



**Kalkulation eines Outdoor-Projekts
mit Acoustic Design Analysis**



Welcome Test user



Klicken Sie auf Analyse, um ein neues Projekt zu erstellen

Products



Select and configure noise control product without conducting a duct analysis.

Analysis



Analyze a duct system for noise levels in occupied spaces.

Projects



Create or open a project in your account for duct analysis or product selection.

Recent Projects

Project Name	Type	Revision	Created	Last Edited ▾
--------------	------	----------	---------	---------------

Need help?



Contact your local Swegon representative for assistance.
<https://www.swegon.com/contact/>

Select project...

Projects

Search lastEdited Anytime showRevisions No ownedBy Me

Klicken Sie auf "Neues Projekt"



New Project

Select project...

Projects

Search lastEdited Anytime

New Project

Project Name

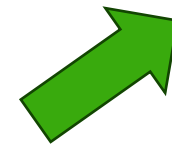
AHU project 123

AHU Silencer

Cancel

Create

Geben Sie ihm einen Namen und klicken Sie auf "Erstellen"



New Project

Cancel

Analysis

Views

[Analysis](#)[Filter](#)

Libraries

[Library](#)[Receivers](#)

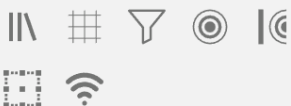
Product Configurators

[Swegon Silencers](#)

Calculation Modules

[Rectangular Breakout In-Line](#)[Circular Breakout In-Line](#)

Library Element Quick Add



Straight Duct



Flexible Duct



Elbow



Branching

★ [AHU project 123](#)

Path (1)

[Add Path](#)

Frequency	dBA	63	125	250	500	1k	2k	4k	8k
Total	7	-	-	-	-	-	-	-	-
Required Insertion Loss	-	-	-	-	-	-	-	-	-
Receiver: default (dBA)	7	-	-	-	-	-	-	-	-

Dadurch wird der Arbeitsbereich geöffnet.
Beginnen Sie mit dem Klicken auf Bibliothek, um sie zu öffnen.

Library

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Category

Project Organization

- Air Terminal
- Ceilings
- Doors
- Electrical Equipment
- Floors
- Mechanical Equipment
- Air Conditioner
- Air Handling Unit
- Boiler
- Chiller
- Coil
- Condensing Unit
- Cooling Tower
- Damper
- Energy Recovery Ventilator
- Fan
- Fan Coil Unit
- Filter
- Heat Pumps
- Pump
- Rooftop Unit
- VAV Box
- Roofs
- User Defined
- Walls
- Windows

Properties

New Folder New Element Close

Hinzufügen eines neuen Lüftungsgeräts in der Bibliothek,
Wählen Sie "Mechanische Ausrüstung"
dann "Air Handling Unit"
und klicken Sie auf "Neues Element"

Library

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Elbow

Elbow

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II

II

Category

Project

Organization

- Air Terminal
- Ceilings
- Doors
- Electrical Equipment
- Floors
- Mechanical Equipment
 - Air Conditioner
 - Air Handling Unit
 - AHU 123
 - Boiler
 - Chiller
 - Coil
 - Condensing Unit
 - Cooling Tower
 - Damper
 - Energy Recovery Ventilator
 - Fan
 - Fan Coil Unit
 - Filter
 - Heat Pumps
 - Pump
 - Rooftop Unit
 - VAV Box
- Roofs
- User Defined
- Walls
- Windows

Properties

Name

AHU 123

Project Tag

AHU 123

Dimensions

Height

Length

Width

Add Parameter

Identity Data

Area Served

Location

Manufacturer

Model

URL

Add Parameter

Mechanical - Loads

Total Cooling Capacity

Schreiben Sie einen Namen und ein Projekt-Tag

Duplicate Element

Delete Element

Copy to Organization

Close

Library

- Air Handling Unit
- AHU 123
- Boiler
- Chiller
- Coil
- Condensing Unit
- Cooling Tower
- Damper
- Energy Recovery Ventilator
- Fan
- Fan Coil Unit
- Filter
- Heat Pumps
- Pump
- Rooftop Unit
- VAV Box
- Roofs
- User Defined
- Walls
- Windows

Height Length

Width

Add Parameter

Identity Data

Area Served Location

Manufacturer Model

URL

Add Parameter

Mechanical - Loads

Total Cooling Capacity

Add Group Add Parameter

Acoustic data

Data	Metric	Dist (m)	Airflow (l/s)	63	125	250	500	1k	2k	4k	8k
Supply	Sound Power		3000	85	83	82	82	82	78	78	76
Extract	Sound Power		3000	82	81	80	80	80	76	75	74
Exhaust	Sound Power		3000	85	83	82	82	82	78	78	76
Outdoor	Sound Power		3000	82	81	80	80	80	76	75	74

Add Data

Notes

Scrollen Sie zu den akustischen Daten und geben Sie Name, Luftstrom und Schallleistungspegel

Beenden Sie mit dem Klicken auf Änderungen speichern

Save Changes

Close

Analysis

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Library Element Quick Add



Straight Duct



Flexible Duct



Elbow



Branching



AHU project 123

Path (1)									
Frequency	dBA	63	125	250	500	1k	2k	4k	8k
Total	7	-	-	-	-	-	-	-	-
Required Insertion Loss	-	-	-	-	-	-	-	-	-
Receiver: default (dBA)	7	-	-	-	-	-	-	-	-

Move to head of path

[Add Path](#)

Ziehen Sie das Symbol „Schallquelle“ per Drag & Drop in das gestrichelte Quadrat

Analysis

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Library Element Quick Add



Straight Duct



Flexible Duct



Elbow



Branching



End Reflection



Noise Control



Duct Breakin/Breakout



AHU project 123 Outdoor

Supply air

Frequency
Total
Required Insertion Loss
Receiver: default (dBA)

AHU 123
Outdoor

AHU 123

Properties

Category

Mechanical Equipment/Air Handling Unit

Element

AHU 123

Data Set

Outdoor

Airflow and Velocity

Override Airflow & Velocity

Airflow (l/s)

3000

Velocity (m/s)

0

Acoustic Data

Project Tag

Data Set

Metric

Airflow (l/s)

3000

Distance (m)

63

125

Details

Noise sources (from the Library).

[Add Attachment](#)

Wählen Sie Ihr Lüftungsgerät und den korrekten Datensatz

Und klicken Sie auf Speichern

Previous

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Cancel

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Library Element Quick Add



Straight Duct



Flexible Duct



Elbow



Branching



AHU project 123

Path (1)



[Add Path](#)

Frequency	dBA	63	125	250	500	1k	2k	4k	8k
Total	87	85	83	82	82	82	78	78	76
Required Insertion Loss	-	-	-	-	-	-	-	-	-
Receiver: default (dBA)	87	85	83	82	82	82	78	78	76

AHU 123 Supply	87	85	83	82	82	82	78	78	76
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Fügen Sie Ihren Empfänger hinzu, indem Sie auf "Empfänger" klicken"

Geben Sie den Namen, den Empfängertyp und die Empfängerkriterien ein, und klicken Sie auf Speichern.

Receivers

Name

Office Room 123

Receiver Properties

Name

Outdoor

Receiver Type

Outdoor

Length (m)

Width (m)

Height (m)

Notes

Room Absorption

Absorption Coefficients

63	125	250	500	1000	2000	4000	8000
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Receiver Criteria

Metric	Value
A	50 dB(A) (50)

Wichtig ist, dass Empfänger-Typ auf "Outdoor" eingestellt ist.

Close New Reset Save



Calculation Modules

- Rectangular Breakout In-Line
- Circular Breakout In-Line

Library Element Quick Add

- Straight Duct
- Flexible Duct
- Elbow
- Branching
- End Reflection
- Noise Control
- Duct Breakin/ Breakout
- Sound Transmission
- Room Effect
- Outdoor Noise**

AHU project 123 Outdoor

Supply air

Frequency	63	125	250	500	1k	2k	4k	8k	
Total	84	82	81	80	80	80	76	75	74
Required Insertion Loss	-	-	-	-	-	-	-	-	-
Receiver: default (dBA)	84	82	81	80	80	80	76	75	74

Move to head of path

AHU 123 Outdoor	84	82	81	80	80	80	76	75	74
-----------------	----	----	----	----	----	----	----	----	----

Branch →

[Add Path](#)

Ziehen Sie das Symbol "Entfernungsdämpfung im Freien" per Drag & Drop in das gestrichelte Quadrat

Swegon Home Products Analysis Reporting

Calculation Modules

- Rectangular Breakout In-Line
- Circular Breakout In-Line

Library Element Quick Add

Sypply air

- Frequency
- Total
- Required Insertion Loss
- Receiver: Outdoor (50 dB(A))

AHU 123 Outdoor

Outdoor Distance Attenuation 5m Distance

Straight Duct

Flexible Duct

Elbow

Branching

End Reflection

Noise Control

Duct Breakin/Breakout

Sound Transmission

Room Effect

Outdoor Noise

Outdoor Distance Attenuation

Wählen Sie Ihren Empfänger, Richtwirkungsfaktor und Empfängerentfernung. Klicken Sie auf Speichern.

Edit properties

Receiver name: Outdoor

Directivity Factor: 2

Receiver Distance (m): 5

Airflow and Velocity

Override Airflow & Velocity

Airflow (l/s): 3000

Velocity (m/s): 0

(Weitere Informationen zur Richtwirkung finden Sie hier. Faktoren, indem Sie auf diesen Link klicken)

Additional Resources

Calculation References

[2015 ASHRAE Applications Handbook, Chapter 48, Noise and Vibration Control](#)

[Add Attachment](#)

Previous Next Cancel Save

Swegon Silencers

- Calculation Modules
 - Rectangular Breakout In-Line
 - Circular Breakout In-Line

Library Element Quick Add

Straight Duct

Flexible Duct

Elbow

Branching

End Reflection

Noise Control

Duct Breakin/Breakout

Sound Transmission

Room Effect

Outdoor Noise

AHU project 123 Outdoor

Supply air

Frequency	dBA	63	125	250	500	1k	2k	4k	8k
Total	62	60	59	58	58	58	54	53	52
Required Insertion Loss	50	-	-	-	-	-	-	-	-
Receiver: Outdoor (50 dB(A))	62	60	59	58	58	58	54	53	52

AHU 123 Outdoor	84	82	81	80	80	80	76	75	74
Outdoor Distance Attenuation 5m Distance	62	-22	-22	-22	-22	-22	-22	-22	-22

Add Path

Bauen Sie Ihr Kanalsystem zwischen der Geräuschquelle und dem Empfänger durch Ziehen und Ablegen von Elementen aus den Bibliothekselementen, Schnellzugriff

Libraries

[Library](#)

[Receivers](#)

Product Configurators

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Calculation Modules

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Library Element Quick Add

Straight Duct

Flexible Duct

Elbow

Branching

End Reflection

Noise Control

Duct Breakin/Breakout

AHU project 123 Outdoor

[Add Path](#)

Supply air									
Frequency	63	125	250	500	1k	2k	4k	8k	
Total	62	58	58	57	58	58	54	53	52
Required Insertion Loss	50	-	-	-	-	-	-	-	-
Receiver: Outdoor (50 dB(A))	62	58	58	57	58	58	54	53	52

AHU 123 Outdoor	84	82	81	80	80	80	76	75	74
Rectangular Duct 1600mm x 800mm x 3m	84	-2	-1	-1	-0	-0	-0	-0	-0
Outdoor Distance Attenuation 5m Distance	62	-22	-22	-22	-22	-22	-22	-22	-22

Ziehen Sie das Symbol "Reflexionsverlust beenden" per Drag & Drop in das gestrichelte Quadrat

- LIBRARY
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- Flexible Duct
- Elbow
- Branching
- End Reflection
- Noise Control
- Duct Breakin / Breakout

AHU project 123 Outdoor

Supply air

- Frequency Total
- Required Insertion Loss
- Receiver: Outdoor (50)

AHU 123 Outdoor

Rectangular Duct 1600mm x 800mm x 3

Rectangular - End Ref Loss 1600mm x 800mm (Fl

Outdoor Distance Atte 5m Distance

Rectangular - End Reflection Loss

Schreiben Sie Ihre Maße für die Öffnung in der Fassade

Properties

Width (mm)	Height (mm)
1600	800

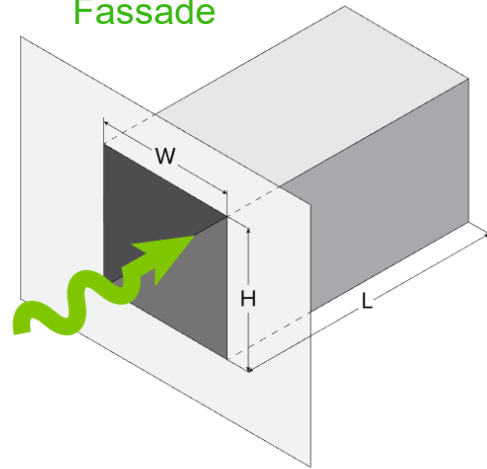
Duct Termination

Flush

Airflow and Velocity

Override Airflow & Velocity

Airflow (l/s)	Velocity (m/s)
3000	2



When low-frequency energy sound waves encounter the end of a duct that is terminated into a large room, some of the incident sound energy is reflected back into the duct.

- Additional Resources
- ASHRAE Research Projects
- [ASHRAE RP-1314](#)
- Calculation References
- [2015 ASHRAE Applications Handbook, Chapter 48, Noise and Vibration Control](#)

[Add Attachment](#)

Previous Next Close

AHU_project 123 Outdoor

Supply air [Add Path](#)

Frequency	dBA	63	125	250	500	1k	2k	4k	8k
Total	62	56	57	57	58	58	54	53	52
Required Insertion Loss	50	-	-	-	-	-	-	-	-
Receiver: Outdoor (50 dB(A))	62	56	57	57	58	58	54	53	52

AHU 123 Outdoor	84	82	81	80	80	80	76	75	74
Rectangular Duct 1600mm x 800mm x 3m	84	-2	-1	-1	-0	-0	-0	-0	-0
Rectangular - End Reflection Loss 1600mm x 800mm (Flush)	84	-3	-1	-0	-0	-0	-0	-0	-0
Outdoor Distance Attenuation 5m Distance	62	-22	-22	-22	-22	-22	-22	-22	-22

Wenn Sie Schalldämpfer hinzufügen möchten Wählen Sie den Ort (klicken Sie auf highlighte) im Kanalsystem wo Sie einen Schalldämpfer einfügen wollen

Klicken Sie dann auf Swegon Schalldämpfer

Silencer Selection

Schreiben Sie ein Tag und wählen Sie Form und Abmessungen. Wählen Sie einen Schalldämpfer aus der Liste aus (klicken Sie auf highlighte) und klicken Sie auf Erstellen

Identity

Tag: Silencer 1 Quantity: 1

Dimensions & Airflow

Shape: Rectangular

Duct Width: 1600 mm Duct Height: 800 mm

Max Length: 1250 mm

Override Airflow & Velocity

Silencer Flow Rate: 3000 l/s Velocity: 2.34 m/s

Maximum Pressure Drop: 87.18 Pa

System Effects

Silencer Inlet Condition: Ideal Outlet Conditions - 3 to 4 diameters of straight duct

Diameter from Silencer: Transition Length:

Override Required Inserti...

Required Insertion Loss

Frequency	dBA	63	125	250	500	1k	2k	4k	8k
Sound Before Attenuator	84	82	81	80	80	80	76	75	74
Required Insertion Loss	50	-	-	-	-	-	-	-	-
Calculated Insertion Loss	-	-	-	-	-	-	-	-	-
Safety Factor	0	0	0	0	0	0	0	0	0

Silencer Selection

Model	Octave Midband Frequency, Hz											
	L	PD	w/SE	A	63	125	250	500	1k	2k	4k	8k
CALMO a-1611-1600-800-650	650	6	6		5	10	15	23	27	27	15	10
Generated Noise					28	28	24	22	19	16	15	13
End Result				44	51	47	42	35	31	27	38	42
FACILE a-1610-1600-800-750	750	11	11		3	7	12	18	26	25	15	11
Generated Noise					20	20	16	14	11	<10	<10	<10
End Result				4	53	50	45	40	32	29	38	41
CALMO a-1622-1600-800-1250	1250	3	3		4	9	16	21	25	18	11	11
Generated Noise					11	11	<10	<10	<10	<10	<10	<10
End Result				46	52	48	41	37	33	36	42	41
CADENZA a-1627-1600-800-1250	1250	7	7		5	11	18	27	32	22	13	12
Generated Noise					17	17	13	11	<10	<10	<10	<10
End Result				44	51	46	39	31	26	32	40	40
CALMO a-1621-1600-800-1250	1250	7	7		7	15	24	39	45	40	23	17
Generated Noise					28	28	24	22	19	16	15	13
End Result				37	49	42	33	19	13	14	30	35
CADENZA a-1628-1600-800-1250	1250	9	9		7	12	21	33	39	33	18	14

Options

Uninsulated Cleaning Cover: None

Fire-Resistant Insulated Cleaning Cover: None

Insulated 50mm Stone Wool

Perforated Sheet Metal Lining

Flange Connection

Resources

Product Sheet: [Attenuator with recessed connection for rectangular ducts](#)

Brochure: [Acoustics Overview](#)

Instruction: [Installation, commissioning, maintenance](#)

Quality: [Approval 2706/92, Duct insulation](#)
[Building product declaration](#)

Image

Druckabfall

Schallpegel am Empfänger mit diesem Schalldämpfer

Cancel Create

Jetzt haben Sie eine Kopie des ersten Pfades

Libraries

Library

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Swegon Silencers

Calculation Modules

Rectangular Breakout In-Line

Circular Breakout In-Line

Library Element Quick Add

Straight Duct

Flexible Duct

Elbow

Branching

End Reflection

Noise Control

Duct Breakin / Breakout

AHU_project 123 Outdoor

Supply air	Frequency	63	125	250	500	1k	2k	4k	8k
Total	44	51	47	42	35	31	27	38	42
Required Insertion Loss	50	-	-	-	-	-	-	-	-
Receiver: Outdoor (50 dB(A))	47	54	50	45	38	34	30	41	45

Supply air (Copy)	Frequency	63	125	250	500	1k	2k	4k	8k
Total	44	51	47	42	35	31	27	38	42
Required Insertion Loss	50	-	-	-	-	-	-	-	-
Receiver: Outdoor (50 dB(A))	47	54	50	45	38	34	30	41	45

AHU 123 Outdoor

AHU 123 Outdoor	84	82	81	80	80	80	76	75	74
Silencer 1 CALMO a-1611-1600-800-650	67	-5	-10	-15	-23	-27	-27	-15	-10
Rectangular Duct 1600mm x 800mm x 3m	66	-2	-1	-1	-0	-0	-0	-0	-0
Rectangular - End Reflection Loss 1600mm x 800mm (Flush)	66	-3	-1	-0	-0	-0	-0	-0	-0
Outdoor Distance Attenuation 5m Distance	44	-22	-22	-22	-22	-22	-22	-22	-22

AHU 123 Outdoor

AHU 123 Outdoor	84	82	81	80	80	80	76	75	74
Silencer 1 CALMO a-1611-1600-800-650	67	-5	-10	-15	-23	-27	-27	-15	-10
Rectangular Duct 1600mm x 800mm x 3m	66	-2	-1	-1	-0	-0	-0	-0	-0
Rectangular - End Reflection Loss 1600mm x 800mm (Flush)	66	-3	-1	-0	-0	-0	-0	-0	-0
Outdoor Distance Attenuation 5m Distance	44	-22	-22	-22	-22	-22	-22	-22	-22

[Add Path](#)

Klicken Sie auf die Schallquelle, um den Datensatz zu ändern

Libraries

Library

Receivers

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Rectangular Breakout In-Line

Circular Breakout In-Line

Library Element Quick Add

Straight Duct

Flexible Duct

Elbow

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End Reflection

Noise Control

Duct Breakin/Breakout

AHU_project 123 Outdoor

Outdoor Air		dB(A)	63	125	250	500	1k	2k	4k	8k
● Total		44	51	47	42	35	31	27	38	42
● Required Insertion Loss		50	-	-	-	-	-	-	-	-
● Receiver: Outdoor (50 dB(A))		49	55	51	46	39	35	31	43	46

AHU 123 Outdoor		dB(A)	63	125	250	500	1k	2k	4k	8k
● AHU 123 Outdoor		84	82	81	80	80	80	76	75	74

Silencer 1		dB(A)	63	125	250	500	1k	2k	4k	8k
CALMO a-1611-1600-800-650		67	-5	-10	-15	-23	-27	-27	-15	-10
Rectangular Duct		66	-2	-1	-1	-0	-0	-0	-0	-0
1600mm x 800mm x 3m										
Rectangular - End Reflection Loss		66	-3	-1	-0	-0	-0	-0	-0	-0
1600mm x 800mm (Flush)										
Outdoor Distance Attenuation		44	-22	-22	-22	-22	-22	-22	-22	-22
5m Distance										

Exhaust Air		dB(A)	63	125	250	500	1k	2k	4k	8k
● Total		67	54	49	44	39	35	31	27	23
● Required Insertion Loss		50	-	-	-	-	-	-	-	-
● Receiver: Outdoor (50 dB(A))		49	55	51	46	39	35	31	27	23

AHU 123 Exhaust		dB(A)	63	125	250	500	1k	2k	4k	8k
● AHU 123 Exhaust		87	85	83	82	80	76	75	74	74

Silencer 1		dB(A)	63	125	250	500	1k	2k	4k	8k
CALMO a-1611-1600-800-650		69	-5	-10	-15	-23	-27	-27	-15	-10
Rectangular Duct		69	-2	-1	-1	-0	-0	-0	-0	-0
1600mm x 800mm x 3m										
Rectangular - End Reflection Loss		69	-3	-1	-0	-0	-0	-0	-0	-0
1600mm x 800mm (Flush)										
Outdoor Distance Attenuation		47	-22	-22	-22	-22	-22	-22	-22	-22
5m Distance										

AHU 123

Properties

Category

Mechanical Equipment/Air Handling Unit

Element

AHU 123

Data Set

Exhaust

Select data set...

Supply

Extract

Exhaust

Outdoor

Acoustic Data

Project Tag

Data Set

Metric

Previous Next Close

Grün ist der Schalldruckpegel der Außenluft
 Blau ist der Schalldruckpegel der Abluft
 Orange ist der Gesamtschalldruckpegel (Außenluft und Abluft)

Analysis

Views

- Analysis
- Filter

Libraries

- Library
- Receivers

Product Configurators

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Calculation Modules

- Rectangular Breakout In-Line
- Circular Breakout In-Line

Library Element Quick Add

Straight Duct

Flexible Duct

Elbow

Branching

End Reflection

AHU project 123 Outdoor

Outdoor Air	63	125	250	500	1k	2k	4k	8k
Frequency	63	125	250	500	1k	2k	4k	8k
Total	44	51	47	42	35	31	27	38
Required Insertion Loss	-	-	-	-	-	-	-	-
Receiver: Outdoor (50 dB(A))	49	55	51	46	39	35	31	43

AHU 123 Outdoor	84	82	81	80	80	80	76	75	74
-----------------	----	----	----	----	----	----	----	----	----

Silencer 1 CALMO a-1611-1600-800-650	67	-5	-10	-15	-23	-27	-27	-15	-10
	28	28	24	22	19	16	15	13	

Rectangular Duct 1600mm x 800mm x 3m	66	-2	-1	-1	-0	-0	-0	-0	-0
--------------------------------------	----	----	----	----	----	----	----	----	----

Rectangular - End Reflection Loss 1600mm x 800mm (Flush)	66	-3	-1	-0	-0	-0	-0	-0	-0
--	----	----	----	----	----	----	----	----	----

Outdoor Distance Attenuation 5m Distance	44	-22	-22	-22	-22	-22	-22	-22	-22
--	----	-----	-----	-----	-----	-----	-----	-----	-----

AHU project 123 Exhaust

Exhaust Air	63	125	250	500	1k	2k	4k	8k
Frequency	63	125	250	500	1k	2k	4k	8k
Total	47	54	49	44	37	33	29	41
Required Insertion Loss	-	-	-	-	-	-	-	-
Receiver: Outdoor (50 dB(A))	49	55	51	46	39	35	31	43

AHU 123 Exhaust	87	85	83	82	82	82	78	78	76
-----------------	----	----	----	----	----	----	----	----	----

Silencer 1 CALMO a-1611-1600-800-650	69	-5	-10	-15	-23	-27	-27	-15	-10
	28	28	24	22	19	16	15	13	

Rectangular Duct 1600mm x 800mm x 3m	69	-2	-1	-1	-0	-0	-0	-0	-0
--------------------------------------	----	----	----	----	----	----	----	----	----

Rectangular - End Reflection Loss 1600mm x 800mm (Flush)	69	-3	-1	-0	-0	-0	-0	-0	-0
--	----	----	----	----	----	----	----	----	----

Outdoor Distance Attenuation 5m Distance	47	-22	-22	-22	-22	-22	-22	-22	-22
--	----	-----	-----	-----	-----	-----	-----	-----	-----

Drucken Sie das Ergebnis aus, indem Sie den Mauszeiger über "Berichte" bewegen und auf "Zusammenfassung der Berechnung" klicken

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Library Element Quick Add



Straight Duct



Flexible Duct



Elbow



Branching



End Reflection



2020 projects Outdoor

Outdoor Air									
Frequency	dBA	63	125	250	500	1k	2k	4k	8k
Total	44	51	47	42	35	31	27	38	42
Required Insertion Loss	50	-	-	-	-	-	-	-	-
Receiver: Outdoor (50 dB(A))	49	55	51	46	39	35	31	43	46
AHU 123 Outdoor	84	82	81	80	80	80	76	75	74
Silencer 1 CALMO a-1611-1600-800-650	67	-5	-10	-15	-23	-27	-27	-15	-10
Rectangular Duct 1600mm x 800mm x 3m	66	-2	-1	-1	-0	-0	-0	-0	-0
Rectangular - End Reflection Loss 1600mm x 800mm (Flush)	66	-3	-1	-0	-0	-0	-0	-0	-0
Outdoor Distance Attenuation 5m Distance	44	-22	-22	-22	-22	-22	-22	-22	-22

Exhaust Air									
Frequency	dBA	63	125	250	500	1k	2k	4k	8k
Total	47	54	49	44	37	33	29	41	44
Required Insertion Loss	50	-	-	-	-	-	-	-	-
Receiver: Outdoor (50 dB(A))	49	55	51	46	39	35	31	43	46
AHU 123 Exhaust	87	85	83	82	82	82	78	78	76
Silencer 1 CALMO a-1611-1600-800-650	69	-5	-10	-15	-23	-27	-27	-15	-10
Rectangular Duct 1600mm x 800mm x 3m	69	-2	-1	-1	-0	-0	-0	-0	-0
Rectangular - End Reflection Loss 1600mm x 800mm (Flush)	69	-3	-1	-0	-0	-0	-0	-0	-0
Outdoor Distance Attenuation 5m Distance	47	-22	-22	-22	-22	-22	-22	-22	-22

[Add Path](#)

Der Bericht zeigt den Außenluftpfad, den Abluftpfad und den summierten Schallpegel zum Empfänger in einem Diagramm.

Calculation Summary

Project: AHU project 123 Outdoor

Outdoor noise calculation

PathName: Outdoor Air

Duct detail	Airl/s	63	125	250	500	1k	2k	4k	8k	dB(A)	
AHU 123	3000	Ld	-	-	-	-	-	-	-	-	
Data set: Outdoor; Metric: Sound Power Level		Lw	82	81	80	80	80	76	75	74	
Silencer 1	3000	Ld	-5	-10	-15	-23	-27	-27	-15	-10	
Model: CALMO a-1611-1600-800-650; Size (W x H): 1600mm x 800mm; Length: 650mm; Velocity: 2m/s; Pressure Drop: 6Pa		Lw	28	28	24	22	19	16	15	13	
Rectangular Duct	3000	Ld	-2	-1	-1	-0	-0	-0	-0	-0	
Size (W x H): 1600mm x 800mm; Length: 3m		Lw	-	-	-	-	-	-	-	-	
Rectangular: End Reflection Loss	3000	Ld	-3	-1	-0	-0	-0	-0	-0	-0	
Size (W x H): 1600mm x 800mm; Duct Termination: Flush		Lw	-	-	-	-	-	-	-	-	
Outdoor Distance Attenuation	3000	Ld	-22	-22	-22	-22	-22	-22	-22	-22	
Source to Receiver Distance: 5m; Directivity Factor: 2		Lw	-	-	-	-	-	-	-	-	
Demand		Lk	71	62	54	49	45	42	40	39	50
Level		Lp	51	47	42	35	31	27	38	42	44
Damping requirement		Ld	-	-	-	-	-	-	-	3	

Calculation Summary

Project: AHU project 123 Outdoor

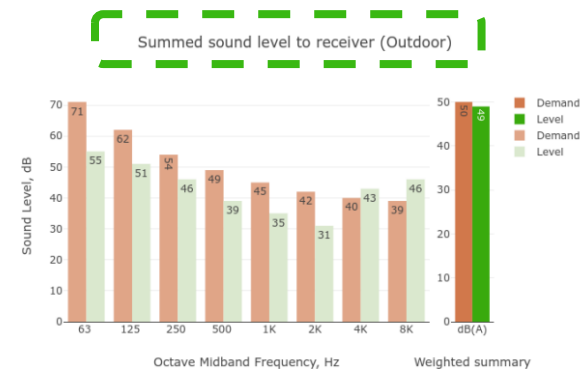
Outdoor noise calculation

PathName: Exhaust Air

Duct detail	Airl/s	63	125	250	500	1k	2k	4k	8k	dB(A)	
AHU 123	3000	Ld	-	-	-	-	-	-	-	-	
Data set: Exhaust; Metric: Sound Power Level		Lw	85	83	82	82	82	78	78	76	
Silencer 1	3000	Ld	-5	-10	-15	-23	-27	-27	-15	-10	
Model: CALMO a-1611-1600-800-650; Size (W x H): 1600mm x 800mm; Length: 650mm; Velocity: 2m/s; Pressure Drop: 6Pa		Lw	28	28	24	22	19	16	15	13	
Rectangular Duct	3000	Ld	-2	-1	-1	-0	-0	-0	-0	-0	
Size (W x H): 1600mm x 800mm; Length: 3m		Lw	-	-	-	-	-	-	-	-	
Rectangular: End Reflection Loss	3000	Ld	-3	-1	-0	-0	-0	-0	-0	-0	
Size (W x H): 1600mm x 800mm; Duct Termination: Flush		Lw	-	-	-	-	-	-	-	-	
Outdoor Distance Attenuation	3000	Ld	-22	-22	-22	-22	-22	-22	-22	-22	
Source to Receiver Distance: 5m; Directivity Factor: 2		Lw	-	-	-	-	-	-	-	-	
Demand		Lk	71	62	54	49	45	42	40	39	50
Level		Lp	54	49	44	37	33	29	41	44	47
Damping requirement		Ld	-	-	-	-	-	-	1	5	

Calculation Summary

Project: AHU project 123 Outdoor



Drucken Sie die Schalldämpferinformationen aus, indem Sie den Mauszeiger über "Berichte" bewegen und auf "Schalldämpfer einreichen" klicken

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Straight Duct



Flexible Duct



Elbow



Branching



End Reflection



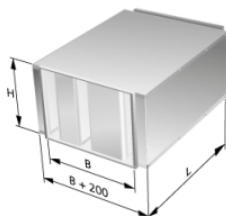
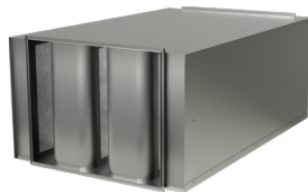
Outdoor Air									
Frequency	dBA	63	125	250	500	1k	2k	4k	8k
Total		44	51	47	42	35	31	27	38
Required Insertion Loss		50	-	-	-	-	-	-	-
Receiver: Outdoor (50 dB(A))		49	55	51	46	39	35	31	43
AHU 123 Outdoor		84	82	81	80	80	80	76	75
Silencer 1 CALMO a-1611-1600-800-650		67	-5	-10	-15	-23	-27	-27	-15
		28	28	24	22	19	16	15	13
Rectangular Duct 1600mm x 800mm x 3m		66	-2	-1	-1	-0	-0	-0	-0
Rectangular - End Reflection Loss 1600mm x 800mm (Flush)		66	-3	-1	-0	-0	-0	-0	-0
Outdoor Distance Attenuation 5m Distance		44	-22	-22	-22	-22	-22	-22	-22

Exhaust Air									
Frequency	dBA	63	125	250	500	1k	2k	4k	8k
Total		47	54	49	44	37	33	29	41
Required Insertion Loss		50	-	-	-	-	-	-	-
Receiver: Outdoor (50 dB(A))		49	55	51	46	39	35	31	43
AHU 123 Exhaust		87	85	83	82	82	82	78	78
Silencer 1 CALMO a-1611-1600-800-650		69	-5	-10	-15	-23	-27	-27	-15
		28	28	24	22	19	16	15	13
Rectangular Duct 1600mm x 800mm x 3m		69	-2	-1	-1	-0	-0	-0	-0
Rectangular - End Reflection Loss 1600mm x 800mm (Flush)		69	-3	-1	-0	-0	-0	-0	-0
Outdoor Distance Attenuation 5m Distance		47	-22	-22	-22	-22	-22	-22	-22

[Add Path](#)

Silencer Submittal

Project: AHU project 123 Outdoor
CALMO α-1611-1600-800-650



Path

Outdoor Air

Position

Silencer 1

Quick facts

- Included in the MagiCAD database
- Excellent aerodynamic characteristics
- Available with cleaning cover
- Available in an insulated version with 50 mm thick fire-resistant stone wool
- Connection sizes ranging from 400x300 to 2200x2200
- Remarkably space-saving rectangular sound attenuator
- Extremely low pressure drop via tapered acoustic baffle surfaces
- Type-approved, environmentally friendly sound attenuating material, ISOVER Cleantec® PLUS
- ISOVER Cleantec® PLUS is cleanable using a wet method.

General

- The CALMO is, due to its unique design with connections facing the side baffles, suitable for use both in ducts and in direct connection to ventilation units.

Dimensions

Width, B	1600mm
Height, H	800mm
Length, L	650mm
Weight	67kg

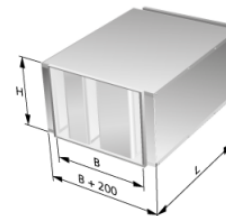
Data

Inlet	Ideal Outlet Conditions - 3 to 4 diameters of straight duct
Outlet	Ideal Outlet Conditions - 3 to 4 diameters of straight duct
Air flowl/s	3000
Velocity(m/s)	2
Pressure drop(Pa)	6

Frequency band	63	125	250	500	1k	2k	4k	8k	Sum db(A)
Lw before attenuator	78	79	79	80	80	76	75	74	84
Attenuation (Ld)	5	10	15	23	27	27	15	10	
Sound generation (Lw)	28	28	24	22	19	16	15	13	
Lw after attenuator	73	69	64	57	53	49	60	64	66

Silencer Submittal

Project: AHU project 123 Outdoor
CALMO α-1611-1600-800-650



Path

Exhaust Air

Position

Silencer 1

Quick facts

- Included in the MagiCAD database
- Excellent aerodynamic characteristics
- Available with cleaning cover
- Available in an insulated version with 50 mm thick fire-resistant stone wool
- Connection sizes ranging from 400x300 to 2200x2200
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- ISOVER Cleantec® PLUS is cleanable using a wet method.

General

- The CALMO is, due to its unique design with connections facing the side baffles, suitable for use both in ducts and in direct connection to ventilation units.

Dimensions

Width, B	1600mm
Height, H	800mm
Length, L	650mm
Weight	67kg

Data

Inlet	Ideal Outlet Conditions - 3 to 4 diameters of straight duct
Outlet	Ideal Outlet Conditions - 3 to 4 diameters of straight duct
Air flowl/s	3000
Velocity(m/s)	2
Pressure drop(Pa)	6

Frequency band	63	125	250	500	1k	2k	4k	8k	Sum db(A)
Lw before attenuator	81	81	81	82	82	78	78	76	86
Attenuation (Ld)	5	10	15	23	27	27	15	10	
Sound generation (Lw)	28	28	24	22	19	16	15	13	
Lw after attenuator	76	71	66	59	55	51	63	66	69



Tipps und Tricks

Verwendung einer Lärmschutzwand in einer Außenberechnung

Library Element Quick Add

Straight Duct

Flexible Duct

Elbow

Branching

End Reflection

Noise Control

Duct Breakin/Breakout

Sound Transmission

Room Effect

Outdoor Noise

AHU_project 123 Outdoor

Outdoor Air	Frequency	63	125	250	500	1k	2k	4k	8k
Total	30	43	37	29	20	16	12	23	27
Required Insertion Loss	50	-	-	-	-	-	-	-	-
Receiver: Outdoor (50 dB(A))	47	54	49	44	37	33	29	41	44

AHU 123 Outdoor	84	82	81	80	80	80	76	75	74
Silencer 1 CALMO a-1611-1600-800-650	67	-5	-10	-15	-23	-27	-27	-15	-10
Rectangular Duct 1600mm x 800mm x 3m	66	-2	-1	-1	-0	-0	-0	-0	-0
Rectangular - End Reflection Loss 1600mm x 800mm (Flush)	66	-3	-1	-0	-0	-0	-0	-0	-0
Noise Barrier 3m Barrier Height	52	-8	-10	-13	-15	-15	-15	-15	-15
Outdoor Distance Attenuation 5m Distance	30	-22	-22	-22	-22	-22	-22	-22	-22

Noise Barrier

Edit properties

Source to Receiver (m)	Source to Barrier (m)
5	3
Receiver Height (m)	Barrier Height (m)
1.5	3

Ideal Barrier?

Airflow and Velocity

Override Airflow & Velocity

Airflow (l/s)	Velocity (m/s)
3000	2

Additional Resources

Calculation References

[Industrial Noise and Vibration Control](#)

[Add Attachment](#)

Previous
Next
Cancel
Save

Sie können Objekte stummschalten, indem Sie auf das Stummschaltssymbol
 Dann wird das Objekt grau und wird nicht mehr in die Schallberechnung einbezogen.
 Sie können die Stummschaltung auf die gleiche Weise aufheben.

Extract Air		dBA	63	125	250	500	1k	2k	4k	8k
●	Frequency									
●	Total	20	16	16	20	12	10	-	12	17
	Required Insertion Loss	30	-	-	-	-	-	-	-	-
●	Receiver: Office Room 123 (30 dB(A))	24	30	27	24	12	10	2	17	22
🎯	AHU 123 Extract	84	82	81	80	80	80	76	75	74
📦	Silencer 1 CALMO a-1621-1600-800-1250	59	-7	-15	-24	-39	-45	-40	-23	-17
		28	28	24	22	19	16	15	13	
📦	Rectangular Duct 1600mm x 800mm x 3m	59	-2	-1	-1	-0	-0	-0	-0	-0
📦	Branch - Takeoff 1600mm x 800mm/400mm x 400mm	49	-10	-10	-10	-10	-10	-10	-10	-10
		18	12	<10	<10	<10	<10	<10	<10	<10
📦	Rectangular Duct 400mm x 400mm x 3m	48	-4	-2	-1	-0	-0	-0	-0	-0
📦	Branch - Takeoff 400mm x 400mm/200mm	41	-8	-8	-8	-8	-8	-8	-8	-8
		12	<10	<10	<10	<10	<10	<10	<10	<10
📦	Circular Duct 200mm x 3m	40	-0	-0	-0	-0	-1	-1	-1	-0

Add Path

Bewegen Sie den Mauszeiger über diesen Bereich, um den Balken anzuzeigen

Schaltfläche "Stummschalten"

Extract Air		dBA	63	125	250	500	1k	2k	4k	8k
●	Frequency									
●	Total	48	22	30	41	41	47	35	35	34
	Required Insertion Loss	30	-	-	-	-	-	-	-	-
●	Receiver: Office Room 123 (30 dB(A))	48	30	32	41	41	47	35	35	34
🎯	AHU 123 Extract	84	82	81	80	80	80	76	75	74
📦	Silencer 1 CALMO a-1621-1600-800-1250	-	-7	-15	-24	-39	-45	-40	-23	-17
		28	28	24	22	19	16	15	13	
📦	Rectangular Duct 1600mm x 800mm x 3m	84	-2	-1	-1	-0	-0	-0	-0	-0
📦	Branch - Takeoff 1600mm x 800mm/400mm x 400mm	75	-10	-10	-10	-10	-10	-10	-10	-10
		18	12	<10	<10	<10	<10	<10	<10	<10
📦	Rectangular Duct 400mm x 400mm x 3m	74	-4	-2	-1	-0	-0	-0	-0	-0
📦	Branch - Takeoff 400mm x 400mm/200mm	66	-8	-8	-8	-8	-8	-8	-8	-8
		12	<10	<10	<10	<10	<10	<10	<10	<10
📦	Circular Duct 200mm x 3m	66	-0	-0	-0	-0	-1	-1	-1	-0
📦	Branch - Takeoff 200mm/125mm	60	-6	-6	-6	-6	-6	-6	-6	-6
		<10	<10	<10	<10	<10	<10	<10	<10	<10
📶	Extract Diffusor 1 ALG	52	-28	-21	-10	-11	-5	-13	-12	-12
		15	15	21	15	13	<10	<10	<10	<10
📦	Room Effect - Classic Field Office Room 123	48	-4	-4	-4	-4	-4	-4	-4	-4

Der Vorteil besteht darin, sehen zu können, was das Ergebnis ist, ohne z.B. einen Schalldämpfer, ohne ein Objekt zu löschen.

Schnelles Hinzufügen von Bibliothekselementen ohne Drag & Drop

Bewegen Sie den Mauszeiger über das Elementsymbol
Schnelles Hinzufügen durch
Klicken auf "Hinzufügen"

Extract Air		dB(A)	63	125	250	500	1k	2k	4k	8k
●	Frequency	20	16	16	20	12	10	-	12	17
●	Total	30	-	-	-	-	-	-	-	-
●	Required Insertion Loss	24	30	27	24	12	10	2	17	22
●	Receiver: Office Room 123 (30 dB(A))									
🎯	AHU 123 Extract	84	82	81	80	80	80	76	75	74
📦	Silencer 1 CALMO a-1621-1600-800-1250	59	-7	-15	-24	-39	-45	-40	-23	-17
📦	Rectangular Duct 1600mm x 800mm x 3m	59	-2	-1	-1	-0	-0	-0	-0	-0
📦	Branch - Takeoff 1600mm x 800mm/400mm x 400mm	49	-10	-10	-10	-10	-10	-10	-10	-10
📦	Rectangular Duct 400mm x 400mm x 3m	48	-4	-2	-1	-0	-0	-0	-0	-0
📦	Branch - Takeoff 400mm x 400mm/200mm	41	-8	-8	-8	-8	-8	-8	-8	-8
📦	Circular Duct	40	-0	-0	-0	-0	-1	-1	-1	-0

Add Path

Bewegen Sie den Mauszeiger hierher, um die Leiste zu sehen

Löschen Redigieren

Schnelles Hinzufügen von Elementen

Swegon Silencers

Calculation Modules

- Rectangular Breakout In-Line
- Circular Breakout In-Line

Library Element Quick Add

Straight Duct

- Rectangular Duct
- Circular Duct

Flexible Duct

Elbow

Branching

End Reflection

Receiver: Office Room 123 (30 dB(A))

🎯	AHU 123 Supply	87	85	83	82	82
📦	Silencer 1 CALMO a-1621-1600-800-1250	62	-7	-15	-24	-35
📦	Rectangular Duct 1600mm x 800mm x 3m	61	-2	-1	-1	-0
📦	Branch - Takeoff 1600mm x 800mm/400mm x 400mm	52	-10	-10	-10	-10
📦	Rectangular Duct 400mm x 400mm x 3m	51	-4	-2	-1	-0
📦	Branch - Takeoff 400mm x 400mm/200mm	43	-8	-8	-8	-8
📦	Circular Duct 200mm x 3m	42	-0	-0	-0	-0
📦	Branch - Takeoff 200mm/125mm	37	-6	-6	-6	-6
📦	Supply Diffusor 1 (Copy) EAGLE Ceiling C	26	-16	-11	-8	-16
📦	Room Effect - Classic Field Office Room 123	22	-4	-4	-4	-4

Ermitteln des korrekten Druckabfalls für den Schalldämpfer mithilfe von Systemeffekten

Silencer Selection

Identity

Tag: Silencer 1 Quantity: 1

Dimensions & Airflow

Shape: Rectangular/CALMO

Duct Width: 1600 mm Duct Height: 800 mm

Max Length: 1250 mm

Override Airflow & Velocity

Silencer Flow Rate: 3000 l/s Velocity: 2.34 m/s

Maximum Pressure Drop: 50 Pa

System Effects

Silencer Inlet Condition: Axial Fan

Diameter from Silencer: 0 Transition Length:

Silencer Outlet Condition: Radius Elbow with no turning vanes

Override Required Inserti...

Required Insertion Loss

Frequency	dBA	63	125	250	500	1k	2k	4k	8k
Sound Before Attenuator	87	85	83	82	82	82	78	78	76
Required Insertion Loss	30	-	-	-	-	-	-	-	-
Calculated Insertion Loss	-	-	-	-	-	-	-	-	-
Safety Factor	0	0	0	0	0	0	0	0	0

Silencer Selection

Model	Octave Midband Frequency, Hz											
	L	PD	w/SE	A	63	125	250	500	1k	2k	4k	8k
CALMO a-1611-1600-800-650	650	6	12		5	10	15	23	27	27	15	10
Generated Noise			+9		28	28	24	22	19	16	15	13
End Result				30	32	32	30	15	9	11	24	27
CALMO a-1621-1600-800-1250	1250	7	14		7	15	24	39	45	40	23	17
Generated Noise			+9		28	28	24	22	19	16	15	13
End Result				22	30	27	21	1	0	0	16	20
CALMO a-1622-1600-800-1250	1250	3	7		4	9	16	21	25	18	11	11
Generated Noise			+9		11	11	<10	<10	<10	<10	<10	<10
End Result				32	33	33	29	17	11	20	28	26

Options

Uninsulated Cleaning Cover: None

Fire-Resistant Insulated Cleaning Cover: None

- Insulated 50mm Stone Wool
- Perforated Sheet Metal Lining
- Flange Connection

Resources

- Product Sheet: [Attenuator with recessed connection for rectangular ducts](#)
- Brochure: [Acoustics Overview](#)
- Instruction: [Installation, commissioning, maintenance](#)
- Quality: [Approval 2706/92, Duct insulation](#)
- [Building product declaration](#)

Image



Druckabfall mit Systemeffekten

Druckabfall bei idealen Bedingungen
(3-4 Durchmesser gerader Kanal)

Silencer Selection

Identity

Tag: Silencer 1 Quantity: 1

Dimensions & Airflow

Shape: Rectangular/CALMO

Duct Width: 1600 mm Duct Height: 800 mm

Max Length: 1250 mm

Override Airflow & Velocity:

Silencer Flow Rate: 3000 l/s Velocity: 2.34 m/s

Maximum Pressure Drop: 3 Pa

System Effects

Silencer Inlet Condition: Axial Fan

Diameter from Silencer: 0 Transition Length: [empty]

Silencer Outlet Condition: Radius Elbow with no turning vanes

Override Required Inserti...

Required Insertion Loss

Frequency	dBA	63	125	250	500	1k	2k	4k	8k
Sound Before Attenuator	87	85	83	82	82	82	78	78	76
Required Insertion Loss	30	-	-	-	-	-	-	-	-
Calculated Insertion Loss	-	-	-	-	-	-	-	-	-
Safety Factor	0	0	0	0	0	0	0	0	0

Silencer Selection

Model	Octave Midband Frequency, Hz											
	L	PD	w/SE	A	63	125	250	500	1k	2k	4k	8k
No silencers found matching your parameters												

Options

Please select a silencer to configure options

Wenn in der Liste keine Schalldämpfer angezeigt werden, Das liegt wahrscheinlich daran, dass der maximale Druckabfall zu niedrig eingestellt ist. Erhöhen Sie den Wert auf 50 Pa oder höher.

Swegon 

