



# NAP 'AIRVENT' Air Relief Silencers



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The Nap Silentflo 'AIRVENT' range of air relief silencers has been specially designed to solve the common problem of transferring air from adjacent areas without transferring unwanted noise. These silencers allow two way airflow whilst efficiently reducing the transfer of sound in either direction. They are particularly effective in the all important speech frequency range which often causes problems in the work environment.

A comprehensive range of models of various configurations allows great flexibility in the selection of silencer location. Versatility and ease of installation result in economical noise control.

As with all NAP Silentflo products attention to detail and quality of construction are evident throughout the 'AIRVENT' range. Product reliability has established NAP Silentflo's reputation of proven performance and market leadership.

## Applications

NAP 'AIRVENT' silencers are designed to be used in locations where air must be transferred or relieved from one area to another without the transfer of noise.

They are ideally suited to applications where it is desirable to keep out conversational noise from adjacent areas. The versatility of the 'AIRVENT' range allows them to be installed in ceilings, walls, partitions and ventilation shafts. They may be either inbuilt or surface mounted depending on specific project requirements.

### Typical Applications:

Offices; Schools; Laboratories; Hospitals; Conference Rooms ; Hotels; Factories; Libraries; Music Rooms; Studios; Sporting Complexes; Kitchens; Apartments; Rest Rooms; Return Air Shafts.

## Acoustic Performance

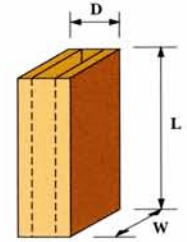
The published performance data is based on results obtained from laboratory tests carried out at an independent NATA registered laboratory and tested to BS 2750 - 'Field and Laboratory Measurement of Airborne and Impact Sound Transmission in Buildings'.

As there can be other paths of sound transmission between the source and the listener such as walls, ceilings and doors it should be noted that the actual installed acoustic performance will depend on the transmission losses of these adjacent structures. As a general guide the STC rating of any wall less than STC 48, with an area of less than 12-14m<sup>2</sup>, will not be derated by the correct installation of NAP 'AIRVENT' U & Z silencers.\*

If you have any queries regarding the effect of surrounding structures on the acoustic performance NAP engineers are available for consultation.

\*For L configuration silencers, the maximum wall rating would be STC45 and for I configuration silencers, the maximum wall rating would be STC42. Area limits of 12-14m<sup>2</sup> still apply.

## I Configuration



Unit Designation

I - ST - W/H

Model - Type -

Grille Width/Grille Height

Overall length = L

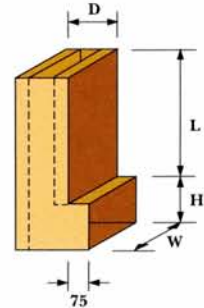
### Acoustic Performance

Model	L(mm)	Octave Band Centre Freq. (Hz)							
		63	125	250	500	1k	2k	4k	8k
I-ST	900	23	25	24	25	24	32	40	35
I-HP	1500	22	28	31	33	34	34	39	39

Normally D = 200mm (can range between 100 & 400mm)

Note H=D for I type silencers

## L Configuration



Unit Designation

L - ST - W/H

Model - Type -

Grille Width/Grille Height

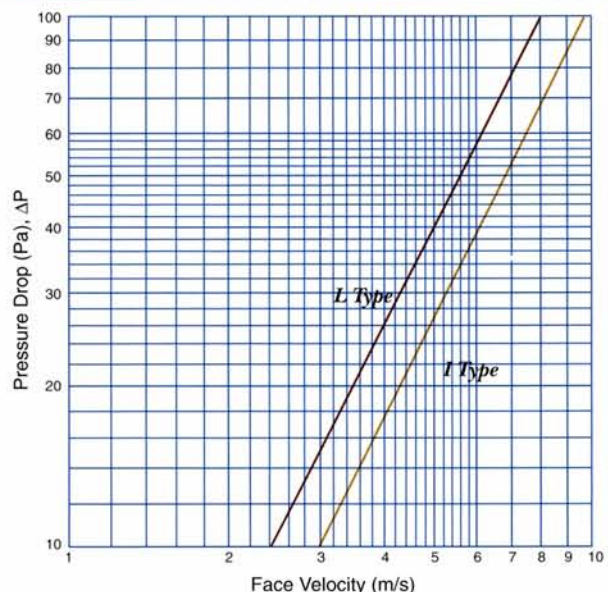
Overall length = L+H

### Acoustic Performance

Model	L(mm)	Octave Band Centre Freq. (Hz)							
		63	125	250	500	1k	2k	4k	8k
L-ST	900	23	25	24	28	32	37	43	38
L-HP	1500	22	28	31	36	37	38	42	42

Normally D = 200mm (can range between 100 & 400mm)

## Aerodynamic Performance



Pressure drop curve applies to s



## Z Configuration

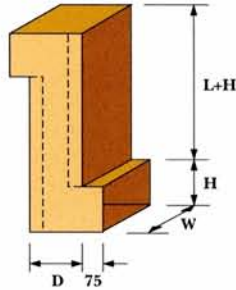
Unit Designation

Z - ST - W/H

Model - Type -

Grille Width/Grille Height

Overall length = L+2H



Acoustic Performance

Model	L(mm)	Octave Band Centre Freq. (Hz)							
		63	125	250	500	1k	2k	4k	8k
Z-ST	900	23	25	24	31	40	42	46	41
Z-HP	1500	22	28	31	39	44	44	45	45

Normally D = 200mm (can range between 100 & 400mm)

## Construction

Standard 'AIRVENT' units are constructed using a 1mm galvanised sheet case, which can be prime painted in preparation for finish painting by others where exposed installation is required.

Sound absorption is provided by a mineral fibre lining faced with a fibreglass tissue cloth. The density of insulation is 65kg/m<sup>3</sup>. Perforated metal facings and melinex lining are available as options for special applications.

In those applications where higher performance than catalogued is required, 1.6mm or 2mm cases, special mass barriers and higher density mineral fibre insulation are used. This will ensure superior acoustic performance, particularly in the reduction of flanking noise.

For further information regarding the extensive range of non standard sizes and constructions for specialized applications please contact NAP Silentflo.

## U Configuration

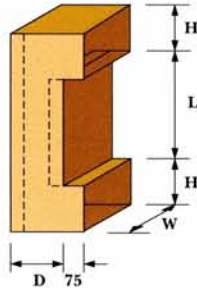
Unit Designation

U - ST - W/H

Model - Type -

Grille Width/Grille Height

Overall length = L+2H



Acoustic Performance

Model	L(mm)	Octave Band Centre Freq. (Hz)							
		63	125	250	500	1k	2k	4k	8k
U-ST	900	23	25	24	31	40	42	46	41
U-HP	1500	22	28	31	39	44	44	45	45

Normally D = 200mm (can range between 100 & 400mm)

## Installation

NAP 'AIRVENT' silencers may be installed in ceilings, walls and shafts in either a fully concealed, flush or exposed configuration suitable for standard partitioning systems or ceiling grids.

In order to ensure 'AIRVENT' silencers achieve their maximum performance potential careful attention should be given to the location and installation details.

All penetrations through walls and ceilings should be properly sealed once the unit has been installed to prevent flanking noise and breakout. NAP Silentflo engineers are available to provide assistance in this critical area particularly in situations where exposed units are specified.

Generally all installations where noise levels are critical should be discussed with our qualified engineers.

## Specification

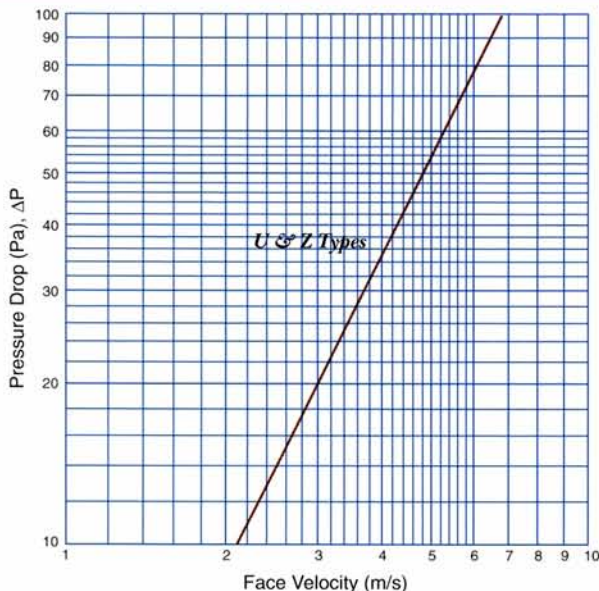
Supply and install air relief silencers as shown on the drawings and schedules. Air relief silencers shall be NAP Silentflo 'AIRVENT'.

The dimensions and capacities shall be as indicated on the schedules.

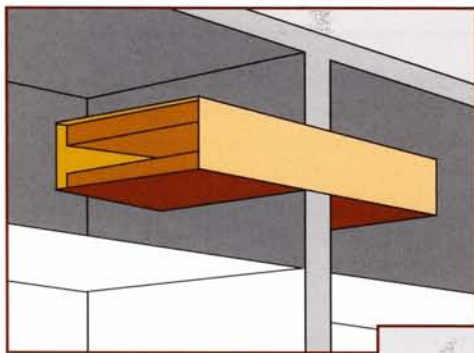
The outer casing shall be constructed of galvanised steel sheet not less than 1mm thick. Silencers shall be supplied with loose spigots, reversed for transport and suitably sized for air grille connection. Nominal spigot length shall be 75mm.

Absorbent linings shall comprise a blanket of mineral fibre, not less than 50mm thick, faced with a black matt sprayed tissue. The mineral fibre blanket shall have a nominal density of 65kg/m<sup>3</sup>. Silencer airways shall not be less than 100mm.

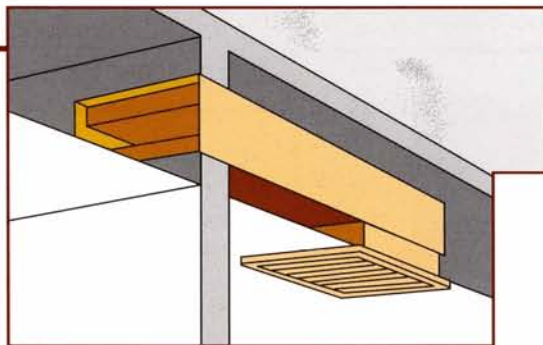
Suppliers shall submit independent test results indicating acoustic and airflow performance of the units.



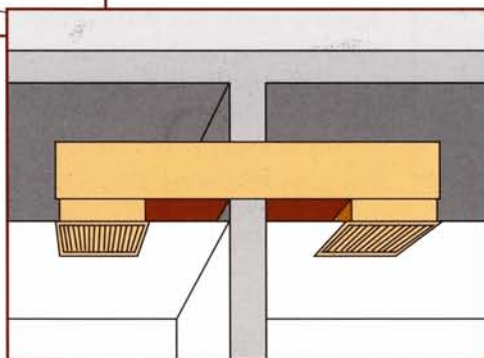
## Typical Installations



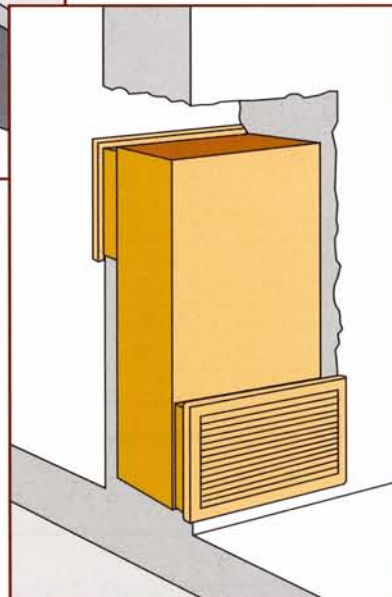
I Configuration



L Configuration



U Configuration



Z Configuration, concealed installation

## Sizing and Selection

Airflow capacity of 'AIRVENT' silencers for different grille sizes is as follows:

Grille Size (WxH)	Air Quantity (l/s)				
	Face Velocity (m/s)				
	1.0	1.5	2.0	2.5	3.0
300 x 200	60	90	120	150	180
300 x 300	90	135	180	225	270
400 x 200	80	120	160	200	240
500 x 300	150	225	300	375	450
600 x 300	180	270	360	450	540
600 x 400	240	360	480	600	720

Note: Face velocities greater than 3m/s are not recommended.

1.5-2.0m/s is commonly used.

Grilles are not supplied with 'AIRVENT' units and are normally sourced from others.

For higher air quantities than given (at left), the following steps are recommended:

1. Increase grille (and silencer) width
2. Increase the number of silencers
3. Increase the silencer depth (max. 400mm) allowing maximum grille height of 800mm. (Refer below)

When using grille heights other than 200mm the following correction should be made to the standard pressure drop:

$$\Delta P \text{ Adjusted} = \Delta P \times (H/D)^2$$

Where H = Grille Height (mm)

D = Silencer Depth (normally 200mm)

Note: Values of (H/D) greater than 2 are not recommended.

Quoted pressure drop values apply to units only and do not include grilles.



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