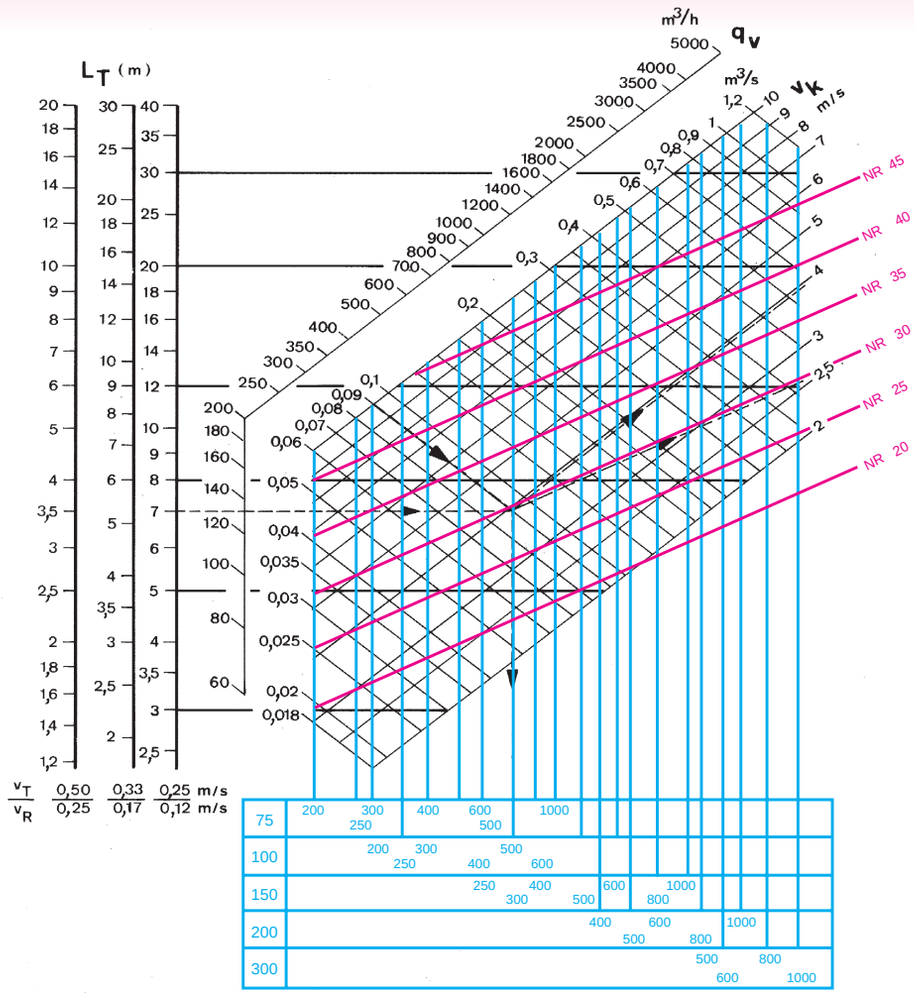
BAR GRILLE A-300/400/500

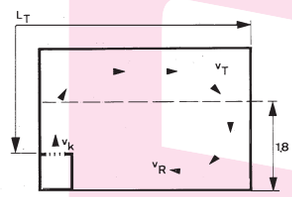
Selection diagram - supply

0° deflection

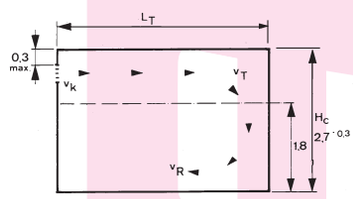
- with ceiling effect
- damper completely open



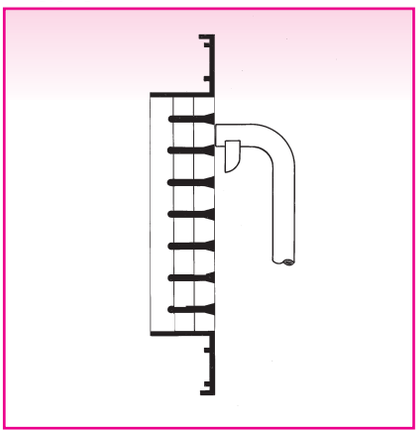
Sill mounted



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

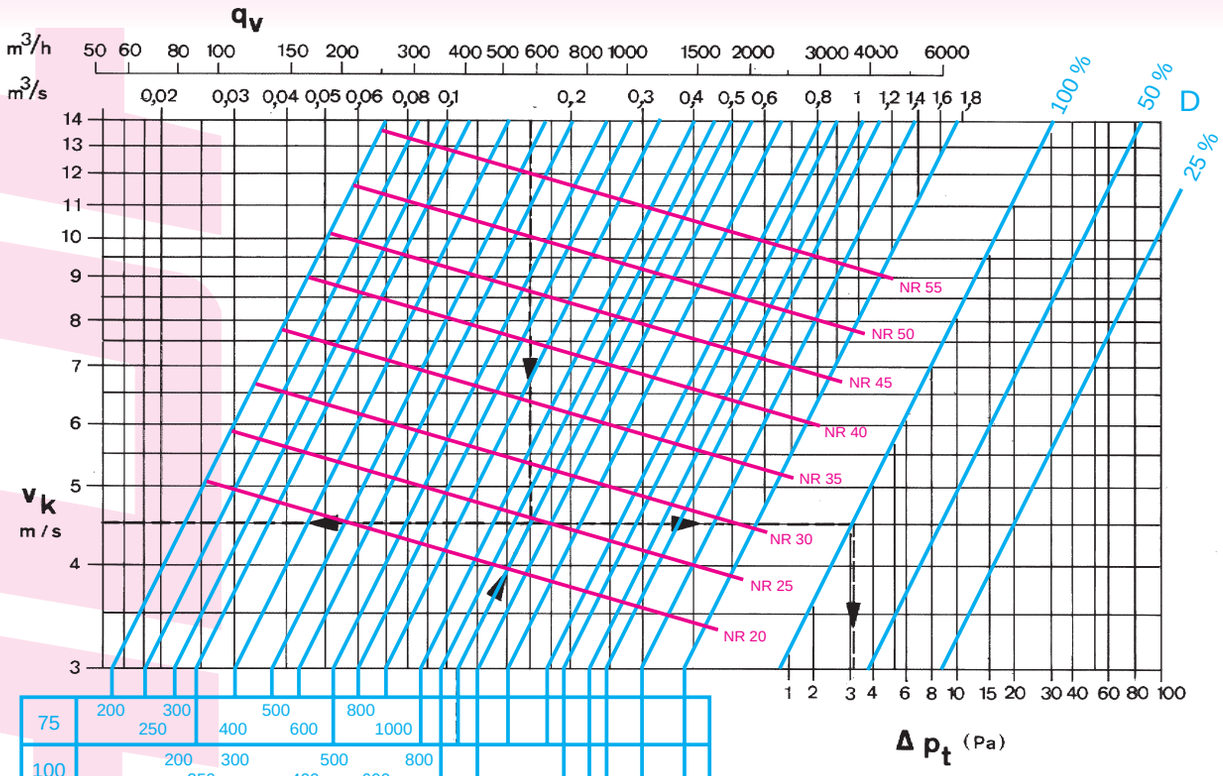
Correction factors:

- Throw correction factor without ceiling effect

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

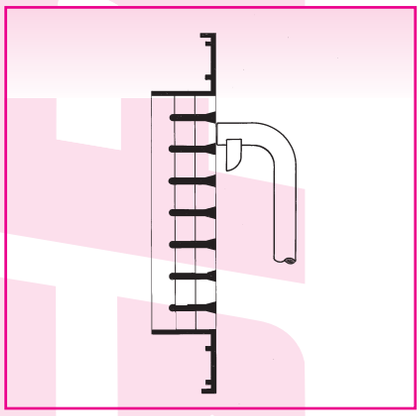
- Correction factors for vertical vane deflection of flow equalizer (see p. 1 231 verso)

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

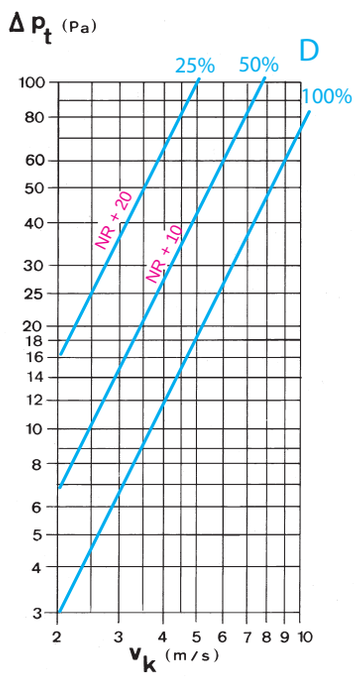


Velometer jet 2220 A or 6070

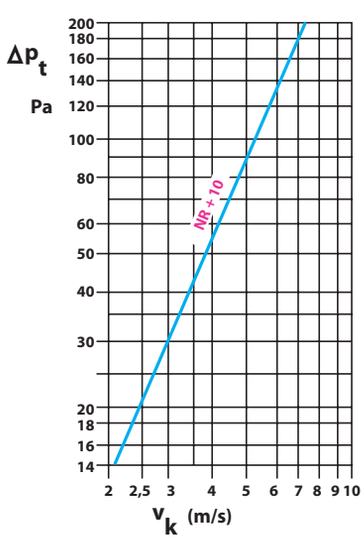
A_k-values (m²)								
	L (mm)							
H (mm)	200	250	300	400	500	600	800	1000
75	0,005	0,006	0,007	0,010	0,012	0,014	0,020	0,023
100	0,007	0,008	0,008	0,014	0,017	0,020	0,028	0,035
150	—	0,014	0,017	0,023	0,028	0,035	0,047	0,058
200	—	—	—	0,031	0,039	0,047	0,063	0,080
300	—	—	—	—	0,063	0,074	0,099	0,125

Pressure loss - supply

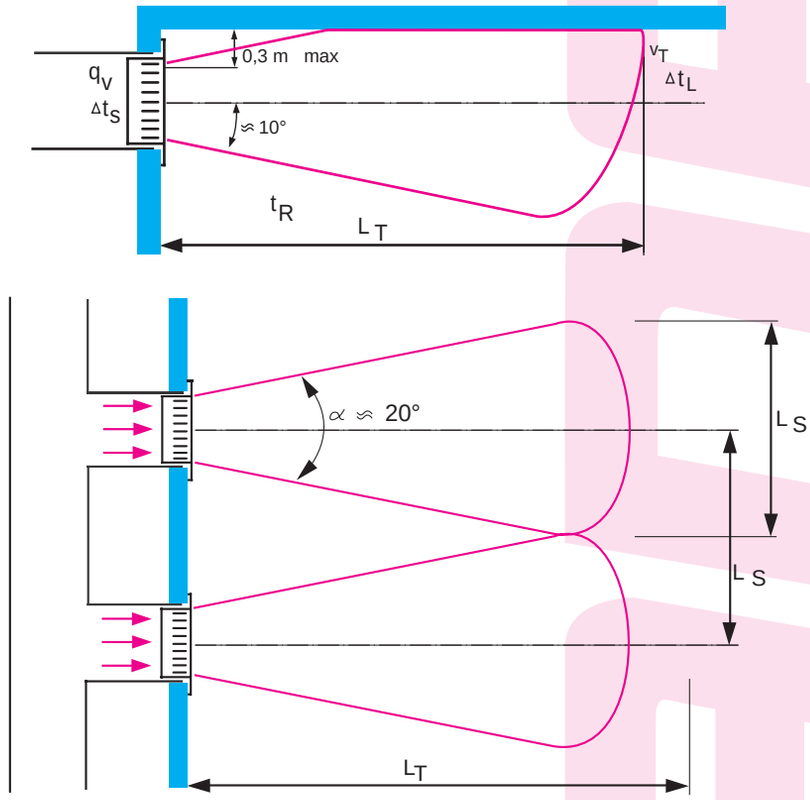
with damper type .. 7



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

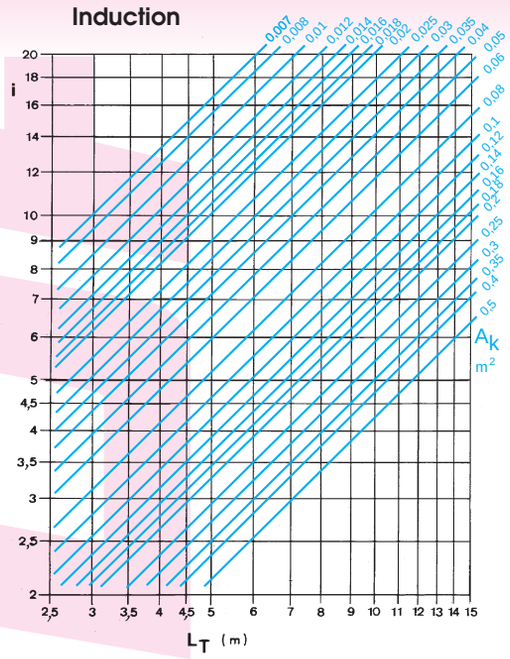
Solution:

Grille 1000 x 100 mm.
Air velocity v_k = 3,9 m/s.

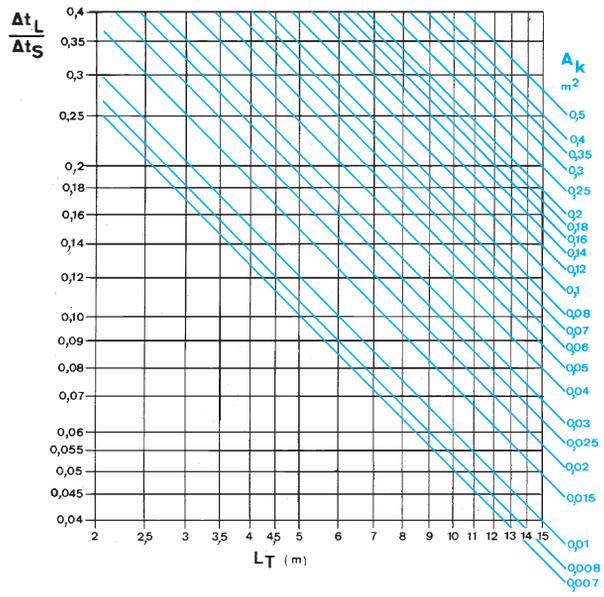
Noise level NR 25
Total pressure loss with damper 100 % open: Δp_t = 3,2 Pa

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

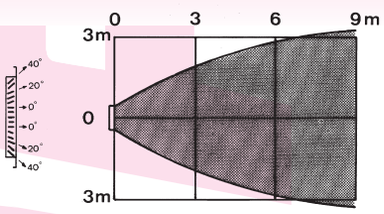
Induction



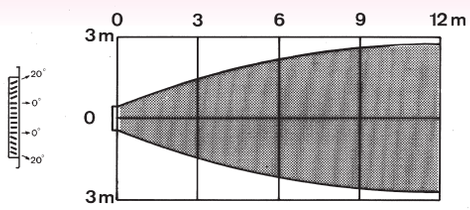
Temperature quotient



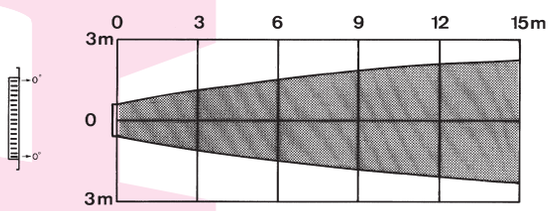
40° deflection



20° deflection

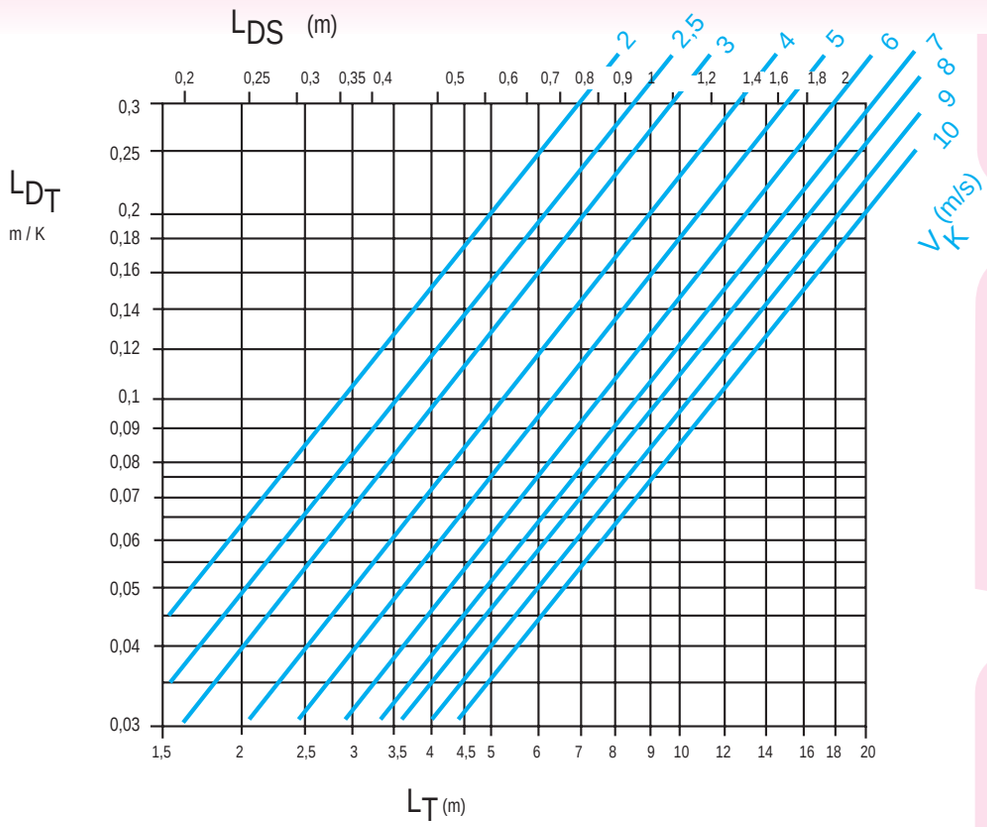


0° deflection



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

Drop requirements



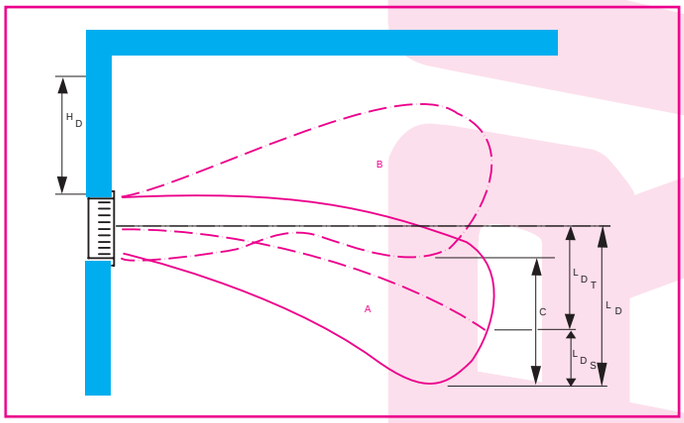
Drop requirements

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.

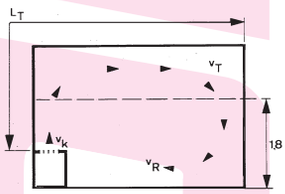


Selection diagram - supply

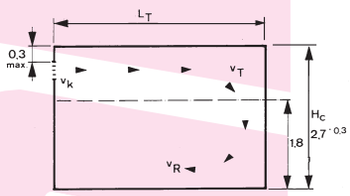
0° deflection

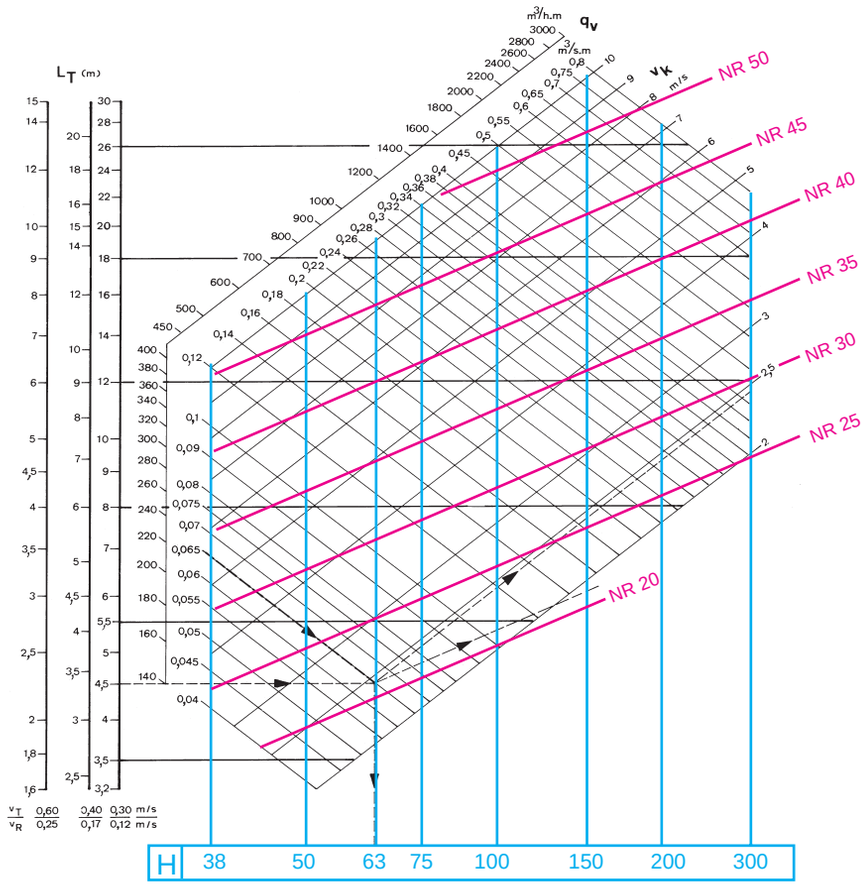
- with ceiling effect
- damper completely open

Sill mounted

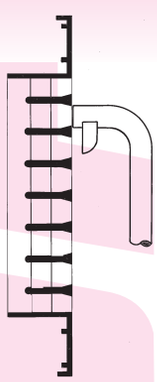


Wall mounted





Air flow rate measurement - supply

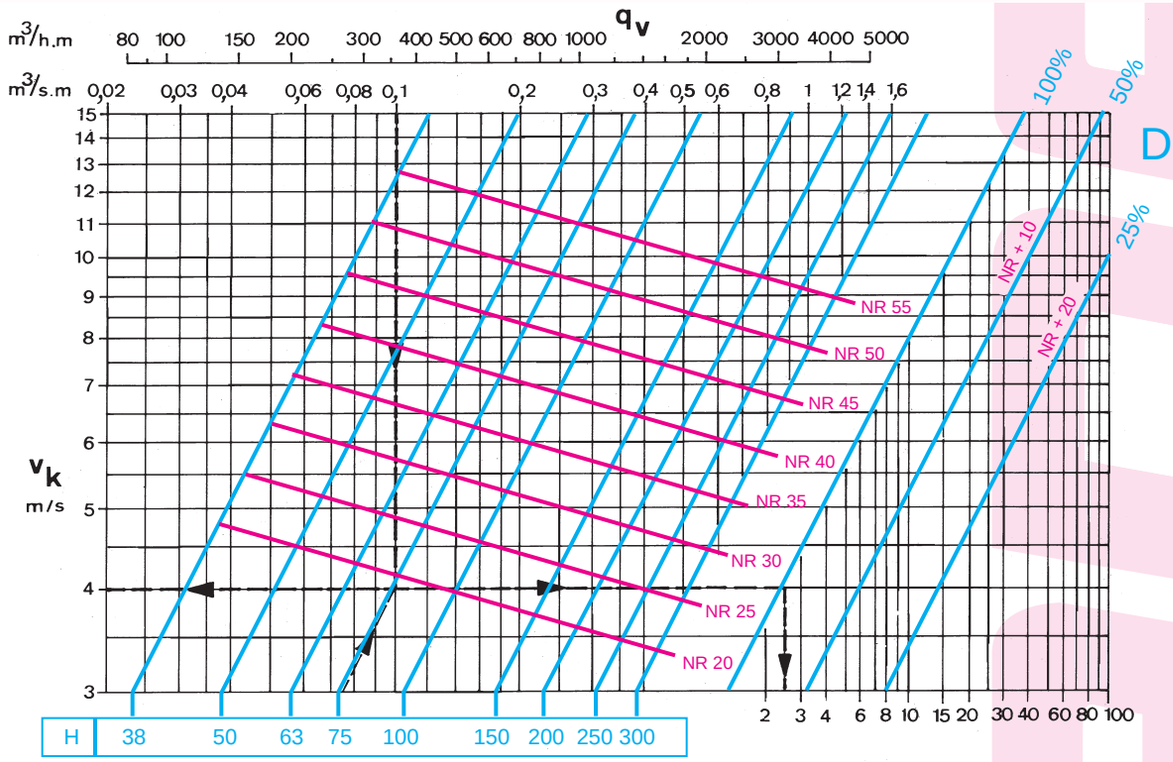


Velometer jet 2220 A or 6070

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

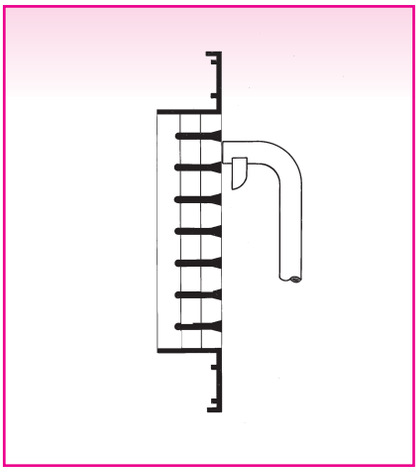
* A-400/500 only

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



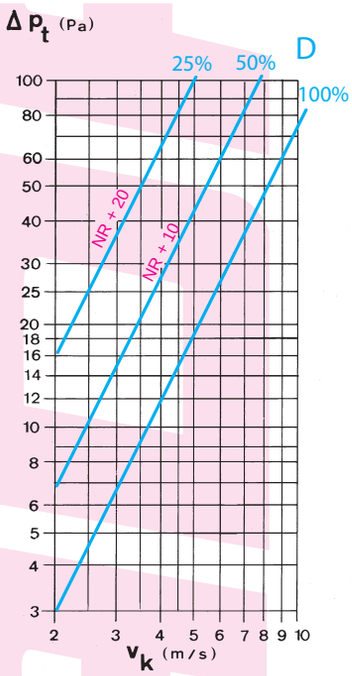
Velometer jet 2220 A or 6070

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

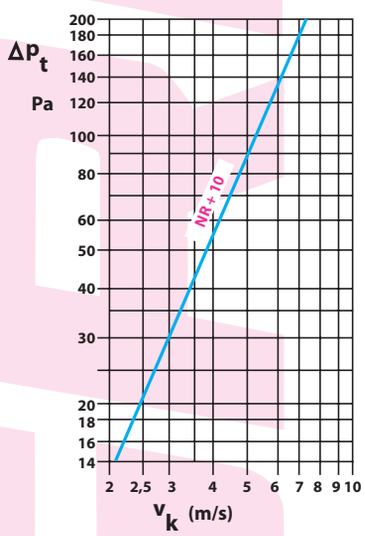
* A-400/500 only

Pressure loss - supply

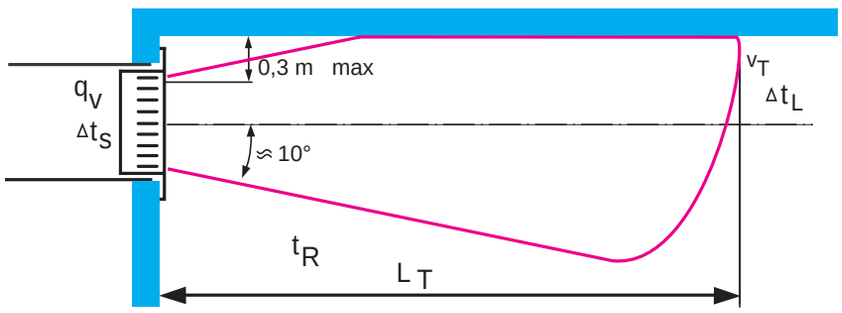
with damper type .. 7



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