

# Attenuator Schedule

**Project:** Hevac Sample

**Date:** 14/07/2015

## Notes

1. All attenuators shall be supplied by Hevac Limited or equal and approved.
2. Reduction of the attenuator sizes shown will not be permitted.
3. The Contractor shall order the attenuator sizes scheduled below, and shall send finalised drawings and equipment noise levels to the attenuator supplier to check the selections prior to manufacture.
4. The attenuator supplier shall then undertake acoustic calculations to ensure that the attenuators achieve the specified noise criteria, based upon the finalised information.
5. A Technical Submittal comprising acoustic calculations and a finalised schedule of attenuators shall then be issued to the Consultant for final approval.
6. If an alternative attenuator supplier is proposed then the Contractor shall allow for them to undertake witnessed tests to prove their claimed insertion loss performance in a UKAS accredited BS EN ISO 7235: 2009 test facility, for two sample units. This shall be undertaken prior to order.
7. Pressure losses are stated in accordance with ISO 7235, which is based on laminar airflow conditions. The system designer shall make allowance for increased attenuator pressure losses where turbulent airflow conditions exist on the attenuator entry or exit.
8. Unless stated otherwise all attenuators shall be constructed as follows: Galvanised sheet steel casings with 30mm profile flanges that are fully compliant with DW/TM1 at a high pressure rating (+2000/-750Pa). Profile flanges shall be compatible with Doby, Mez & Metu flanging systems. Elements shall be installed in the vertical plane, with side elements provided as standard, and all elements shall have aerodynamic inlet and outlet fairings. Element facings shall be constructed from expanded galvanised steel mesh with fibre glass tissue bonded to the inner face. Mineral wool infill shall be overpacked to minimise voids due to settlement. Attenuator ends shall be protectively wrapped, and all attenuators shall be delivered to site on pallets and individually labelled.

Ref.	Description	Type and Model Code	Dimensions (mm)			Insertion Loss (dB)								Vol (m³/s)	PL (Pa)	Qty	Noise Criteria	Features
			W	H	L	63	125	250	500	1k	2k	4k	8k					
AT001	AHU01	Rectangular LG02H/3C/L/S	800	575	1800	8	15	28	42	47	33	18	10	1.41	50	1	NR35 at 1.5m	Unit delivered in 2 sections, split in length. Horizontal elements.
AT002	AHU02	Rectangular SG01V/3C/L/S	1625	800	2100	12	19	34	55	47	30	17	12	4.24	49	1	NR35 at 1.5m	
AT003	AHU03	Rectangular SG01H/3C/L/S	1200	1025	1500	9	15	27	44	39	27	17	12	3.74	49	1	NR50 at 1.5m	Horizontal elements.
AT004	AHU04	Rectangular SG01V/3C/L/S	1000	1000	1800	11	18	32	54	52	36	22	16	3.00	66	1	40dB(A) at 1.5m	
AT005	EF-01	Circular PG01U/1K/L	450	dia	1215	1	2	5	15	19	9	9	7	0.50	0	1	NR45 at 1.5m	Un-podded. 38mm long spigots. Low pressure rating (+500/-500Pa).

# Attenuator Drawings

**Project:** Hevac Sample

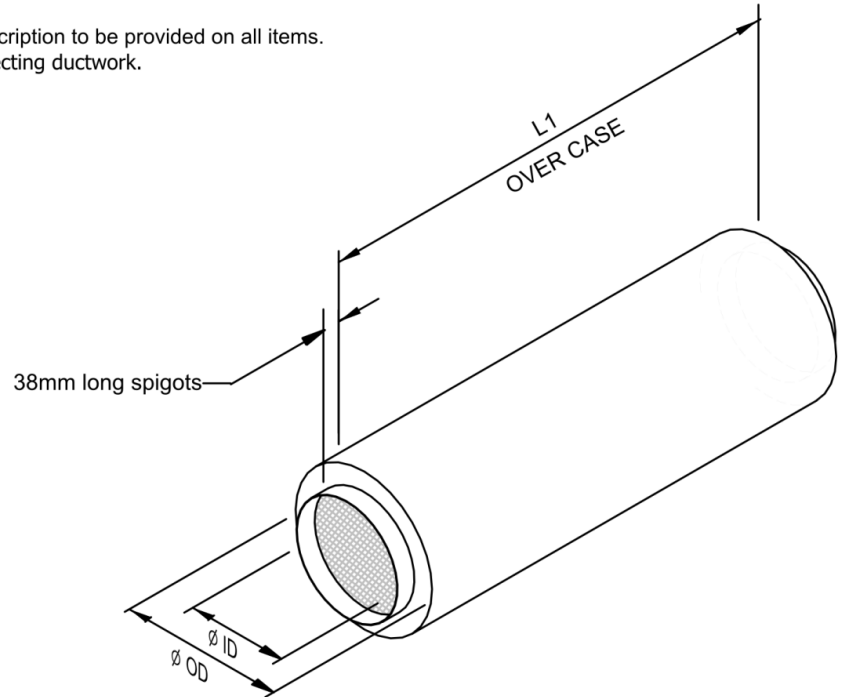
**Date:** 14/07/2015

Construction codes confirm the physical properties of each item. This drawing must therefore be read in conjunction with the Construction Code Definitions. Dimensions W1, H1, W2, H2, WD1, HD1 are always shown as "inside-duct". Dimensions L1, L2, LD1 are always shown as "over connections".

## Circular attenuator with plain wrap casing - with spigot ends

**Notes:**

1. Identification labels stating item reference and description to be provided on all items.
2. Attenuator spigots shall be slip jointed inside connecting ductwork.
3. All dimensions in mm.
4. Tolerance on **L1** +/- 2mm.
5. Tolerance on **ID** and **OD** +/- 2mm.



Ref.	Construction Code	Primary Dimensions			Paint Colour	Wt (Kg)	No. Off
		ID	OD	L1			
AT005	PG01U/1K/L	450	560	1215		28	1

# Attenuator Drawings

**Project:** Hevac Sample

**Date:** 14/07/2015

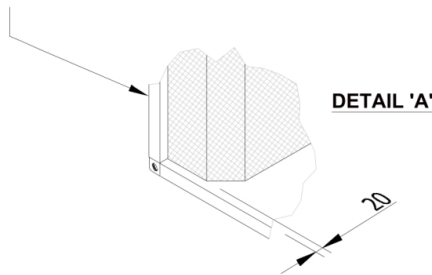
Construction codes confirm the physical properties of each item. This drawing must therefore be read in conjunction with the Construction Code Definitions. Dimensions W1, H1, W2, H2, WD1, HD1 are always shown as "inside-duct". Dimensions L1, L2, LD1 are always shown as "over connections".

## Lining attenuator - with profile flanges

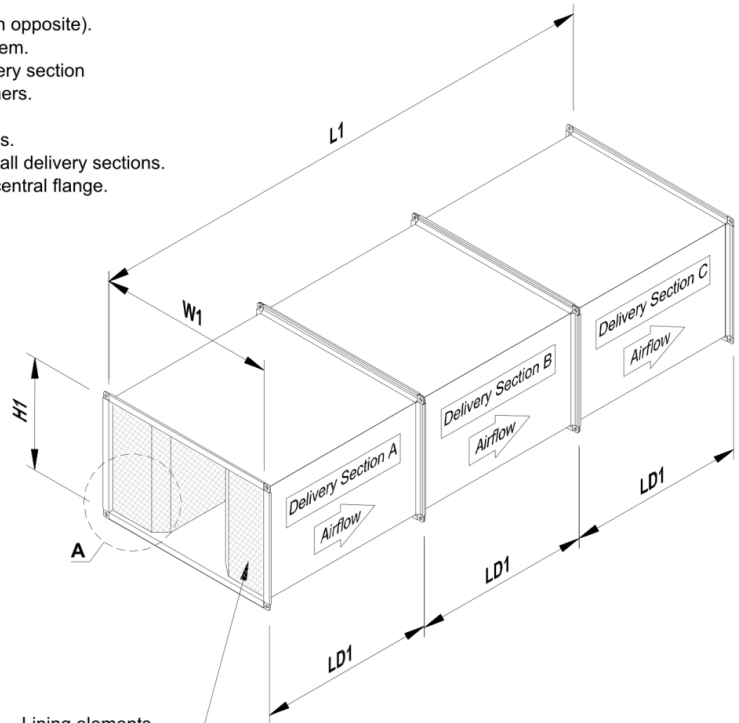
**Notes:**

1. Attenuators may be delivered in 1, 2, 3 or 4 sections in length (3 shown opposite).
2. See **NDL** in table below for number of delivery sections in length per item.
3. Assembly of multiple piece items must be in accordance with the delivery section and airflow label layouts, typically as shown opposite. Assembly by others.
4. Nuts, bolts, flange clamps and gasket between flanges by others.
5. Delivery section and airflow labels only provided on multiple piece items.
6. Identification labels stating item reference and description provided on all delivery sections.
7. Where **LD1** exceeds 1250 each delivery section has an intermediate central flange.
8. All dimensions in mm.
9. Tolerances on **W1** & **H1** +/- 2mm.
10. Tolerances on **LD1** +/- 3mm

Profile flanges suitable for MEZ, DOBY or METU flanging systems. See table below for flange size.



Lining elements set back in casing by 20mm and provided with aerodynamic fairings on inlet and outlet as shown. However if item has non-standard elements refer to Attenuator Model Code Definitions for details.



Lining elements shown installed in the vertical plane. Refer to item Model Code for actual orientation.

Ref.	Construction Code	Primary Dimensions			Delivery Data		Flange Size	Paint Colour	Wt (Kg)	No. Off
		W1	H1	L1	LD1	NDL				
AT001	LG02H/3C/L/S	800	575	1800	900	2	30mm		83	1

# Attenuator Drawings

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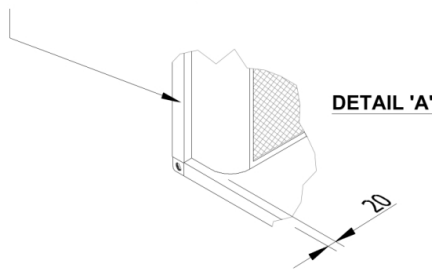
Construction codes confirm the physical properties of each item. This drawing must therefore be read in conjunction with the Construction Code Definitions. Dimensions W1, H1, W2, H2, WD1, HD1 are always shown as "inside-duct". Dimensions L1, L2, LD1 are always shown as "over connections".

## Splitter attenuator - with profile flanges

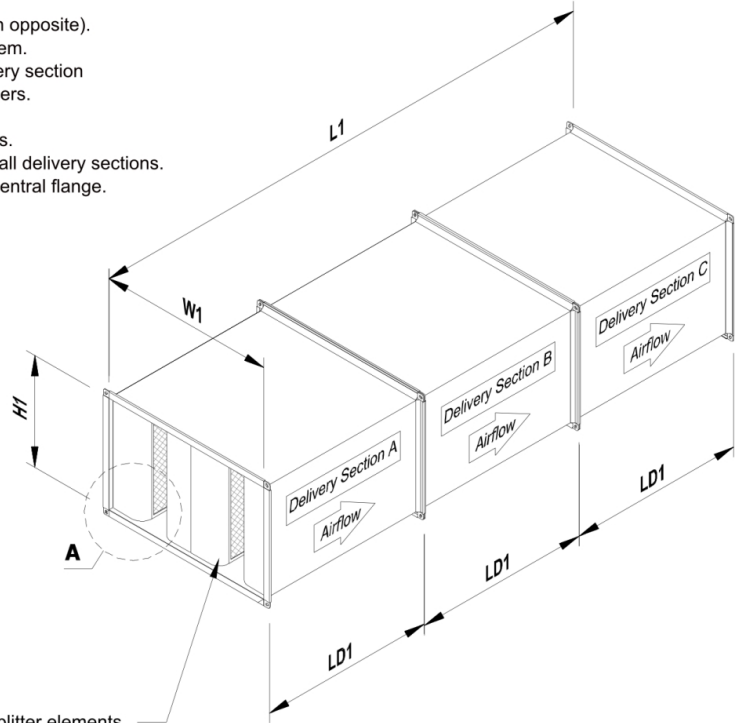
**Notes:**

1. Attenuators may be delivered in 1, 2, 3 or 4 sections in length (3 shown opposite).
2. See **NDL** in table below for number of delivery sections in length per item.
3. Assembly of multiple piece items must be in accordance with the delivery section and airflow label layouts, typically as shown opposite. Assembly by others.
4. Nuts, bolts, flange clamps and gasket between flanges by others.
5. Delivery section and airflow labels only provided on multiple piece items.
6. Identification labels stating item reference and description provided on all delivery sections.
7. Where **LD1** exceeds 1250 each delivery section has an intermediate central flange.
8. All dimensions in mm.
9. Tolerances on **W1** & **H1** +/- 2mm.
10. Tolerances on **LD1** +/- 3mm

Profile flanges suitable for MEZ, DOBY or METU flanging systems. See table below for flange size.



Splitter elements set back in casing by 20mm and provided with aerodynamic bullnoses on inlet and outlet as shown. However if item has non-standard elements refer to Attenuator Model Code Definitions for details.



Splitter elements shown installed in the vertical plane. Refer to item Model Code for actual orientation.

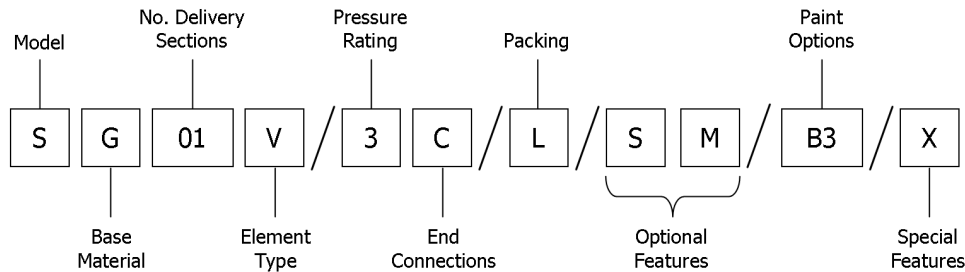
Ref.	Construction Code	Primary Dimensions			Delivery Data		Flange Size	Paint Colour	Wt (Kg)	No. Off
		W1	H1	L1	LD1	NDL				
AT002	SG01V/3C/L/S	1625	800	2100	2100	1	30mm		249	1
AT003	SG01H/3C/L/S	1200	1025	1500	1500	1	30mm		170	1
AT004	SG01V/3C/L/S	1000	1000	1800	1800	1	30mm		173	1

# Attenuator Construction Code Definitions

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## Sample Construction Code Format Diagram



## Construction Code Definitions

Code Section	Code	Description
Model	L	Rectangular attenuator with lining elements
	P	Circular attenuator with plain wrap casing
	S	Rectangular attenuator with splitter elements
Base material	G	Standard gauge galvanised sheet steel
No. delivery sections	01 upwards	This number confirms how many sections will be delivered to site for each attenuator or splitter. For 02 or above assembly will be required by others.
Element type	H	Elements installed in the horizontal plane
	U	Un-podded (circular attenuators only)
	V	Elements installed in the vertical plane
Pressure rating	1	Low pressure (+500/-500Pa)
	3	High pressure (+2000/-750Pa)
End connections	C	30mm profile flanges (compatible with Doby, Mez & Metu flanges)
	K	38mm long circular spigots (circular attenuators only)
Packing	L	Lightweight pallet wrapping on casing ends (splitter & individual elements palletised and wrapped on the pallet)
Optional features	S	Side elements (splitter & individual elements supplied with steel backing)