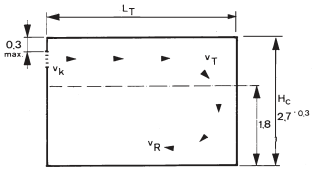
- with ceiling effect
- damper completely open



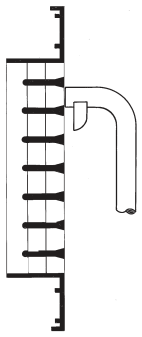
Sill mounted



Wall mounted



Air flow rate measurement- supply



Velometer jet 2220 A or 6070

A_k-values (m²)								
	L (mm)							
H (mm)	200	250	300	400	500	600	800	1000
75	0,006	0,008	0,009	0,013	0,016	0,019	0,027	0,031
100	0,009	0,011	0,013	0,019	0,023	0,027	0,038	0,047
150	—	0,019	0,023	0,031	0,038	0,047	0,063	0,078
200	—	—	—	0,042	0,053	0,063	0,084	0,108
300	—	—	—	—	0,084	0,099	0,133	0,167

Correction factors:

- Throw correction factor without ceiling effect

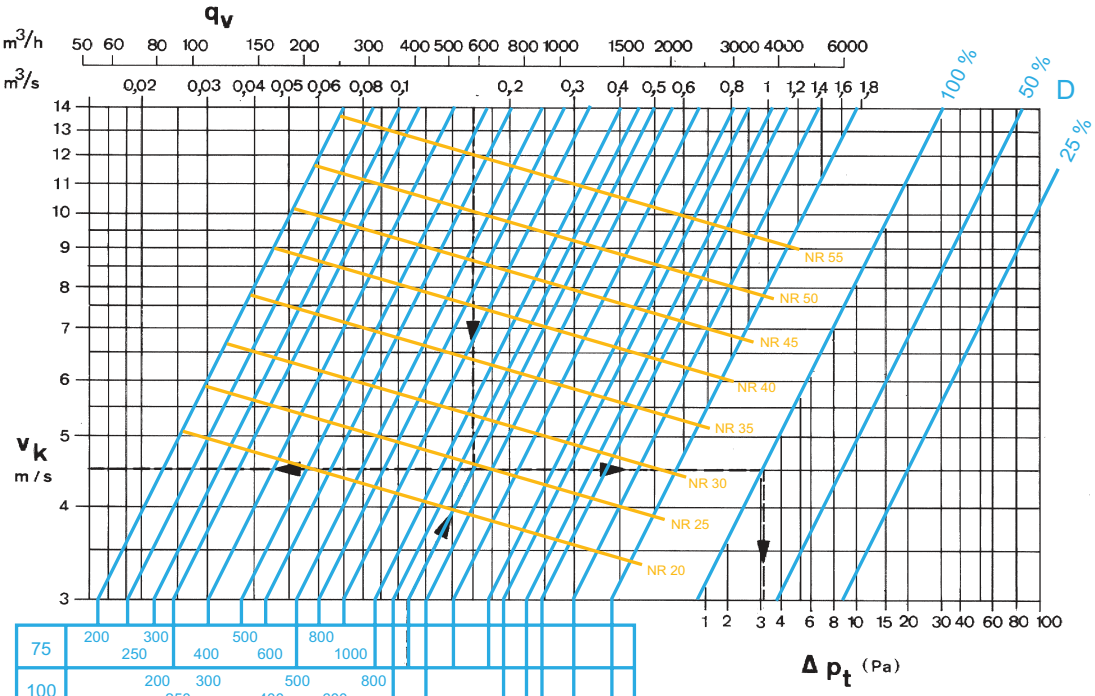
Distance between ceiling and supply grille	Correction
≥ 0,9 m	L_T X 0,75

- Correction factors for vertical vane deflection of flow equalizer (see p. 1 231 verso)

BAR GRILLE

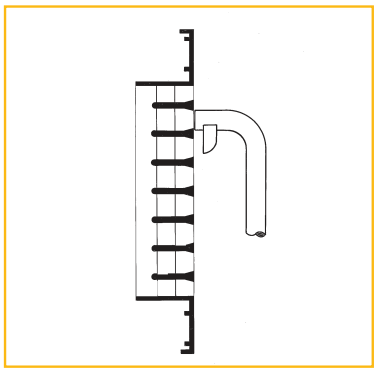
TYPE: AC300 • 400 • 500

Selection diagram - exhaust



When 15° deflected bars are used, air flow rate will be reduced by 5% at listed Δp_t and NR values.

Air flow rate measurement - exhaust



Velometer jet 2220 A or 6070

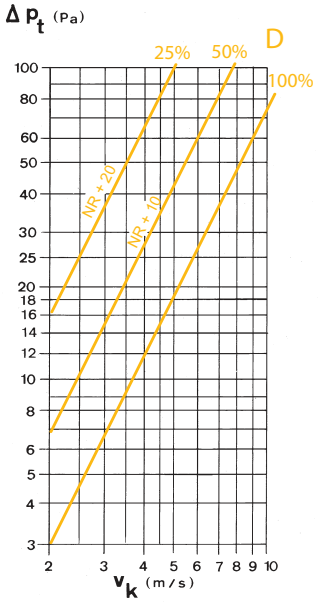
A_k-values (m²)								
	L (mm)							
H (mm)	200	250	300	400	500	600	800	1000
75	0,005	0,006	0,007	0,010	0,012	0,014	0,020	0,023
100	0,007	0,008	0,008	0,014	0,017	0,020	0,028	0,035
150	—	0,014	0,017	0,023	0,028	0,035	0,047	0,058
200	—	—	—	0,031	0,039	0,047	0,063	0,080
300	—	—	—	—	0,063	0,074	0,099	0,125

BAR GRILLE

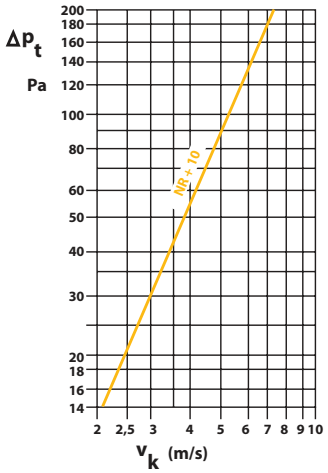
TYPE: AC300 • 400 • 500

Pressure loss - supply

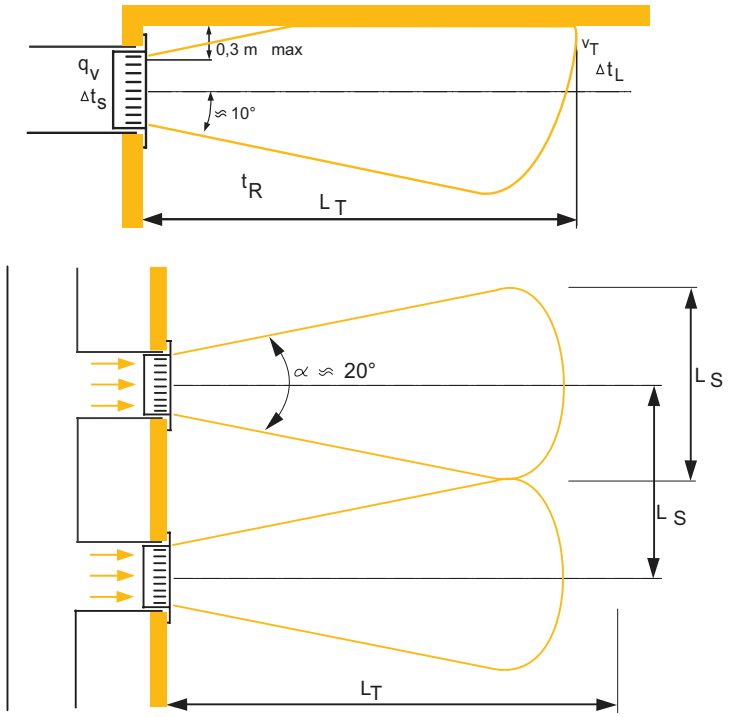
with damper type .. 7



with perforated sheet type .. 3



Example



SUPPLY

Selection data:

Air flow rate q_V = 0,09 m³/s
Throw L_T = 7 m at v_T = 0,25 m/s.

Solution:

Grille 500 x 100 or 300 x 150 mm.
Supply air velocity v_k = 3,9 m/s.
Noise level NR 29
Total pressure loss with perforated sheet: Δp_t = 59 Pa.
Noise level correction NR
29 + 10 = NR 39

EXHAUST

Selection data:

Exhaust air flow rate q_V = 0,16 m³/s

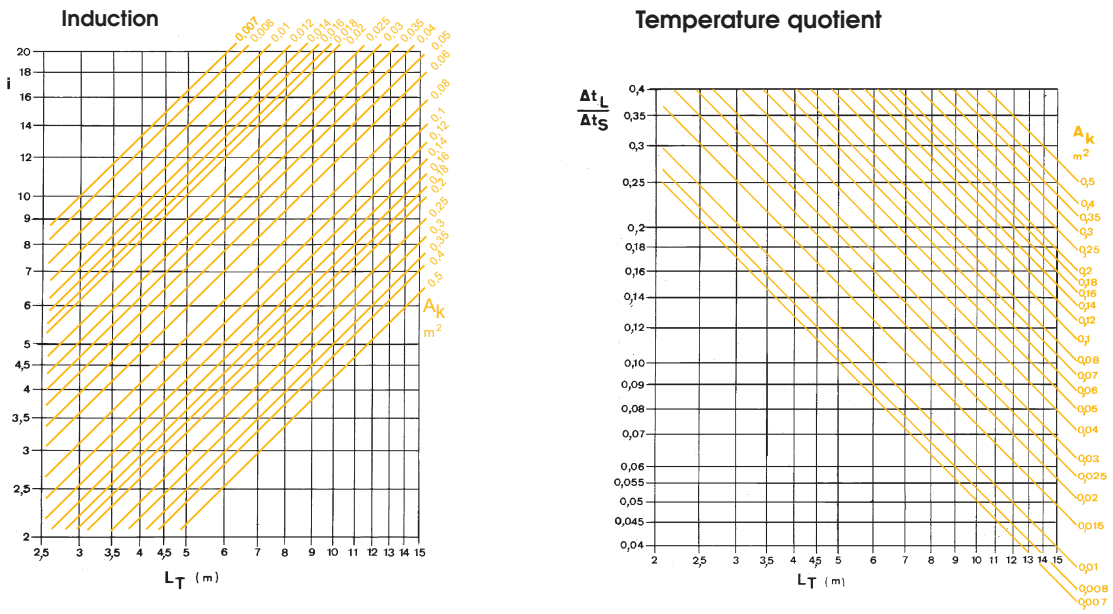
Solution:

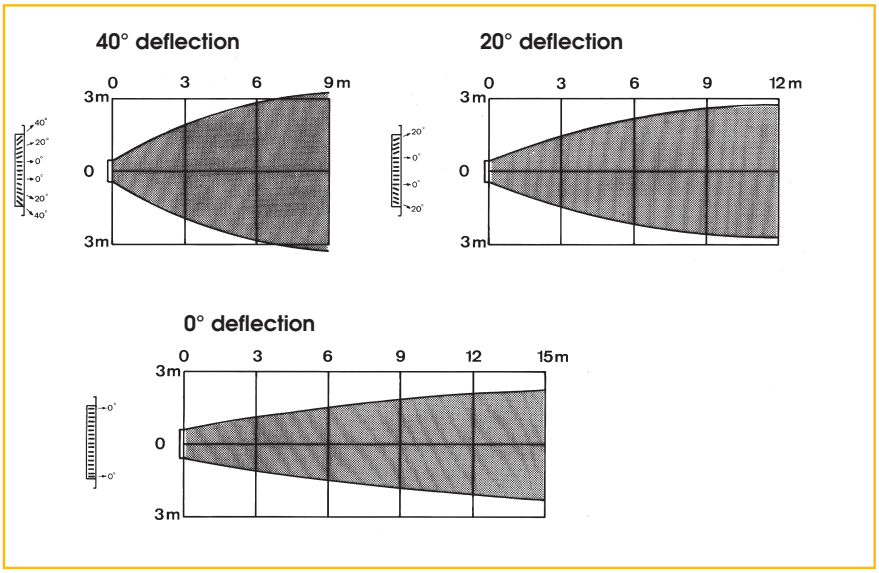
Grille 1000 x 100 mm.
Air velocity v_k = 3,9 m/s.
Noise level NR 25
Total pressure loss with damper 100 % open: Δp_t = 3,2 Pa

BAR GRILLE

TYPE: AC300 • 400 • 500

Induction and temperature quotient with ceiling effect (also valid for lineair grilles)



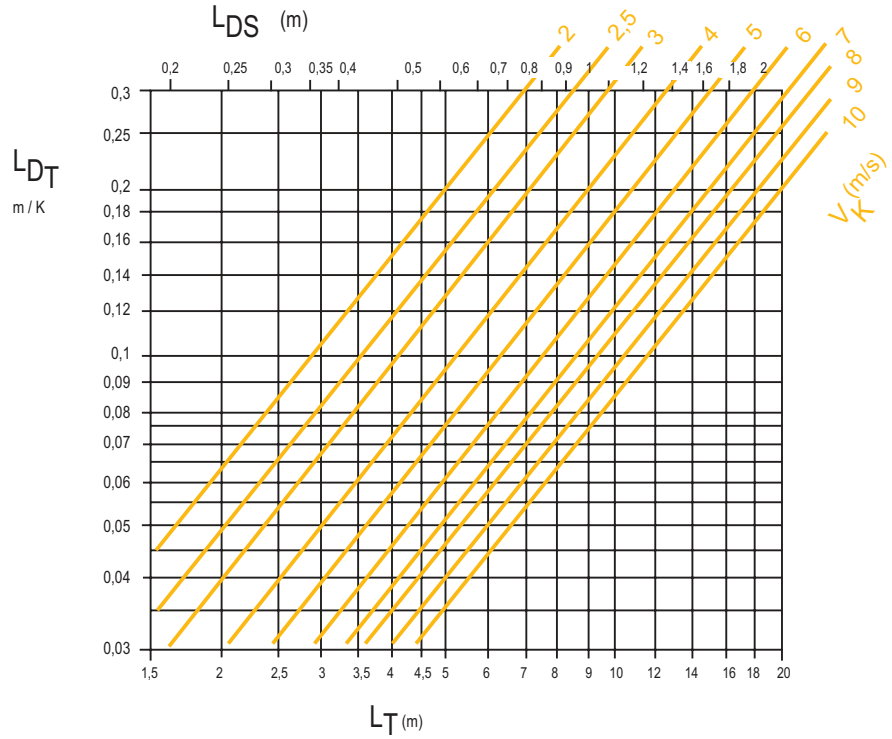


Correction factors Correction factors for vertical vane deflection of flow equalizer	Type	Deflection	A_k	v_k	L_T	NR	i	$\frac{\Delta t_L}{\Delta t_S}$
	300, 400	20°	x 0,87	x 1,15	x 0,85	+ 3	x 1,4	x 0,7
		40°	x 0,80	x 1,25	x 0,75	+ 5	x 2	x 0,5

BAR GRILLE

TYPE: AC300 • 400 • 500

Drop requirements



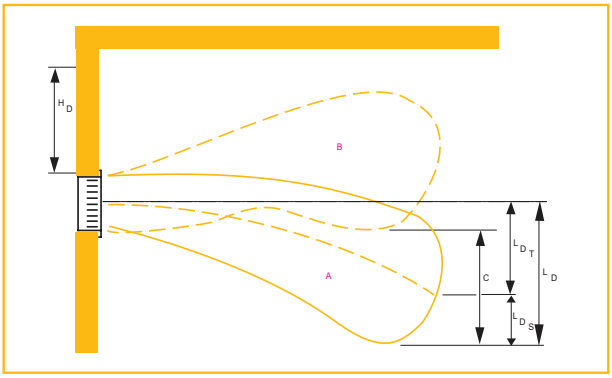
Drop requirements

The total drop is the maximum vertical distance between the centre of a grille core and the lower point of a specified envelope, determined by the envelope velocity v_T.

The total drop consists of two elements: $L_D = L_{DS} + L_{DT}$

1) The isothermal drop L_{DS} is the distance between the centre of an air current and the lowest point of the envelope.

2) The non-isothermal drop L_{DT} is the distance between the centre of the grille core and the air current centre line, at the place of measurement.



BAR GRILLE

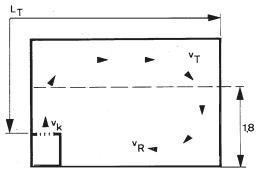
TYPE: AC300 • 400 • 500

Selection diagram - supply

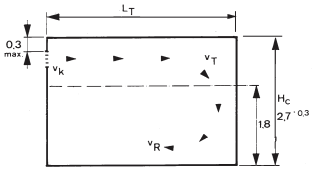
0° deflection

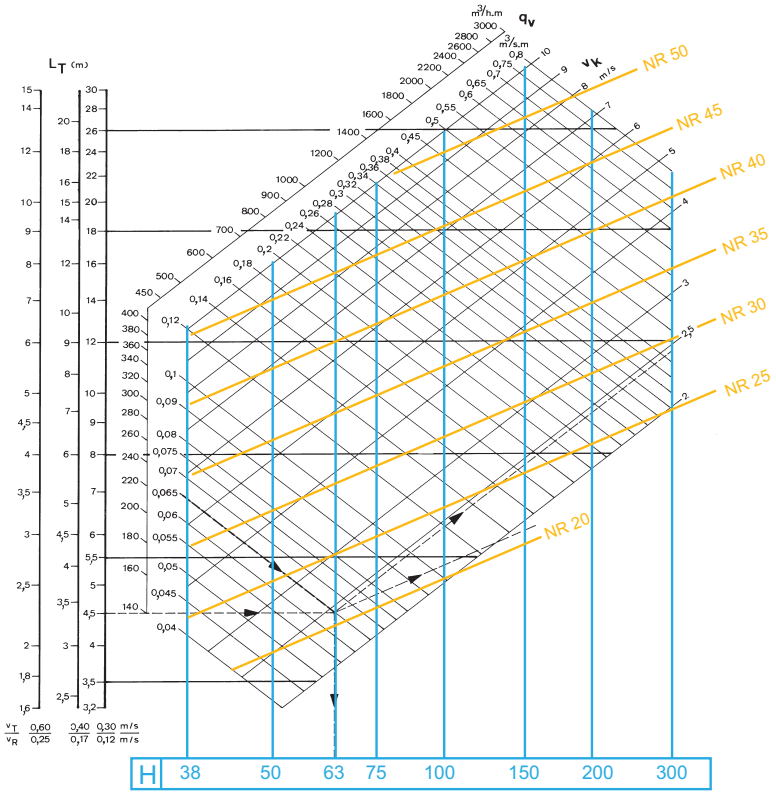
- with ceiling effect
- damper completely open

Sill mounted

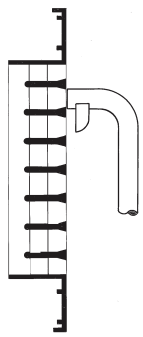


Wall mounted





Air flow rate measurement - supply



Velometer jet 2220 A or 6070

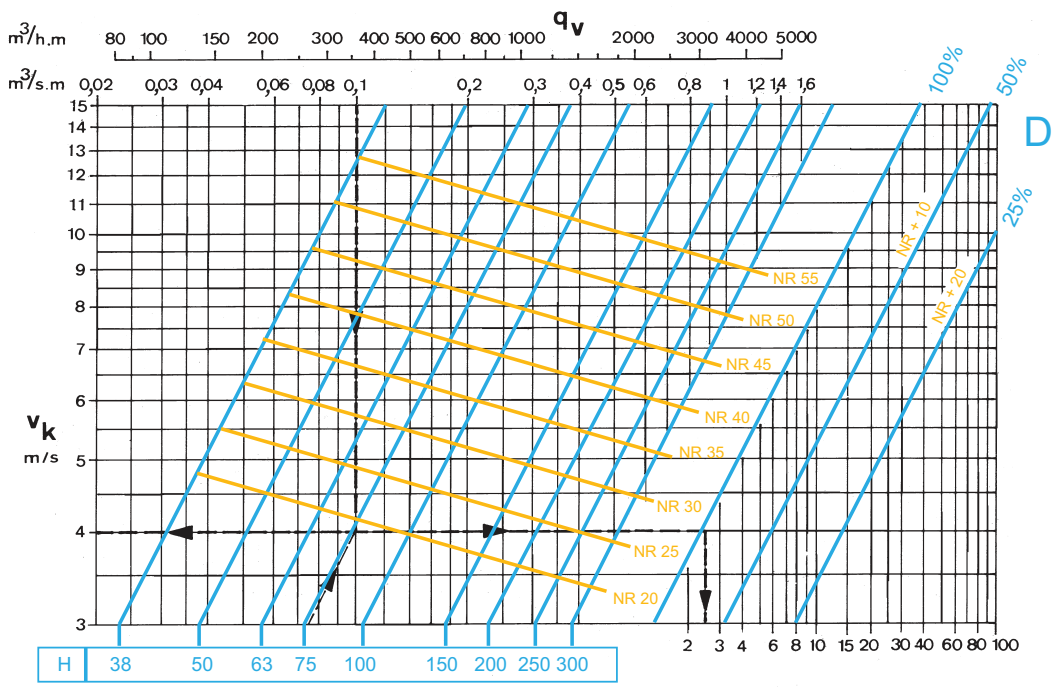
A_k-values (m^2/m)			
H (mm)	A_k	H (mm)	A_k
38*	0,012	**100**	0,049
50*	0,019	**150**	0,079
63*	0,027	**200**	0,110
75	0,034	**300**	0,171

* A-400/500 only

BAR GRILLE

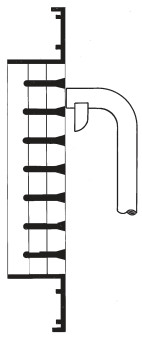
TYPE: AC300 • 400 • 500

Selection diagram - exhaust



When 15° deflected bars are used, air flow rate will be reduced by 5 % at listed Δp_t and NR values.

Air flow rate measurement-exhaust



Velometer jet 2220 A or 6070

A_k-values (m^2/m)			
H (mm)	**A_k**	**H (mm)**	**A_k**
38*	0,008	**125**	0,048
50*	0,013	**150**	0,059
63*	0,019	**200**	0,082
75	0,025	**250**	0,105
100	0,036	**300**	0,127

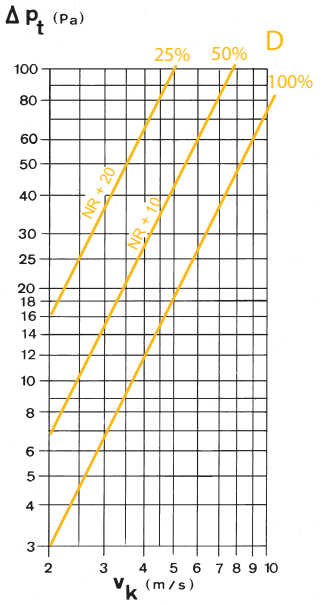
* A-400/500 only

BAR GRILLE

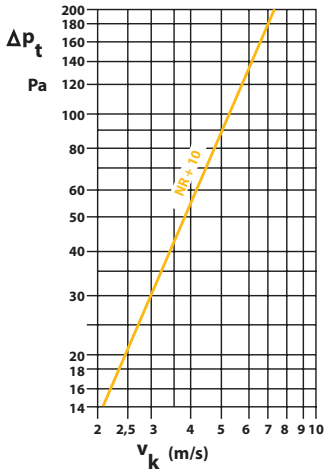
TYPE: AC300 • 400 • 500

Pressure loss - supply

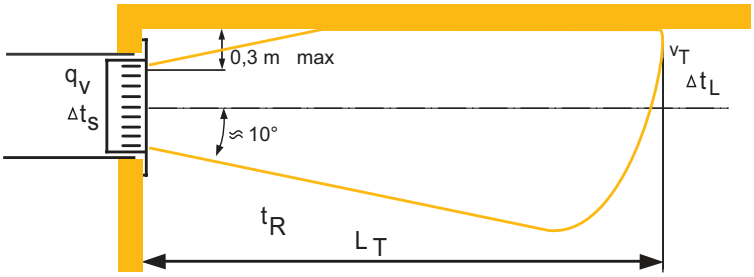
with damper type .. 7



with perforated sheet type .. 3



Example



Correction factors - supply:

- Throw correction factor without ceiling effect

Distance between ceiling and supply grilles	Correction
≥ 0,9 m	L_T X 0,75

- Correction factors for linear grilles

Grill length (m)	Throw correction	Noise level correction (NR)
1 - 2	L_T x 1,00	+ 0 NR
2 - 6,5	L_T x 1,10	+ 5 NR

SUPPLY:

Selection data:

Air flow rate q_V = 0,065 m³/s
Throw L_T = 4,5 m at v_T = 0,30 m/s

Solution:

Size H = 63 mm
Supply air velocity v_k = 2,4 m/s
Noise level NR 21
Total pressure with damper 100 % open: Δp_t = 10 Pa
Correction on noise level
NR 21 + 10 = NR 31

EXHAUST:

Selection data:

Air flow rate q_V = 0,1 m³/s.m

Solution:

Size H = 75 mm
Air velocity v_k = 4 m/s
Noise level NR 20
Total pressure loss with damper 100 % open: Δp_t = 2,5 Pa