

Grilles

Type AR · AE



TROX[®] **TECHNIK**

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Construction

Type AR

Return air grilles with fixed horizontal profiled blades.
Available on request with spring clip fixing

Type AE

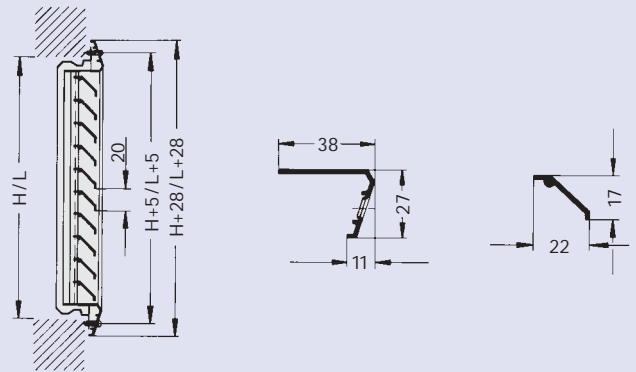
Return air grilles with front border with fixed grid blades.
Available on request with spring clip fixing

Description

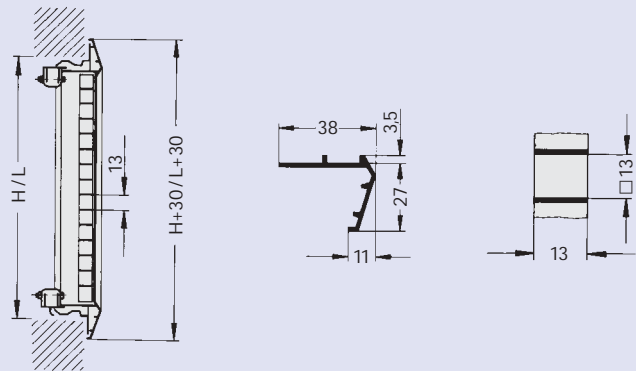
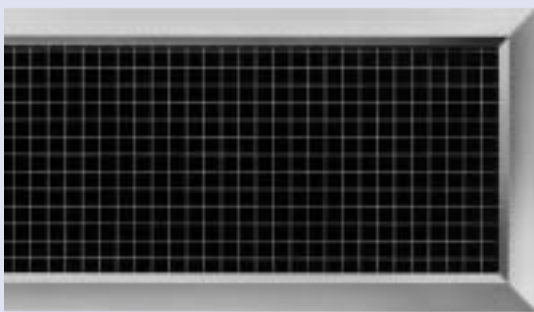
Grilles and linear grilles are suitable for duct, wall and floor installation. They may be fitted straight into the duct section, or alternatively, an installation subframe may be used, e.g. for installation into builders work.

To optimise air distribution, basic construction ...-A may be given with a rear air flow regulator ...-AG, with blades in opposing the front.

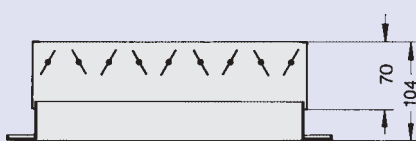
Type AR



Type AE



Rear Assemblies



...-AG

Standard sizes

L en mm \ H en mm	225	325	425	525	625	825	1025	1225
125	•	•	•	•	•	•	•	•
225		•	•	•	•	•	•	•
325			•	•	•	•	•	•
425					•	•	•	•
525							•	•

Material

Linear grilles are made from extruded aluminium sections, with a natural anodised finish E6-C-0, except AE, made in anodised aluminium natural color.

The rear assemblies are made from formed sheet steel. The surface is phosphated treated and stove enamelled black (RAL 9005) using electro-dipcoat process.

The installation subframes are made from formed, galvanised sheet steel (DIN 17 162).

Nomenclature

\dot{V} in l/s: Total volume flow

\dot{V} in m³/h: Total volume flow

v_{eff} in m/s: Effective jet velocity

A_{eff} in m²: Effective outlet area

L_{WA} in dB(A): Sound power level in dB(A) refer to $A_{\text{eff}} = 0,1 \text{ m}^2$

L_{WNC} : NC rating of sound power level

L_{W} in dB/Oct.: Octave sound power level of regenerated noise based on $A_{\text{eff}} = 0,1 \text{ m}^2$

$L_{\text{pA}}, L_{\text{pNC}}$: A-weighting NC rating in dB(A) or
 NC $L_{\text{pA}} \approx L_{\text{WA}} - 8 \text{ dB}$
 $L_{\text{pNC}} \approx L_{\text{WNC}} - 8 \text{ dB}$

Effective outlet area

L x H in mm	A_{eff} in m ²	
	AR	AE
225 x 125	0,006	0,017
325	0,009	0,026
425	0,012	0,035
525	0,015	0,043
625	0,018	0,052
825	0,024	0,070
1025	0,030	0,087
1225	0,036	0,104
325 x 225	0,020	0,053
425	0,027	0,070
525	0,033	0,088
625	0,040	0,106
825	0,053	0,141
1025	0,067	0,177
1225	0,080	0,212
425 x 325	0,042	0,106
525	0,052	0,133
625	0,063	0,160
825	0,083	0,213
1025	0,105	0,266
1225	0,125	0,320
625 x 425	0,086	0,213
825	0,113	0,285
1025	0,140	0,356
1225	0,170	0,428
1025 x 525	0,180	0,446
1225	0,210	0,535

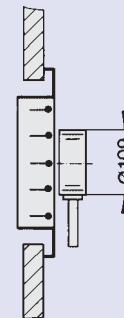
Determination of volume flow

The volume flow can be determined by measuring the air velocity using a rotating vane anemometer. Measurements of air velocity should be made between the blades at a number of positions to determine an arithmetic mean value $v_{\text{eff,mean}}$.

The volume flow is then:

$$\dot{V} [\text{l/s}] = v_{\text{eff,mean}} [\text{m/s}] \times A_{\text{eff}} [\text{m}^2] \times f \times 1000$$

$$\dot{V} [\text{m}^3/\text{h}] = v_{\text{eff,mean}} [\text{m/s}] \times A_{\text{eff}} [\text{m}^2] \times f \times 3600$$



Correction Factor - f -

Type	f
AR	3,2
AE	1,6

Technical data

Type AR

Example

Data given:

AR-AG/1025 x 125

Effective outlet Area

Total volume flow

Damper setting

100 %

$$A_{\text{eff}} = 0,030 \text{ m}^2$$

$$\dot{V} = 200 \text{ l/s}$$

Diagram 1: Sound power level and pressure drop

$$v_{\text{eff}} = \frac{\dot{V}}{A_{\text{eff}} \cdot 1000}$$

$$v_{\text{eff}} = \frac{200}{0,030 \cdot 1000} = 6,7 \text{ m/s}$$

$$L_{\text{WA}} = 37 \text{ Pa} \quad (L_{\text{WNC}} = 31 \text{ NC})$$

$$\Delta p_t = 21 \text{ Pa}$$

Table page 3: correction values

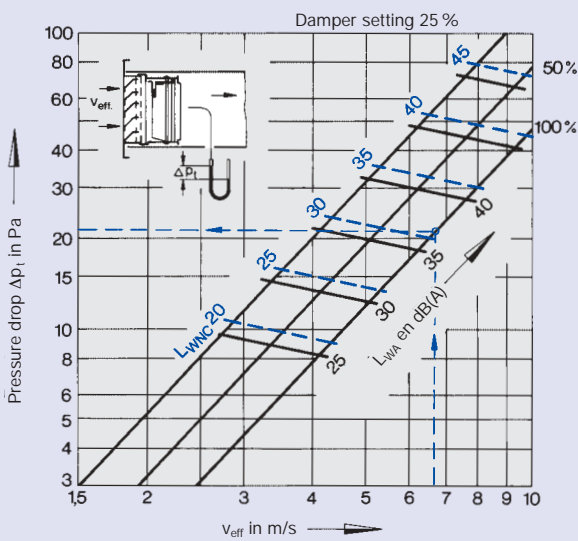
$$L_{\text{WA}} = 37 - 6 = 31 \text{ dB(A)}$$

$$L_{\text{WNC}} = 31 - 6 = 25 \text{ NC}$$

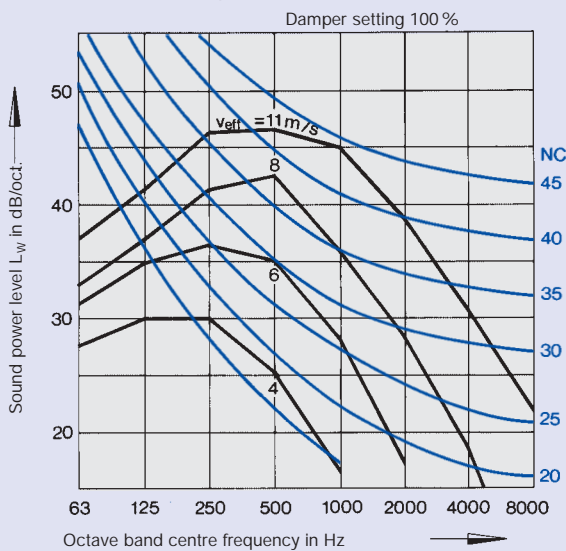
Correction Values for A_{eff}

A_{eff} in m^2	0,005	0,01	0,02	0,05	0,1	0,2	0,4
$L_{\text{WA}} / L_{\text{WNC}}$	- 13	- 10	- 7	- 3	-	+ 3	+ 6

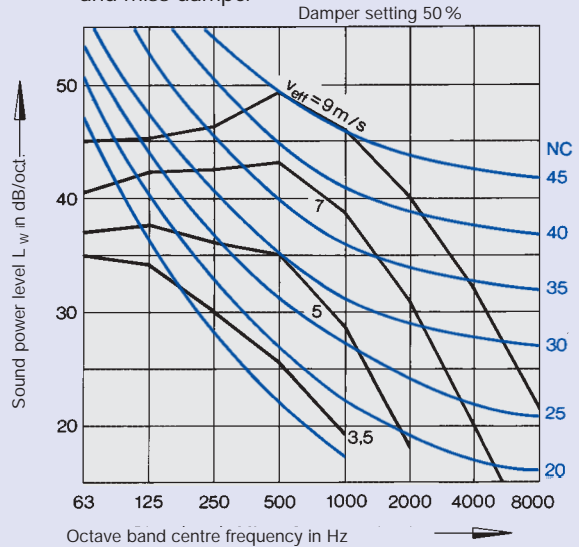
1 Sound power level and pressure drop



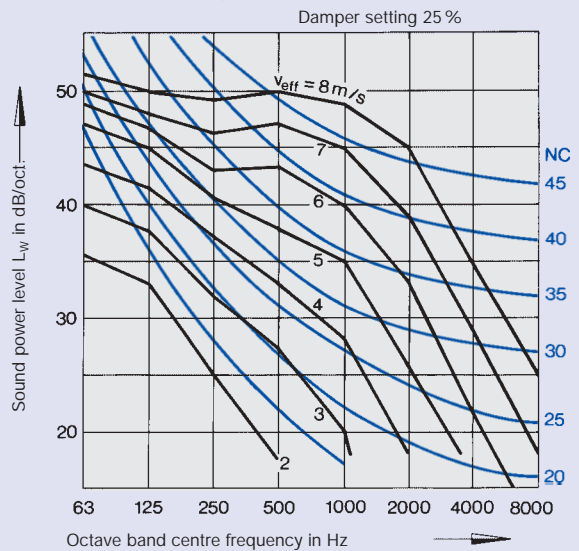
2 Octave band sound power levels with hit and miss damper



3 Octave band sound power levels with hit and miss damper



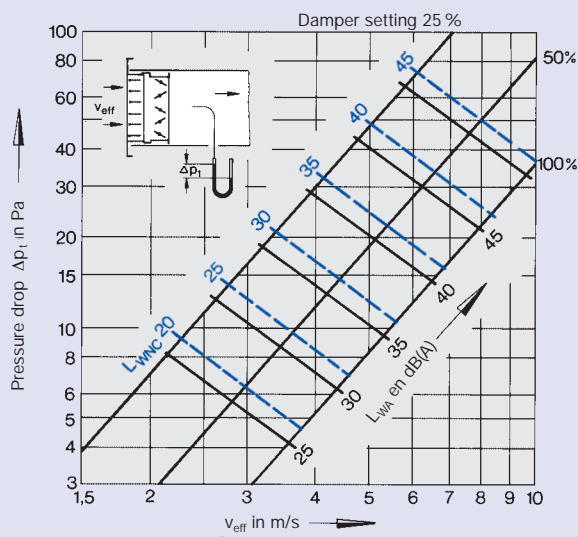
4 Octave band sound power levels with hit and miss damper



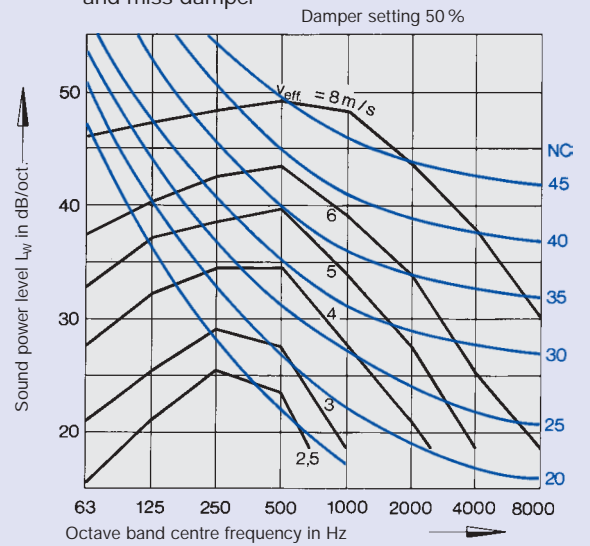
Correction values for A_{eff}

A_{eff} in m^2	0,005	0,01	0,02	0,05	0,1	0,2	0,4
L_{WA} / L_{WNC}	- 13	- 10	- 7	- 3	-	+ 3	+ 6

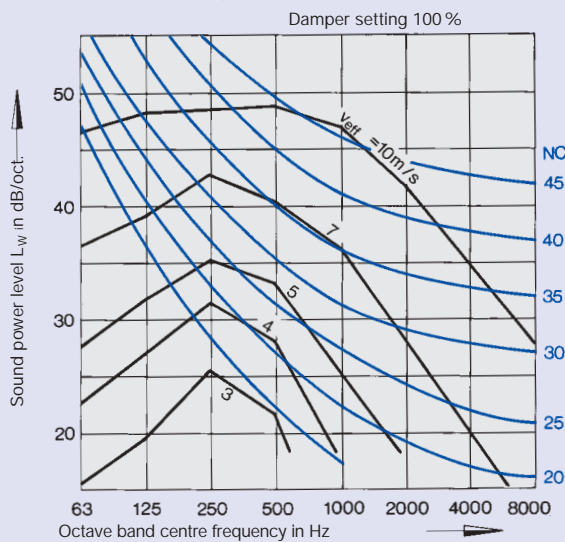
5 Sound power level and pressure drop



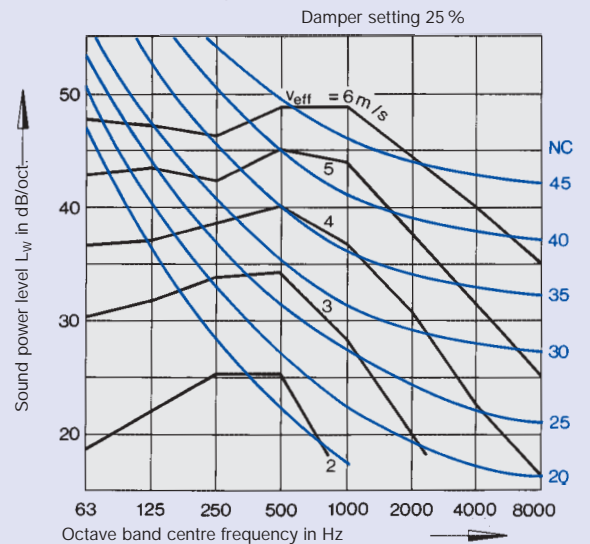
7 Octave band sound power levels with hit and miss damper



6 Octave band sound power levels with hit and miss damper



8 Octave band sound power levels with hit and miss damper



Order details

Specification Text

Grilles, and linear grilles suitable for supply or return air for installation in walls, floors or cills. Borders (except for grille cores) with corner mitres and rear perimeter sealing strip -horizontal or vertical profiled front blades individually adjustable or fixed. Knock down installation subframes for assembly on site by others, installation by visible screw fixing. For optimum air distribution, rear assemblies are fitted to grilles which can be adjusted directly at the grille face without demounting the face.

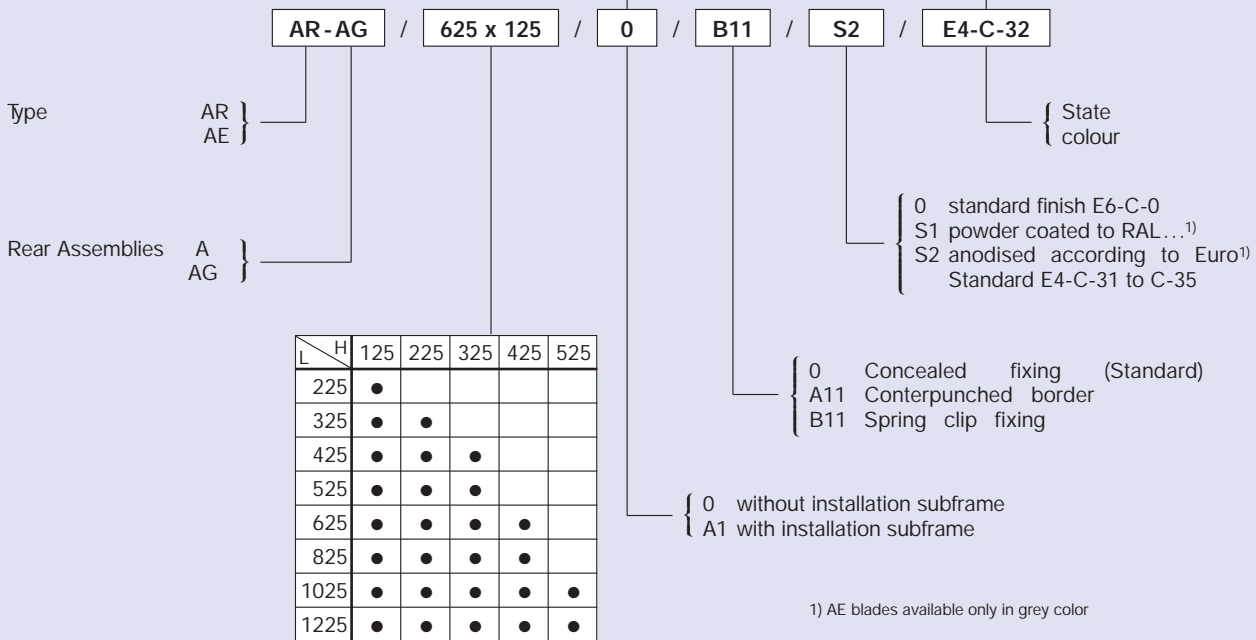
Material:

Grilles are made from extruded aluminium sections, with a natural anodised finish E6-C-0, except AE blades, made in anodised aluminium natural color.

The rear assemblies are made from formed sheet steel. The surface is phosphated treated and stove enamelled black (RAL 9005) using electro-dipcoat process, resistant to saturated environment for minimum of 100 hours without deterioration (DIN 50 017)

Order codes

These codes need not to be completed for standard products



Example

Make: TROX
Type: AR-AG / 625 x 125