



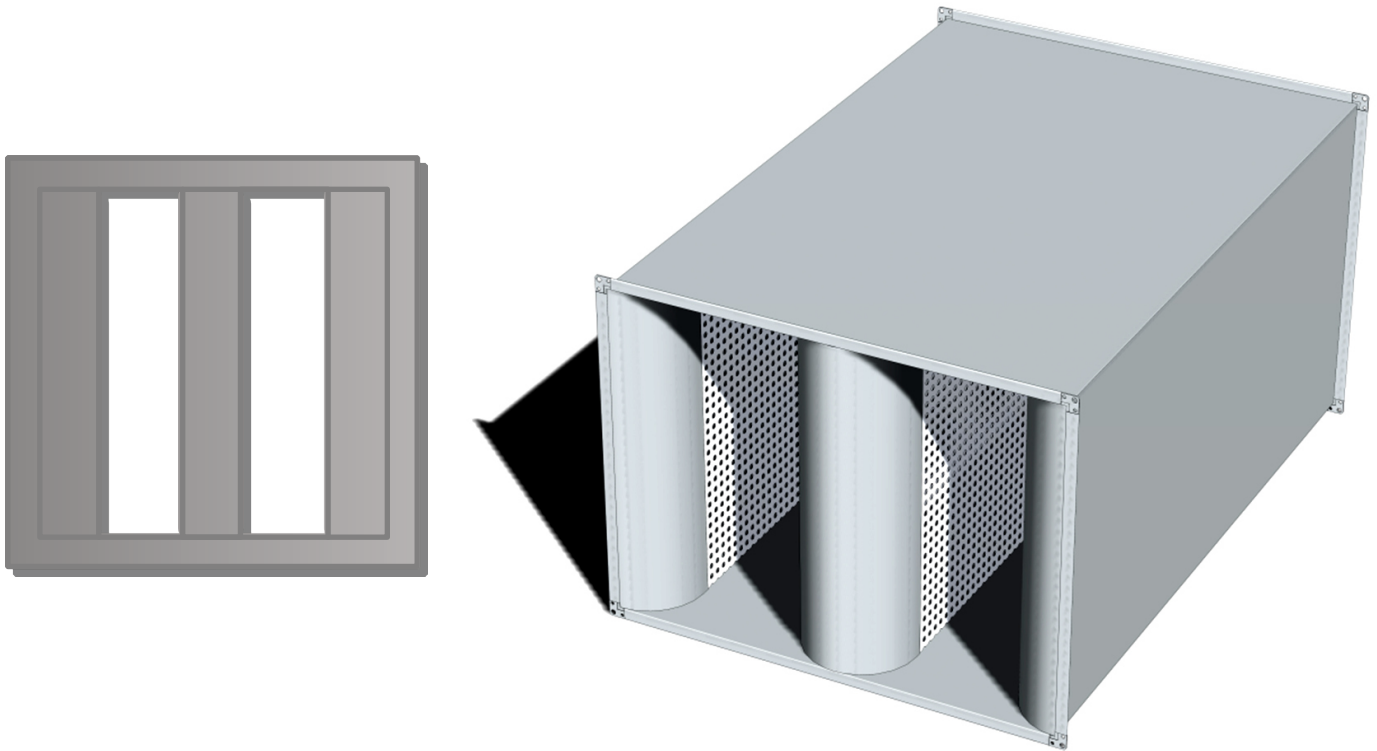
## INTRODUCTION

Type **KSD40** Series Rectangular Attenuators are used for ducted systems or smaller items of plant, to provide a medium to high level of attenuation, whilst allowing passage of air to or from the equipment being treated.

Whilst all **KSD40** Series attenuators are selected to suit particular criteria, in general these are used to provide a better level of attenuation at medium to higher frequencies due to the 200mm thick splitter configuration.

The **KSD40** Series attenuators are also very efficient at providing Cross Talk protection, as well as being suitable for small and large duct cross sectional areas.

All attenuators are designed to suit your individual project, and our Team of Sales Engineers can assist with the design of the attenuation package for the optimum product selection.



## DESIGN AND MANUFACTURE

The **KSD40** Series Rectangular Attenuators are designed and fabricated to suit particular projects to take into account the specific sound reduction requirements with regard to both Octave and Broad Band noise, regenerated noise and airflow characteristics, such as the effect on other equipment and pressure drop.

The attenuators are fabricated in line with DW144 and can be varied to suit high pressure or industrial grade systems, as well as bespoke applications.



## PERFORMANCE DATA

### Insertion (dB) at Octave Band Centre Frequencies (Hz)

| TYPE    | MOD SIZE (mm) | LENGTH (mm) | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | 'K' (FACE) |
|---------|---------------|-------------|----|-----|-----|-----|------|------|------|------|------------|
| KSD4010 | 250           | 600         | 6  | 10  | 18  | 30  | 38   | 38   | 26   | 24   | 19.25      |
|         | 250           | 900         | 7  | 13  | 24  | 39  | 48   | 48   | 35   | 30   | 21.21      |
|         | 250           | 1200        | 8  | 16  | 30  | 49  | 55   | 55   | 44   | 37   | 23.17      |
|         | 250           | 1500        | 10 | 20  | 36  | 55  | 55   | 55   | 53   | 44   | 25.13      |
|         | 250           | 1800        | 11 | 23  | 42  | 55  | 55   | 55   | 55   | 50   | 27.08      |
|         | 250           | 2100        | 12 | 26  | 48  | 55  | 55   | 55   | 55   | 55   | 29.04      |
|         | 250           | 2400        | 14 | 30  | 54  | 55  | 55   | 55   | 55   | 55   | 31         |

| TYPE    | MOD SIZE (mm) | LENGTH (mm) | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | 'K' (FACE) |
|---------|---------------|-------------|----|-----|-----|-----|------|------|------|------|------------|
| KSD4015 | 275           | 600         | 5  | 9   | 16  | 24  | 33   | 30   | 22   | 21   | 8.34       |
|         | 275           | 900         | 6  | 11  | 21  | 32  | 44   | 44   | 28   | 25   | 9.08       |
|         | 275           | 1200        | 7  | 14  | 27  | 40  | 55   | 55   | 35   | 29   | 9.81       |
|         | 275           | 1500        | 8  | 16  | 32  | 48  | 55   | 55   | 42   | 34   | 10.55      |
|         | 275           | 1800        | 9  | 19  | 38  | 55  | 55   | 55   | 49   | 38   | 11.29      |
|         | 275           | 2100        | 10 | 21  | 43  | 55  | 55   | 55   | 55   | 42   | 12.03      |
|         | 275           | 2400        | 12 | 24  | 49  | 55  | 55   | 55   | 55   | 47   | 12.77      |

| TYPE    | MOD SIZE (mm) | LENGTH (mm) | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | 'K' (FACE) |
|---------|---------------|-------------|----|-----|-----|-----|------|------|------|------|------------|
| KSD4020 | 300           | 600         | 5  | 8   | 14  | 22  | 28   | 26   | 18   | 17   | 4.59       |
|         | 300           | 900         | 6  | 10  | 19  | 29  | 36   | 34   | 23   | 20   | 4.98       |
|         | 300           | 1200        | 7  | 12  | 24  | 37  | 45   | 43   | 29   | 23   | 5.37       |
|         | 300           | 1500        | 8  | 15  | 29  | 45  | 53   | 51   | 34   | 26   | 5.76       |
|         | 300           | 1800        | 9  | 17  | 34  | 52  | 55   | 55   | 40   | 29   | 6.15       |
|         | 300           | 2100        | 10 | 19  | 39  | 55  | 55   | 55   | 46   | 32   | 6.54       |
|         | 300           | 2400        | 11 | 22  | 44  | 55  | 55   | 55   | 51   | 35   | 6.93       |

| TYPE    | MOD SIZE (mm) | LENGTH (mm) | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | 'K' (FACE) |
|---------|---------------|-------------|----|-----|-----|-----|------|------|------|------|------------|
| KSD4025 | 325           | 600         | 4  | 7   | 13  | 20  | 25   | 23   | 17   | 16   | 2.91       |
|         | 325           | 900         | 5  | 9   | 17  | 26  | 33   | 30   | 21   | 18   | 3.13       |
|         | 325           | 1200        | 6  | 11  | 22  | 33  | 42   | 38   | 25   | 20   | 3.36       |
|         | 325           | 1500        | 7  | 13  | 26  | 40  | 50   | 46   | 29   | 22   | 3.58       |
|         | 325           | 1800        | 8  | 15  | 31  | 47  | 55   | 53   | 33   | 24   | 3.81       |
|         | 325           | 2100        | 9  | 17  | 35  | 53  | 55   | 55   | 37   | 26   | 4.03       |
|         | 325           | 2400        | 10 | 20  | 40  | 55  | 55   | 55   | 42   | 29   | 4.26       |

| TYPE    | MOD SIZE (mm) | LENGTH (mm) | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | 'K' (FACE) |
|---------|---------------|-------------|----|-----|-----|-----|------|------|------|------|------------|
| KSD4030 | 350           | 600         | 4  | 6   | 11  | 16  | 21   | 19   | 15   | 14   | 1.96       |
|         | 350           | 900         | 4  | 8   | 15  | 22  | 28   | 24   | 18   | 15   | 2.11       |
|         | 350           | 1200        | 5  | 10  | 19  | 29  | 35   | 30   | 21   | 16   | 2.25       |
|         | 350           | 1500        | 6  | 12  | 23  | 35  | 42   | 35   | 24   | 18   | 2.4        |
|         | 350           | 1800        | 7  | 14  | 27  | 42  | 49   | 41   | 27   | 19   | 2.54       |
|         | 350           | 2100        | 8  | 16  | 31  | 49  | 55   | 47   | 30   | 20   | 2.69       |
|         | 350           | 2400        | 9  | 18  | 36  | 55  | 55   | 52   | 33   | 22   | 2.83       |



Insertion (dB) at Octave Band Centre Frequencies (Hz)

| TYPE    | MOD SIZE<br>(mm) | LENGTH<br>(mm) | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | 'K' (FACE) |
|---------|------------------|----------------|----|-----|-----|-----|------|------|------|------|------------|
| KSD4035 | 375              | 600            | 3  | 5   | 10  | 15  | 19   | 16   | 13   | 12   | 1.47       |
|         | 375              | 900            | 3  | 6   | 13  | 22  | 26   | 21   | 15   | 13   | 1.58       |
|         | 375              | 1200           | 4  | 8   | 17  | 29  | 33   | 26   | 17   | 14   | 1.7        |
|         | 375              | 1500           | 5  | 10  | 21  | 36  | 40   | 31   | 20   | 16   | 1.81       |
|         | 375              | 1800           | 6  | 12  | 25  | 43  | 48   | 36   | 22   | 17   | 1.93       |
|         | 375              | 2100           | 7  | 14  | 29  | 50  | 55   | 41   | 24   | 18   | 2.04       |
|         | 375              | 2400           | 8  | 16  | 33  | 55  | 55   | 46   | 27   | 20   | 2.16       |

| TYPE    | MOD SIZE<br>(mm) | LENGTH<br>(mm) | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | 'K' (FACE) |
|---------|------------------|----------------|----|-----|-----|-----|------|------|------|------|------------|
| KSD4040 | 400              | 600            | 3  | 4   | 8   | 13  | 15   | 12   | 10   | 10   | 1.08       |
|         | 400              | 900            | 3  | 5   | 11  | 18  | 22   | 16   | 11   | 11   | 1.17       |
|         | 400              | 1200           | 4  | 7   | 15  | 24  | 29   | 20   | 13   | 12   | 1.27       |
|         | 400              | 1500           | 5  | 9   | 19  | 30  | 36   | 24   | 15   | 13   | 1.36       |
|         | 400              | 1800           | 6  | 10  | 22  | 35  | 43   | 28   | 17   | 14   | 1.45       |
|         | 400              | 2100           | 7  | 12  | 26  | 41  | 50   | 32   | 19   | 15   | 1.55       |
|         | 400              | 2400           | 8  | 14  | 30  | 47  | 55   | 37   | 21   | 17   | 1.64       |

| TYPE    | MOD SIZE<br>(mm) | LENGTH<br>(mm) | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | 'K' (FACE) |
|---------|------------------|----------------|----|-----|-----|-----|------|------|------|------|------------|
| KSD4045 | 425              | 600            | 3  | 3   | 6   | 11  | 11   | 8    | 7    | 8    | 0.78       |
|         | 425              | 900            | 3  | 4   | 9   | 15  | 17   | 11   | 8    | 9    | 0.86       |
|         | 425              | 1200           | 4  | 6   | 13  | 19  | 24   | 14   | 9    | 10   | 0.94       |
|         | 425              | 1500           | 5  | 7   | 16  | 24  | 31   | 18   | 11   | 11   | 1.02       |
|         | 425              | 1800           | 6  | 9   | 20  | 28  | 38   | 21   | 12   | 12   | 1.09       |
|         | 425              | 2100           | 7  | 10  | 23  | 32  | 45   | 24   | 13   | 13   | 1.17       |
|         | 425              | 2400           | 8  | 12  | 27  | 37  | 52   | 28   | 15   | 14   | 1.25       |

| TYPE    | MOD SIZE<br>(mm) | LENGTH<br>(mm) | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | 'K' (FACE) |
|---------|------------------|----------------|----|-----|-----|-----|------|------|------|------|------------|
| KSD4050 | 450              | 600            | 3  | 2   | 4   | 9   | 7    | 4    | 4    | 6    | 0.55       |
|         | 450              | 900            | 3  | 3   | 7   | 12  | 12   | 6    | 5    | 6    | 0.62       |
|         | 450              | 1200           | 4  | 4   | 10  | 15  | 18   | 9    | 6    | 7    | 0.68       |
|         | 450              | 1500           | 5  | 6   | 14  | 18  | 23   | 11   | 8    | 8    | 0.75       |
|         | 450              | 1800           | 6  | 7   | 17  | 21  | 29   | 14   | 9    | 9    | 0.81       |
|         | 450              | 2100           | 7  | 8   | 20  | 24  | 34   | 16   | 10   | 10   | 0.87       |
|         | 450              | 2400           | 8  | 10  | 24  | 27  | 40   | 19   | 12   | 11   | 0.94       |

## MELINEX

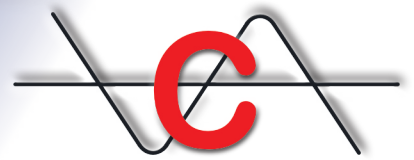
When Melinex linings are used the following allowances should be made to the Insertion Loss Figures.

Insertion (dB) at Octave Band Centre Frequencies (Hz)

| 63     | 125    | 250    | 500    | 1000   | 2000   | 4000   | 8000   |
|--------|--------|--------|--------|--------|--------|--------|--------|
| x 1.00 | x 1.00 | x 0.95 | x 0.85 | x 0.80 | x 0.65 | x 0.55 | x 0.50 |

## AVAILABLE SIZES

The **KSD40** Series can be selected to have a cross sectional size from 250mm wide x 250mm high up to cross sectional sizes of 2000mm x 2000mm in one section. Larger sections are available by fixing two or more modules together.



## TYPICAL SPECIFICATION

Type **KSD40** Series Attenuator.

|                  |                                                                                                                                                                                                              |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Manufacturer:    | Conabeare Acoustics Limited - <a href="tel:01189303650">0118 930 3650</a>                                                                                                                                    |
| Attenuator Type: | <b>KSD40</b> Series Rectangular Attenuator.                                                                                                                                                                  |
| Outer Skin:      | Pre-Galvanised Steel Sheet Outer Skin throughout.                                                                                                                                                            |
| Splitters:       | 45kg/m <sup>3</sup> density mineral wool retained behind glass fibre tissue and expanded or perforated metal skin having a minimum 30% free area.                                                            |
| Flanges:         | Generally Mez20, Mez30 or Mez40 Flanges although other flange systems/ types are available.                                                                                                                  |
| Finish:          | Mill Finish as Standard.                                                                                                                                                                                     |
| Description:     | Fabricated Steel Attenuator comprising pre-galvanised steel components throughout. Attenuator to be factory assembled using mechanical fixings and supplied in one section for incorporation into the works. |

## AVAILABLE OPTIONS

- MX - Melinex Lining to Splitters.
- HS - Horizontal Splitters.
- SP - Special Construction such as Double Skinned.
- CRP - Chlorinated Rubber Paint.
- HT - High Temperature.
- XT - Cross Talk Attenuator.
- VB or HB - Bend Attenuator - Contact Our Engineering department for Advice.
- Stainless Steel Fabrication.
- PVC Fabrication.

## PRESSURE LOSS

To establish the pressure loss through the attenuator based on air on and off condition being straight length of duct as detailed within BS EN ISO 7535:2003. The following example should be used;

### Example

**KSD4020** Attenuator at 1.2 metres wide x 0.9 metres high x 1.5 metres long having a duty of 4.0m<sup>3</sup>/s.

*Step 1 – (Module Size = 0.3m) × (Number of Modules = 4) × (Height = 0.9m) → 0.3 × 4 × 0.9 = 1.08*

$$\text{Step 2 – } \left( \frac{\text{Airflow(m}^3/\text{s)}}{\text{Step 1}} \right)^2 \rightarrow \left( \frac{4.0\text{m}^3/\text{s}}{1.08} \right)^2 = 13.71$$

*Step 3 – (Step 2 × K' Factor) × 0.6 → (13.71 × 5.76) × 0.6 = Pressure Drop of 47Pa*

## Rectangular Attenuators - KSD40 Series

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**KSD40 - 23.01**