

The Passive Silencers

AGM ...
AVM ...
AWM ...
ARE ...
AME ...



INSTALLATION INSTRUCTIONS



Range of Use

For passive silencers porous absorbers (mineral fibre) are used. These are particularly suitable for medium and high frequencies, at larger total lengths but also for reducing sound levels of low frequencies. They can be used in all calorific-value boilers and all regular fireplaces that are operated with negative and positive pressure up to 20 Pa, also available for up to 5000 Pa on request. Also on request, all models can be adjusted for installation at the outlet.



Silencer Design

The silencer cores are made of expanded metal netting, or a perforated shield in type series ARE, made of the materials 1.4571/1.4404 and a stainless-steel mat for covering the flow channel (Figure 1). The mineral damping material underneath is water-repellent, rot and aging resistant, non-flammable, chemically neutral and quality-controlled in accordance with DIN 18165.

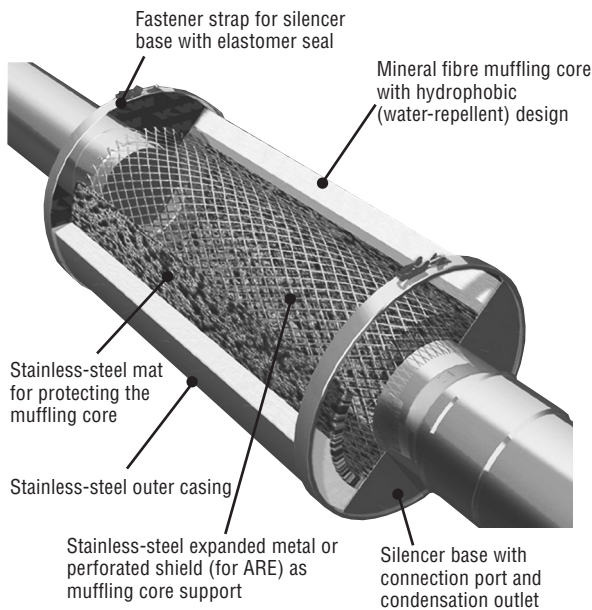


Figure 1



Safety Instructions

Current laws, guidelines, provisions and standards have to be followed for installation. The installation must only be carried out by specialized craftsmen.



Installation

Location: The flue gas silencers are part of the connection pipe (flue gas pipe) in the flue gas system. They should be installed as close as possible to the heat generator, i.e. the noise source. Silencers have to be installed in flow direction in front of any secondary air appliances.

Positioning:

Passive silencers can be mounted horizontally, at an angle or vertically as needed. However, the flue gas silencers have to be positioned inside the flue gas system in such a way that condensate can drain freely.

Condensation Drain:

The condensation drain always has to be connected properly.

Any condensate has to be drained in accordance with local regulations. If the device is installed vertically, the condensation drain can be closed with the supplied cap. In this case, the flow of condensate through the flue gas system has to be taken into account.

Fastening:

The installer has to check on site whether the silencers have to be statically secured. This is the case for all installation locations, e.g. in the connection pipe or at the outlet. The silencers always have to be hanged or supported separately from the flue gas system. The fastening has to be connected to the outer mantle (Figure 1). The silencer has to be installed vibration-free.

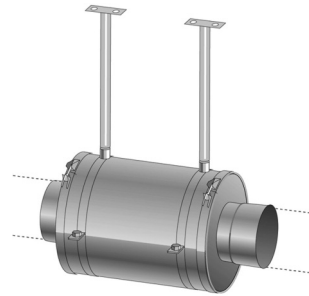


Figure 2

Openings for Inspection and Cleaning:

For inspection and cleaning, an opening can be provided in front of or behind the flue gas silencers. If there is not enough space, the silencers can also be installed without a cleaning opening. We suggest that you consult your local building control about this. The silencers can be equipped with a cleaning opening if necessary.

Insulation:

If the silencer is installed in an area that may be subject to frost it has to be insulated to prevent condensation from freezing. Insulation is also necessary if the cooling of flue gasses may compromise a safe flue gas evacuation.

Inspection and Cleaning:

The silencers can also be removed for cleaning if necessary. The screws of the fastener straps have to be tightened at 15 Nm.

Example: Installation and Combination

The silencer models passive silencers (AGM), extension silencers (AVM) and elbow silencers (AWM) can be combined as needed due to their modular design (Figure 3).

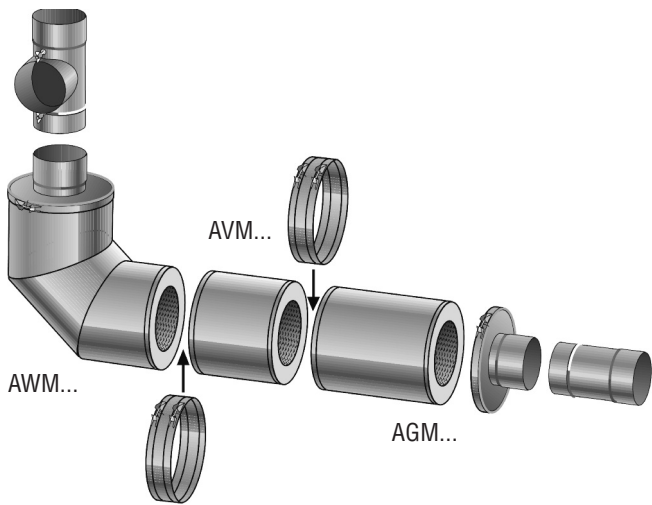


Figure 3

For combining the individual modules, extra broad connection collars with support ring and seal are required (Figure 4).

These are standard parts included with the AVM. For combining other silencer models, these parts need to be requested separately when placing the order.

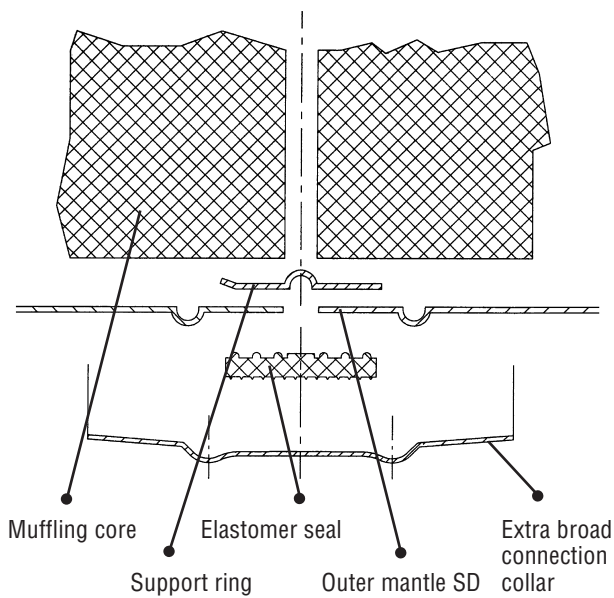


Figure 4

The bases of the silencers are connected to the outer mantle via fastener straps and a seal underneath (except for type series ARE) (Figure 5).

The bases are interchangeable with each other if needed. But you need to make sure that the seal is positioned correctly.

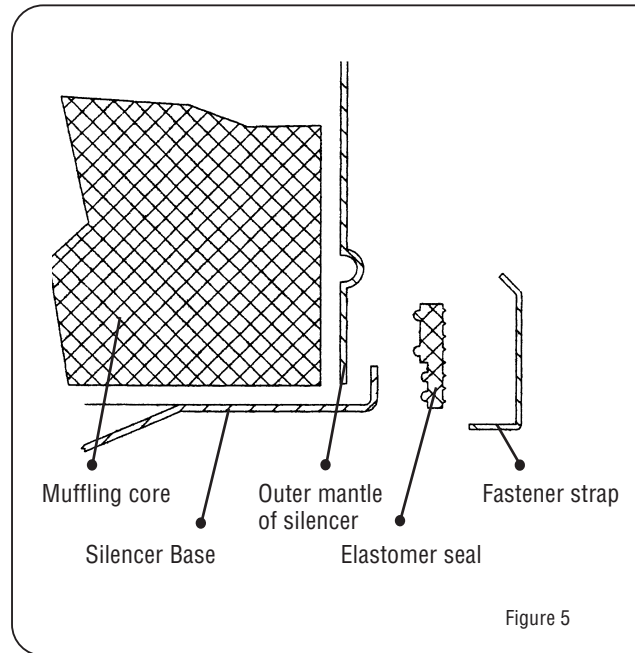


Figure 5



Maintenance

Silencers have to be checked during the annual maintenance of the heating system and this requires a visual inspection inside and outside.

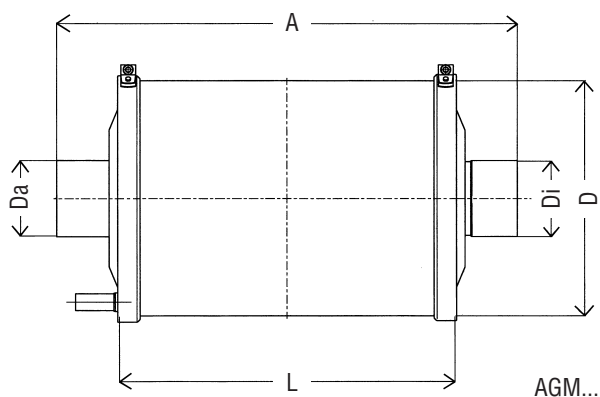


Sound Level Reduction

The insertion absorptions were determined at the Fraunhofer Institute for Building Physics (IBP) in accordance with DIN EN ISO 7235. They are available on request.



Dimensions and Technical Data of Passive Silencers



Material

Condensation outlet

Positive pressure tight

max. flue gas temperature

Connection port

Effective length

Stainless-steel

1.4571 / 1.4404

Outer Ø 18 mm,

Length 50 mm

up to 200 Pa

400 °C

Acc. to DIN 1298

= Total length A – 80 mm

Type	AGM 580/80	AGM 580/100	AGM 580/110	AGM 580/130	AGM 580/150	AGM 580/160
Total length A (mm)	580					
Muffling core length L (mm)	360					
Diameter D (mm)	250			300		
Inner diameter Di (mm)	80	100	110	130	150	160
Outer diameter Da (mm)	79	99	109	129	149	159
Total weight (kg)	5			6		
Resistance coefficient (ζ value)	0,20					

Type	AGM 760/80	AGM 760/100	AGM 760/110	AGM 760/130	AGM 760/150	AGM 760/160
Total length A (mm)	760					
Muffling core length L (mm)	540					
Diameter D (mm)	250			300		
Inner diameter Di (mm)	80	100	110	130	150	160
Outer diameter Da (mm)	79	99	109	129	149	159
Total weight (kg)	7			8		
Resistance coefficient (ζ value)	0,22					

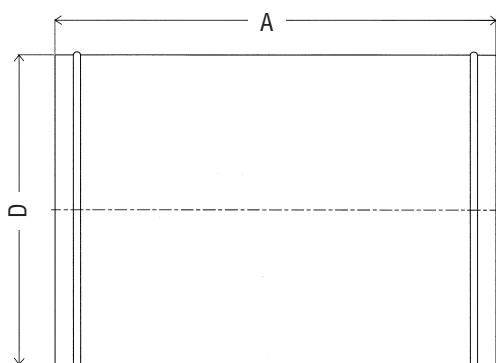
Type	AGM 760/180	AGM 760/200	AGM 760/225	AGM 760/250	AGM 760/300	AGM 720/350
Total length A (mm)	760					720
Muffling core length L (mm)	540					500
Diameter D (mm)	450			500		600
Inner diameter Di (mm)	180	200	225	250	300	350
Outer diameter Da (mm)	179	199	224	249	298	348
Total weight (kg)	16			18		21
Resistance coefficient (ζ value)	0,22					

Type	AGM 940/180	AGM 940/200	AGM 940/225	AGM 940/250	AGM 940/300
Total length A (mm)	940				
Muffling core length L (mm)	720				
Diameter D (mm)	450			500	
Inner diameter Di (mm)	180	200	225	250	300
Outer diameter Da (mm)	179	199	224	249	298
Total weight (kg)	20			22	
Resistance coefficient (ζ value)	0,24				

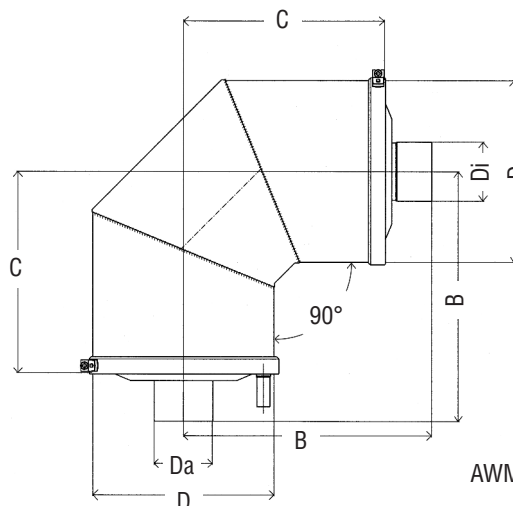
Type	AGM 1120/180	AGM 1120/200	AGM 1120/225	AGM 1120/250	AGM 1120/300	AGM 1220/350
Total length A (mm)	1120					1220
Muffling core length L (mm)	900					1000
Diameter D (mm)	450			500		600
Inner diameter Di (mm)	180	200	225	250	300	350
Outer diameter Da (mm)	179	199	224	249	298	348
Total weight (kg)	23			24		26
Resistance coefficient (ζ value)	0,25					



Dimensions and Technical Data of Extension and Elbow Silencers



AVM...



AWM...

Type	AVM 360/80-130	AVM 360/150-160	AVM 360/180-225	AVM 360/250-300			
Total length A (mm)	360						
Diameter D (mm)	250	300	450	500			
Total weight (kg)	4	5	8	10			
Resistance coefficient (ζ value)	0,20						

Type	AVM 540/80-130	AVM 540/150-160	AVM 540/180-225	AVM 540/250-300	AVM 500/350		
Total length A (mm)	540				500		
Diameter D (mm)	250	300	450	500	600		
Total weight (kg)	4,5	6	12	15	16,5		
Resistance coefficient (ζ value)	0,20						

Type	AVM 720/180-225	AVM 720/250-300	AVM 900/180-225	AVM 900/250-300	AVM 1000/350		
Total length A (mm)	720	720	900	900	1000		
Diameter D (mm)	450	500	450	500	600		
Total weight (kg)	18,5	19,5	20	21,5	23		
Resistance coefficient (ζ value)	0,22		0,24				

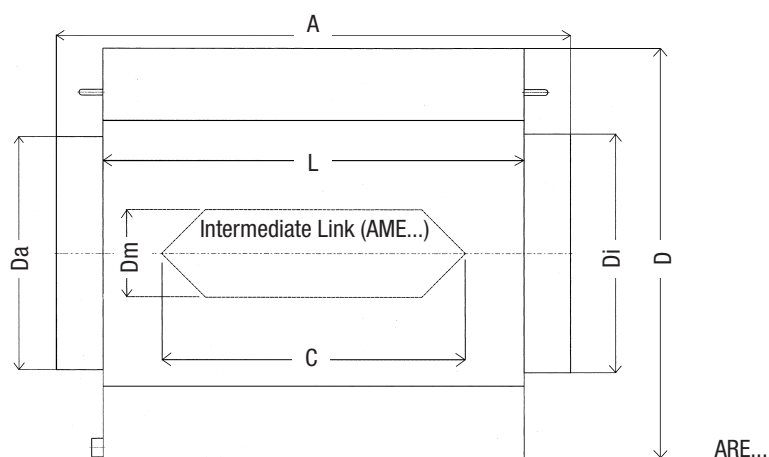
Type	AWM 80	AWM 100	AWM 110	AWM 130	AWM 150	AWM 160	
Centre distance B (mm)	410			435			
Distance C (mm)	300			325			
Diameter D (mm)	250			300			
Inner diameter Di (mm)	80	100	110	130	150	160	
Outer diameter Da (mm)	79	99	109	129	149	159	
Total weight (kg)	6,5			8,5			
resistance coefficient (ζ value)	0,40			0,43	0,45		

Type	AWM 180	AWM 200	AWM 225	AWM 250	AWM 300	AWM 350	
Centre distance B (mm)	510			535		610	
Distance C (mm)	400			425		500	
Diameter D (mm)	450			500		600	
Inner diameter Di (mm)	180	200	225	250	300	350	
Outer diameter Da (m)	179	199	224	249	298	348	
Total weight (kg)	16,5			22		29,5	
resistance coefficient (ζ value)	0,50			0,55		0,60	

Material: Stainless-steel 1.4571 / 1.4404
 Condensation outlet: Outer Ø 18 mm, Length 50 mm (not for AVM)
 Positive pressure tight: up to 200 Pa
 max. flue gas temperature: 400 °C
 Connection port: Acc. To DIN 1298 (not for AVM)



Dimensions and Technical Data of Passive Silencers and Intermediate Link



Silencer type	ARE 940/400	ARE 1120/500	ARE 1300/600	ARE 1660/800
Total length A (mm)	940	1120	1300	1660
Muffling core length L (mm)	720	900	1080	1440
Diameter D (mm)	700	800	1000	1200
Inner diameter Di (mm)	400	500	600	800
Outer diameter Da (mm)	399	499	599	799
Total weight (kg)	68	121	196	305
Resistance coefficient (ζ value)	0,3	0,2	0,45	0,5

Intermediate link	AME 940	AME 1120	AME 1300	AME 1660
Total length A (mm)	520	700	880	1240
Diameter Dm (mm)	150	150	200	250
Total weight (kg)	3,5	4,0	7,0	13,5
Resistance coefficient (ζ value)	1,5		1,7	

Silencer type	ARE 1480/400	ARE 1660/500	ARE 1840/600	ARE 2380/800
Total length A (mm)	1480	1660	1840	2380
Muffling core length L (mm)	1260	1440	1620	2160
Diameter D (mm)	700	800	1000	1200
Inner diameter Di (mm)	400	500	600	800
Outer diameter Da (mm)	399	499	599	799
Total weight (kg)	110	182	282	444
Resistance coefficient (ζ value)	0,45	0,55	0,6	0,65

Intermediate link	AME 1480	AME 1660	AME 1840	AME 2380
Total length A (mm)	1060	1240	1420	1960
Diameter Dm (mm)	150	150	200	250
Total weight (kg)	5,5	6,5	11,0	20,5
Resistance coefficient (ζ value)	1,7		1,9	

Material	Stainless-steel 1.4571 / 1.4404
Condensation outlet	3/4 inch
Positive pressure tight	up to 5000 Pa
max. flue gas temperature	400 °C
Connection port	Acc. to DIN 1298
Ring bolts	5 included
Effective length	= Total length A – 60 mm

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