

KOOLAIR

series

KAT

Acoustic air
transfer units

ISO 9001

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Certification

Sistema de Gestión



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Acoustic Air Transfer Unit KAT

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Acoustic Air Transfer Unit - KAT



Description

The KAT sound attenuation air transfer unit offers a high sound absorption level, low pressure loss, easy installation and attractive design.

Air is moved to adjacent rooms by the transfer unit by the pressure difference between the rooms. The low pressure loss of the device allows large air volumes to be moved between areas.

The unique design allows the unit to be installed in plasterboard walls for air movement between adjacent areas, while also avoiding vision through the device and ensuring room-to-room sound reduction to guarantee conversation privacy.

Two versions are available: standard, Z-shaped model for wall thicknesses of 100 mm and T-shaped model for walls of 125 mm.

The nominal lengths are 500 and 1000 mm for different air diffusion components, such as perforated plate grilles or linear slot grilles and diffusers. Installation without a diffusion device is possible.

The sound reduction of the equipment is independent of the wall material.

Finish

Plenum box in galvanised steel sheet.

Diffusers and grilles in aluminium, anodized or painted in RAL color to be defined.

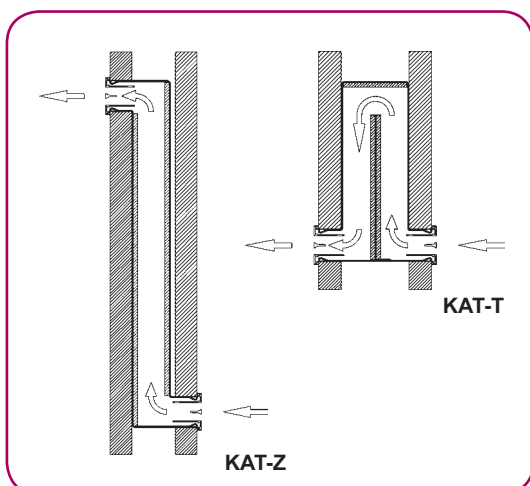
T-shaped model cores and interior of plenum box in both models, in soundproofing material of closed-cell flexible rubber foam extruded from synthetic rubber, consisting of non harmful materials. Fire performance M1.

Installation

It is usually installed in the wall above the door.

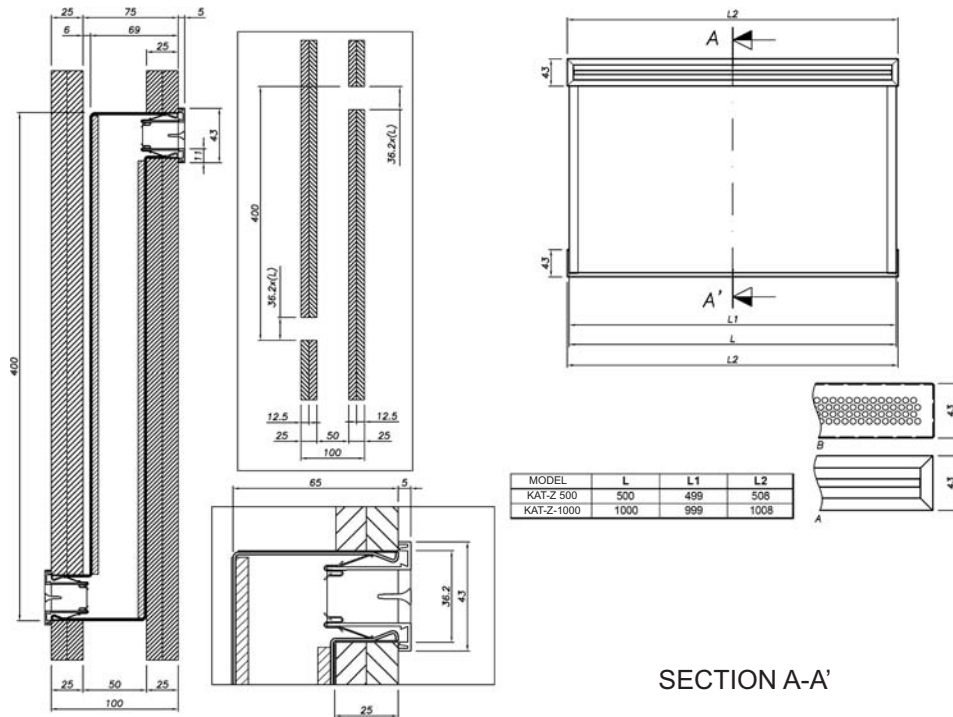
The clip connections on the front plate allow the unit to be easily and rapidly mounted once the room is completed, thus protecting it from dirt and from potential damage during construction.

Option of telescoping plenum box to adjust the air transfer unit to different wall thicknesses.

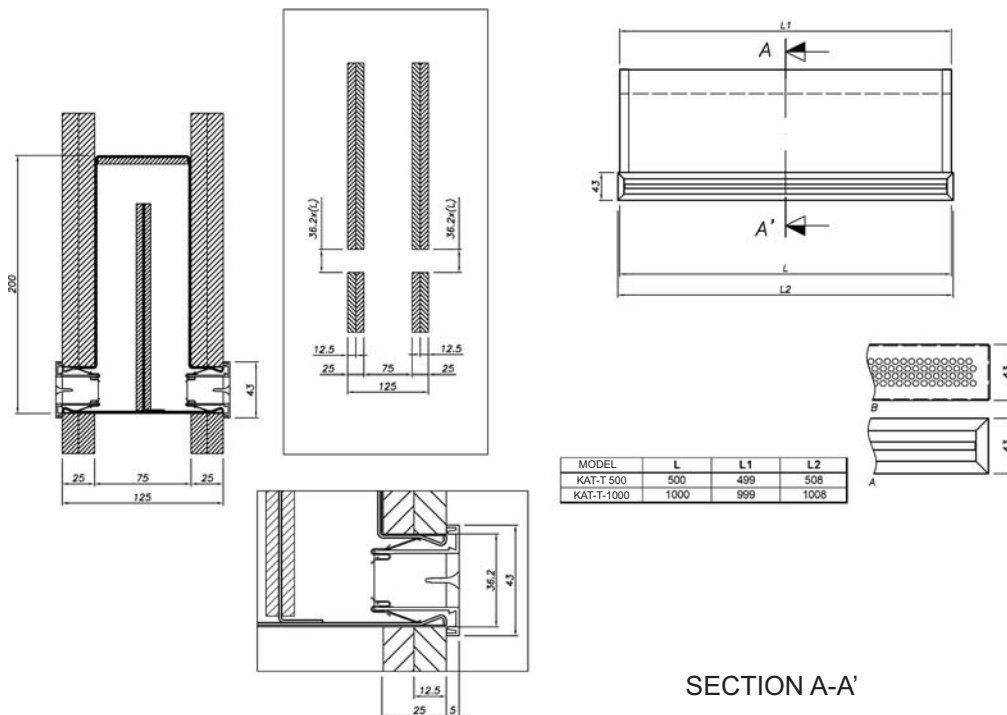


Dimensions

KAT-Z with 31-1 or with perforated plate

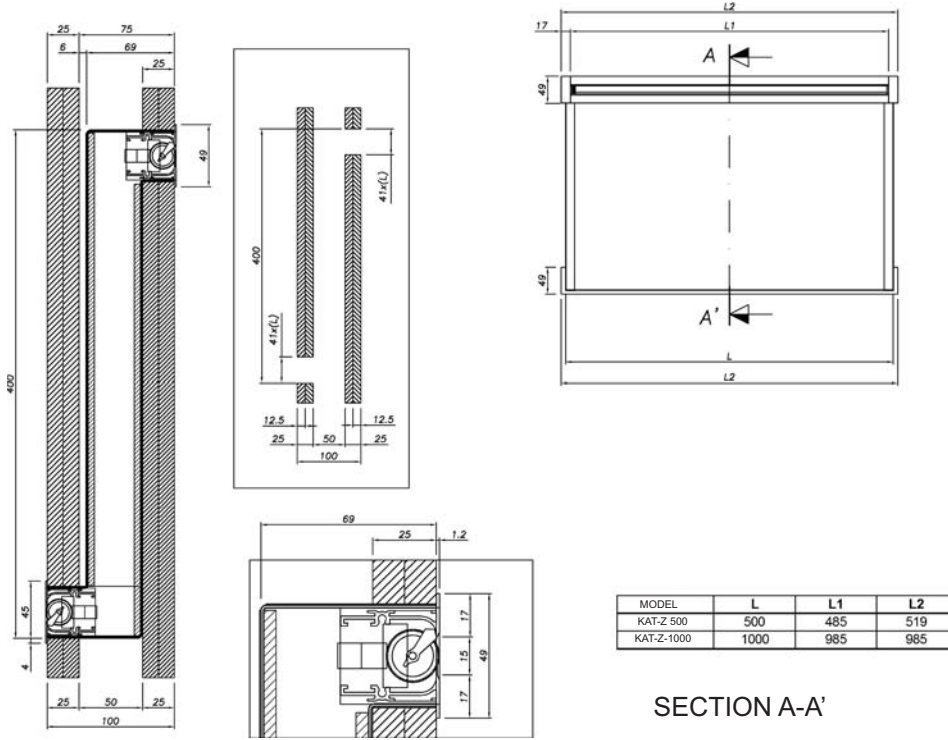


KAT-T with 31-1 or with perforated plate



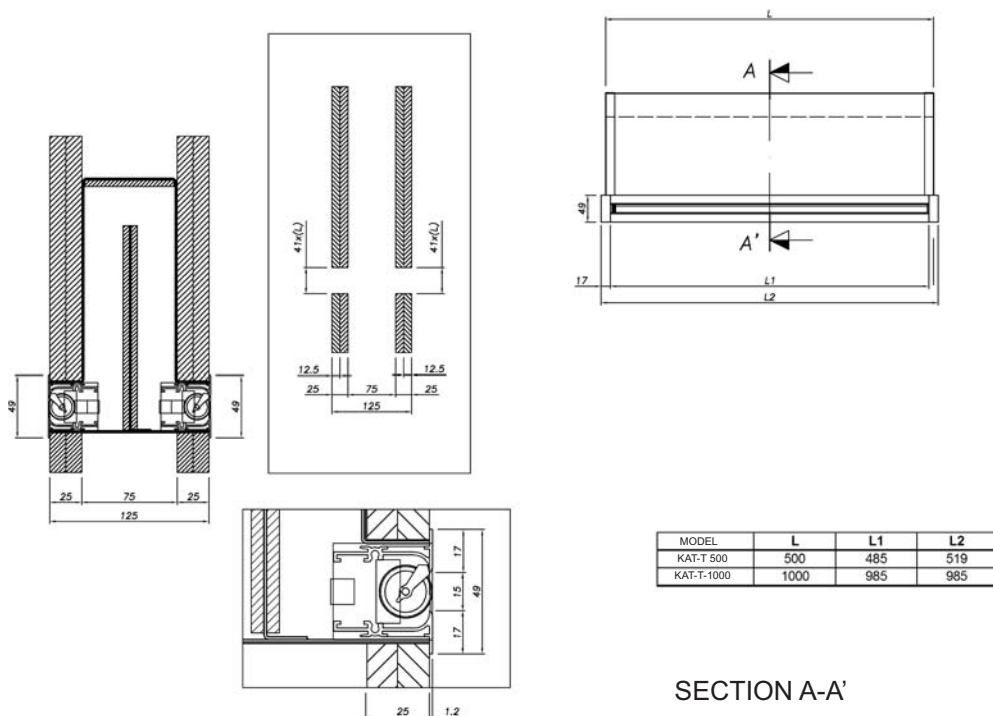
Dimensions

KAT-Z with LK-70



SECTION A-A'

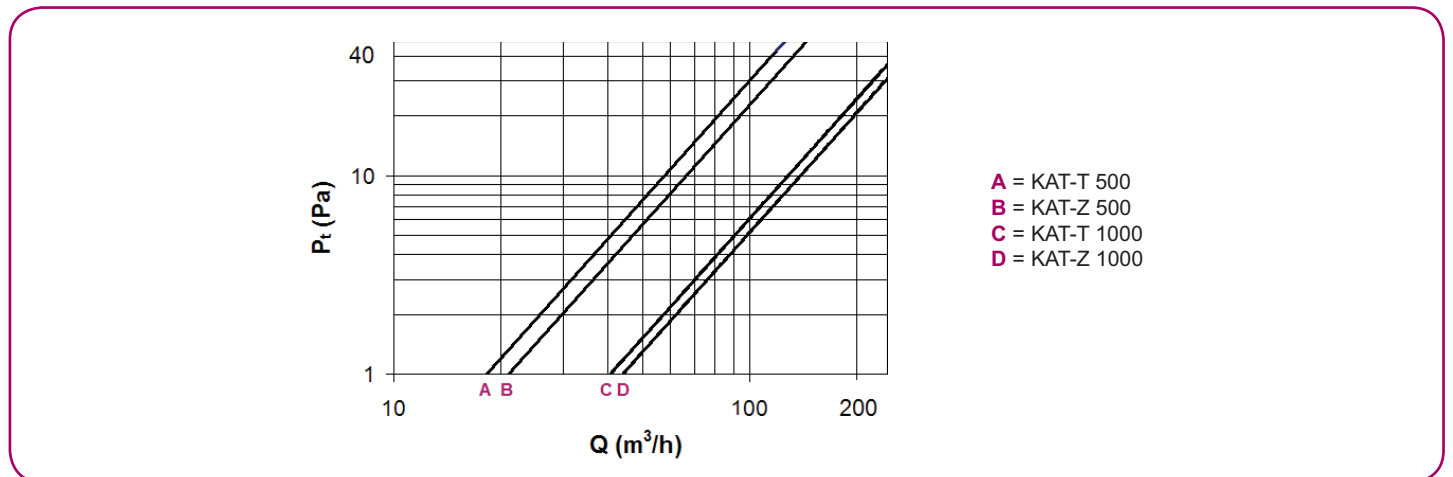
KAT-T with LK-70



SECTION A-A'

Technical data

Pressure loss



The listed values for the KAT correspond to transfer units with a front component and sound levels below 35 dB(A) for the flow rates listed in the chart.

Sound data

With front element

MODEL	ΔD_1 (dB) - f (Hz)					
	125	250	500	1K	2K	4K
KAT-T 500	18	19	17	26	35	39
KAT-Z 500	16	17	15	24	33	37
KAT-T 1000	17	18	16	25	34	38
KAT-Z 1000	15	16	14	23	32	36

Without front component

MODEL	ΔD_1 (dB) - f (Hz)					
	125	250	500	1K	2K	4K
KAT-T 500	16	17	15	24	33	37
KAT-Z 500	14	15	13	22	31	35
KAT-T 1000	15	16	14	23	32	36
KAT-Z 1000	13	14	12	21	30	34

The sound attenuation of the unit is calculated by the Nordtest NT Acou 037 method. The total wall attenuation in each frequency band is calculated using the following formula:

$$R_p = 10 \cdot \log \left(\frac{S}{S \cdot 10^{-R/10} + 10^{-D_1/10}} \right)$$

wherein

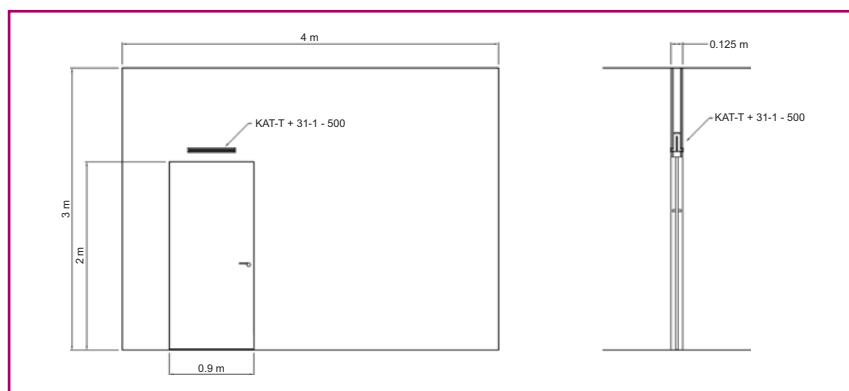
- R_p = total wall attenuation in the frequency band considered (dB)
- S = wall area, in m^2
- R = wall attenuation in the frequency band considered, without transfer unit (dB)
- D_1 = attenuation of transfer unit in the frequency band considered (dB)

Technical data

Acoustic data

To reduce sound transmission from one room to an adjacent room to an acceptable level, the sound attenuation component used to move air is lined with a sound-absorbing material.

The resulting sound data on airborne noise (R) reduction are given by the sound reduction index and the difference in standard sound level.



The airborne noise (R) reduction is defined as follows:

$$R = L_1 - L_2 + 10 \cdot \log\left(\frac{S}{A}\right)$$

The difference in standard sound level is given by the equation:

$$D_{n,e} = L_1 - L_2 + 10 \cdot \log\left(\frac{A_0}{A}\right)$$

To calculate the weighted sound reduction index R_w in the wall of a room, the dimensions and sound reduction indexes of the individual construction components are required and, therefore, the wall (plasterboard thickness) and door values must be known.

The calculation is performed using the following equation:

$$R_{w,res} = -10 \cdot \log\left[\frac{1}{S_{total}} \cdot \sum_{i=1}^n S_i \cdot 10^{(-R_{w,i}/10)}\right]$$

wherein

- A = equivalent sound absorption area in the target room, in m²
- A₀ = reference sound absorption area, 10 m²
- D_{n,e} = transmission loss coefficient in standard component, in dB
- D_{n,e,w} = transmission loss coefficient in weighted standard component, in dB (EN ISO 10140 measurements).
- L₁ = sound pressure level in the source room, in dB
- L₂ = sound pressure level in the target room, in dB
- R = sound reduction index of the air transfer component, in dB
- R_w = weighted sound reduction index, in dB
- R_{w,res} = result of sound reduction index, in dB
- S = free area in which the air transfer unit is installed, in m²

Product codes

T-shape construction Z-shape construction	Model
without accessory with telescoping plenum box	Accessory
without component with 31-1 with LK-70 with 50% punching	Component
anodized natural matt painted RAL-9016 matt painted RAL-9010 shine . . prelacated white RAL 9010 matt	Treatment
of 500 of 1000	Length

Example:

KAT-T air transfer unit with 31-1, painted RAL-9010 shine of 500.

Koolair sound attenuation air transfer component, KAT model, plenum box in T with S30 front plate and length 500 mm, specially designed to maintain sound transmission from one room to an adjacent room to an acceptable level. The plenum box is made of an absorption material attached to the sides and the core. The front plate is an S30 linear grille painted in RAL 9010 shine, attached to the plenum box by clips.

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