Circular silencers
Type CA

For the reduction of noise in circular ducts, galvanised sheet steel construction

Circular silencers Type CA for the reduction of noise in the circular ducts of air conditioning systems

- Absorption material is non-combustible mineral wool with RAL quality mark, biosoluble and hence hygienically safe according to the German TRGS 905 (Technical Rules for Hazardous Substances) and EU directive 97/69/EC
- Mineral wool faced with non-woven glass fibre as protection against erosion due to airflow velocities up to 20 m/s
- Casing and perforated inner duct are galvanised sheet steel
- Variant with spigot has a groove for a lip seal, suitable for circular connecting ducts to EN 1506 or EN 13180
- Insertion loss measured according to ISO 7235
- Casing air leakage to EN 15727, class B

Optional equipment and accessories

- With flanges on both ends
- With lip seals on both ends

Type		Page
CA	General information	CA – 2
	Technical data	CA – 3
	Quick sizing	CA – 4
	Specification text	CA – 6
	Order code	CA – 7
	Variants	CA – 8
	Dimensions and weight	CA – 9
	Installation details	CA – 13
	Basic information and nomenclature	CA – 14

Application

Application
- Circular silencers Type CA for the reduction of noise in the circular ducts of air conditioning systems
- For the reduction of air-regenerated noise of air terminal units such as LVC and TVR, and of mechanical self-powered controllers such as RN and VFC
- For the reduction of fan noise
- Can be used as cross talk silencer to reduce the transfer of noise through ducts between neighbouring rooms

Special features
- Insertion loss measured according to ISO 7235
- Absorption material is non-combustible
- Insulation thickness 50 mm or 100 mm

Nominal sizes
- 100, 125, 160, 200, 250, 315, 400, 450, 500, 560, 630, 710, 800 mm

For VAV terminal units and CAV controllers
- 100, 125, 160, 200, 250, 315, 400 mm

Description

Variants
- 050: Circular silencer with 50 mm insulation
- 100: Circular silencer with 100 mm insulation
- VF1: Circular silencer with flange on one end
- VF2: Circular silencer with flanges on both ends

Parts and characteristics
- Casing
- Perforated inner tube
- Absorption material

Accessories
- GE: Matching flange for one end
- GZ: Matching flanges for both ends
- VD2: With lip seals on both ends

Construction features
- Circular casing
- Spigot suitable for circular ducts to EN 1506 or EN 13180
- Spigot with groove for lip seal
- Operating pressure up to 1000 Pa
- Operating temperature up to 100 °C

Materials and surfaces
- Casing and perforated inner duct are galvanised sheet steel
- Lining is mineral wool

Mineral wool
- To EN 13501, fire rating class A1, non-combustible
- RAL quality mark RAL-GZ 388
- Biosoluble and hence hygienically safe according to the German TRGS 905 (Technical Rules for Hazardous Substances) and EU directive 97/69/EC
- Faced with glass fibre as protection against erosion through airflow velocities up to 20 m/s
- Inert to fungal and bacterial growth

Standards and guidelines
- Insertion loss measured according to ISO 7235
- Casing air leakage to EN 15727, class B

Maintenance
- Maintenance-free as construction and materials are not subject to wear

Nominal sizes	100 – 800 mm
Operating pressure	1000 Pa max.
Operating temperature	100 °C max.

The stated differential pressures for circular silencers correspond to the values for smooth pipes. Deviations, if any, are of no practical relevance.
For ductwork calculation, if the length of a circular silencer is included in the total length of the ductwork, no extra length must be added.

CA050 (insulation thickness 50 mm), insertion loss

Nominal size	Nominal length	Centre frequency f_m [Hz]							
		63	125	250	500	1000	2000	4000	8000
		D_e							
	mm	Hz							
100	500	3	5	8	14	23	30	18	13
	1000	4	9	15	27	42	50	43	25
125	500	3	4	7	12	21	23	12	10
	1000	4	7	12	23	38	42	29	20
160	500	2	3	6	10	18	17	8	8
	1000	3	5	9	19	34	30	18	15
200	500	1	2	5	9	16	13	5	6
	1000	2	4	8	16	31	22	12	11
250	500	1	2	4	8	14	10	3	4
	1000	2	3	6	14	28	17	8	9
	1500	2	4	8	19	39	23	13	12
315	500	1	1	3	7	12	7	2	3
	1000	1	2	5	12	25	13	5	6
	1500	2	3	7	17	35	17	9	9
400	500	1	1	3	6	11	6	1	2
	1000	1	2	4	10	22	10	3	5
	1500	1	2	6	14	31	13	6	7

CA100 (insulation thickness 100 mm), insertion loss

Nominal size	Nominal length	Centre frequency f_m [Hz]							
		63	125	250	500	1000	2000	4000	8000
		D_e							
	mm	Hz							
100	500	4	9	12	18	35	33	26	14
	1000	5	17	24	35	50	50	47	25
125	500	4	7	10	17	31	26	19	11
	1000	5	14	21	32	48	44	33	20
160	500	3	6	9	15	28	20	13	8
	1000	5	11	18	30	42	33	22	15
200	500	3	5	8	15	25	16	9	7
	1000	4	9	16	28	38	26	16	12
250	500	2	4	7	14	21	13	6	5
	1000	3	8	14	26	33	21	11	9
	1500	4	11	21	37	41	27	15	12
315	500	2	3	6	13	18	10	4	4
	1000	3	6	12	24	29	16	8	7
	1500	3	9	18	34	35	21	10	9
400	500	1	3	6	12	17	8	3	3
	1000	2	5	11	23	25	12	5	5
	1500	3	7	16	32	31	16	7	7
450	1000	2	5	10	22	23	11	4	5
	1500	2	6	15	31	29	14	6	6
500	1000	2	4	10	21	22	10	4	4
	1500	2	6	14	30	27	13	5	6
560	1500	2	5	13	29	25	11	4	5
630	1500	2	5	12	28	23	10	4	4
710	1500	2	5	11	27	22	9	3	4
800	1500	2	4	11	26	20	8	2	3

CA, differential pressure

Nominal size	$\dot{V}$	$\dot{V}$	Nennlänge [mm]		
			500	1000	1500
			Δp_{st}		
	l/s	m^3/h	Pa		
100	30	108	2	2	
	60	216	4	8	
	75	270	6	12	
	90	324	8	18	
125	50	180	2	2	
	95	342	4	6	
	120	432	6	10	
	145	522	6	14	
160	80	288	2	2	
	155	558	2	6	
	195	702	4	8	
	235	846	6	10	
200	125	450	2	2	
	245	882	2	4	
	310	1116	4	6	
	370	1332	4	8	
250	195	702	<2	<2	<2
	385	1386	<2	4	4
	485	1746	2	4	6
	580	2088	4	6	8
315	310	1116	<2	<2	<2
	615	2214	<2	2	4
	770	2772	<2	4	4
	925	3330	2	4	6
400	500	1800	<2	<2	<2
	995	3582	<2	<2	2
	1245	4482	<2	2	4
	1495	5382	<2	4	4
450	630	2268		<2	<2
	1260	4536		<2	<2
	1575	5670		<2	4
	1890	6804		2	4
500	780	2808		<2	<2
	1560	5616		<2	2
	1950	7020		2	2
	2335	8406		2	4
560	980	3528			<2
	1955	7038			<2
	2445	8802			2
	2935	10566			4
630	1240	4464			<2
	2480	8928			<2
	3095	11142			<2
	3715	13374			<2
710	1575	5670			<2
	3150	11340			<2
	3935	14166			<2
	4725	17010			<2
800	2000	7200			<2
	4000	14400			<2
	5000	18000			<2
	6000	21600			<2

This specification text describes the general properties of the product. Texts for variants can be generated with our Easy Product Finder design programme.

Circular silencers for air conditioning systems, rigid construction, available in 13 nominal sizes. Insertion loss measured according to ISO 7235. Casing with acoustic and thermal insulation. Various types of connection, suitable for circular ducts to EN 1506 or EN 13180.
Casing air leakage to EN 15727, class B.

Special features
- Insertion loss measured according to ISO 7235
- Absorption material is non-combustible
- Insulation thickness 50 mm or 100 mm

Materials and surfaces
- Casing and perforated inner duct are galvanised sheet steel
- Lining is mineral wool

Mineral wool
- To EN 13501, fire rating class A1, non-combustible
- RAL quality mark RAL-GZ 388
- Biosoluble and hence hygienically safe according to the German TRGS 905 (Technical Rules for Hazardous Substances) and EU directive 97/69/EC
- Faced with glass fibre as protection against erosion through airflow velocities up to 20 m/s
- Inert to fungal and bacterial growth

Technical data
- Nominal sizes: 100 to 800 mm
- Operating pressure: 1000 Pa max.
- Operating temperature: 100 °C max.

Sizing data
- D _____ _____ [mm]
- H _____ _____ [mm]
- Insulation thickness_____ _____ [mm]
- $\dot{V}$ _____ _____ [m^3/h]
- D_e at 250 Hz _____ _____ [dB]
- Δp_{st} _____ _____ [Pa]

CA

CA – 050 / 315×1000 / GZ / VF2
1 2 3 4 5 6

1 Type
CA Circular silencer

2 Insulation thickness [mm]
050 50
100 100

3 Nominal size [mm]
100
125
160
200
250
315
400
450
500
560
630
710
800

4 Nominal length [mm]
500
1000
1500

5 Matching flange
No entry: none
GE on one end (only VF1)
GZ on both ends (only VF2)

6 Type of connection
No entry: spigot
VD2 Spigot with lip seal on both ends
VF1 Flange on one end
VF2 Flanges on both ends

Order example: CA100/315×1500/GZ/VF2

Insulation thickness	100 mm
Nominal size	315 mm
Length	1500 mm
Matching flange	Both ends
Type of connection	Flanges on both ends

CA

Variant

– Circular silencer for the reduction of noise
– Spigot

CA/.../VF1

Variant

– Circular silencer for the reduction of noise
– Spigot on one end to make connections to the ducting
– With flange on one end to make a detachable connection to the ducting

---

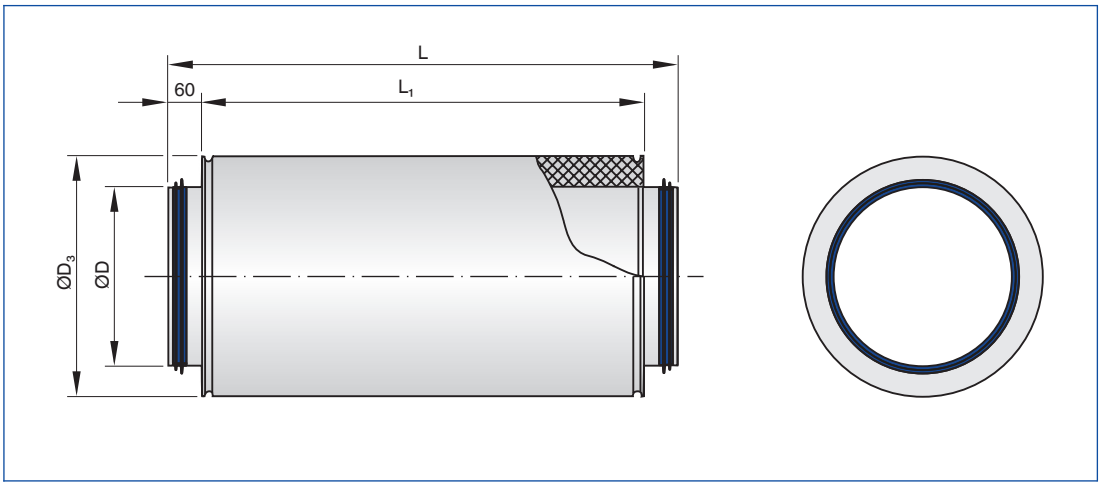
CA/.../VF2

Variant

– Circular silencer for the reduction of noise
– With flanges on both ends to make detachable connections to the ducting

The tables show the available nominal sizes

CA



CA, dimensions

Nominal size	CA-050	CA-100	
	$ØD_3$		ØD
	mm	mm	mm
100	199	299	99
125	224	324	124
160	259	359	159
200	299	399	199
250	349	449	249
315	414	514	314
400	499	599	399
450		648	448
500		698	498
560		758	558
630		828	628
710		908	708
800		998	798

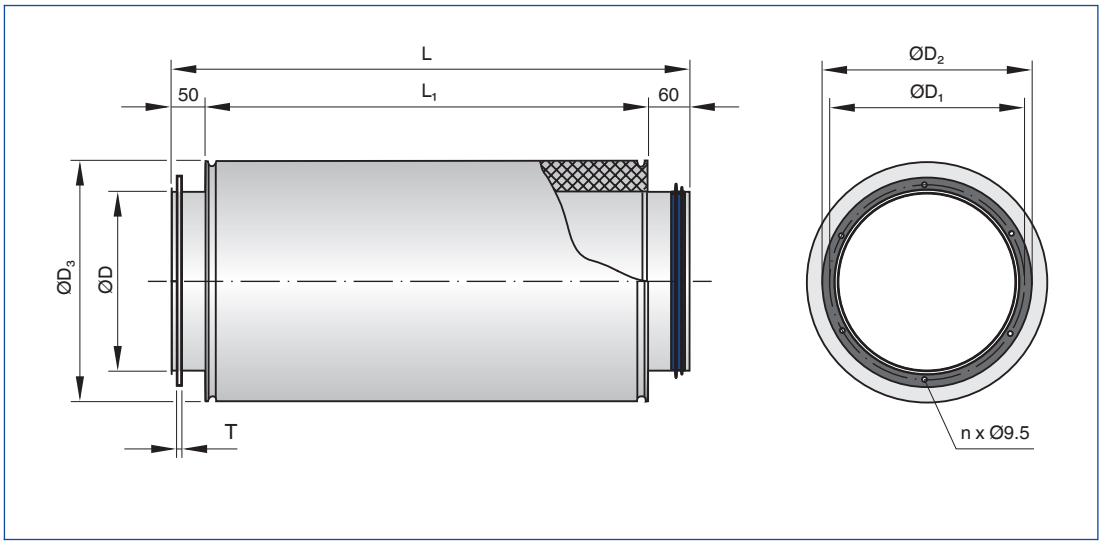
CA, lengths

Nominal length	L	L_1
	mm	mm
500	500	380
1000	1000	880
1500	1500	1380

CA, weights

Nominal size	CA-050			CA-100		
	500	1000	1500	500	1000	1500
	m					
	kg	kg	kg	kg	kg	kg
100	4	7		6	11	
125	5	9		7	13	
160	70	12		9	16	
200	7	13		9	17	
250	9	16	22	11	20	29
315	12	20	28	14	25	35
400	15	25	34	18	30	42
450					33	46
500					36	52
560						55
630						62
710						68
800						76

CA/.../VF1



CA/.../VF1, dimensions

Nominal size	CA-050	CA-100					
	ØD3		ØD	ØD1	ØD2	n	T
	mm	mm	mm	mm	mm		mm
100	199	299	99	132	152	4	4
125	224	324	124	157	177	4	4
160	259	359	159	192	212	6	4
200	299	399	199	233	253	6	4
250	349	449	249	283	303	6	4
315	414	514	314	352	378	8	4
400	499	599	399	438	464	8	4

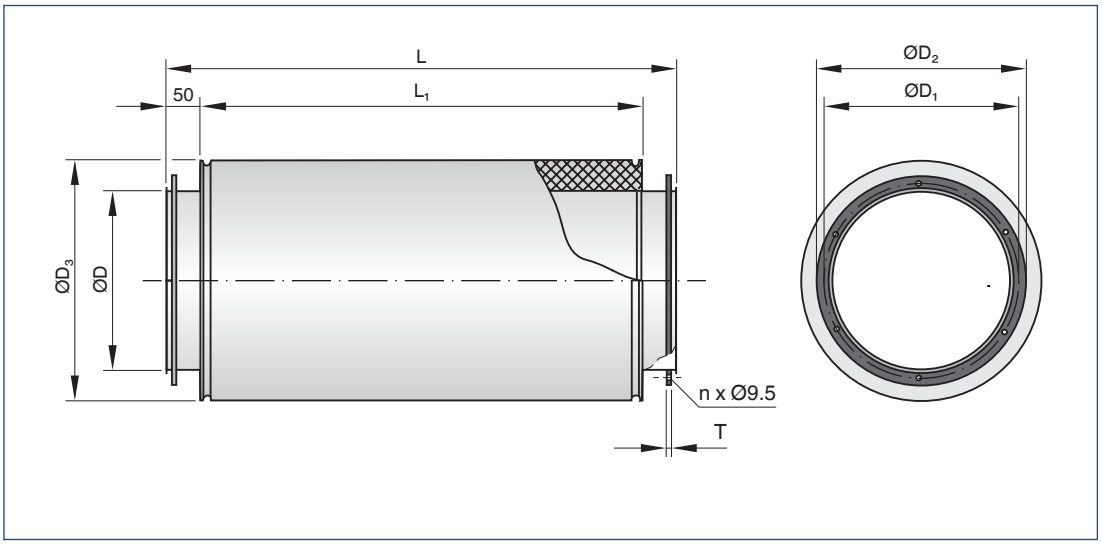
CA/.../VF1, lengths

Nominal length	L	L1
	mm	mm
500	490	380
1000	990	880
1500	1490	1380

CA/.../VF1, weights

Nominal size	CA-050			CA-100		
	500	1000	1500	500	1000	1500
	m					
	kg	kg	kg	kg	kg	kg
100	4	7		6	11	
125	5	9		7	13	
160	8	13		10	17	
200	8	14		10	18	
250	10	17	23	12	21	30
315	13	21	29	15	26	36
400	16	26	35	19	31	43
450					34	47
500					38	54
560						57
630						64
710						71
800						79

CA/.../VF2



CA/.../VF2, dimensions

Nominal size	CA-050	CA-100					
	ØD3		ØD	ØD1	ØD2	n	T
	mm	mm	mm	mm	mm		mm
100	199	299	99	132	152	4	4
125	224	324	124	157	177	4	4
160	259	359	159	192	212	6	4
200	299	399	199	233	253	6	4
250	349	449	249	283	303	6	4
315	414	514	314	352	378	8	4
400	499	599	399	438	464	8	4
450		648	448	488	514	8	4
500		698	498	538	564	8	4
560		758	558	600	634	12	4
630		828	628	670	704	12	4
710		908	708	750	784	12	4
800		998	798	840	874	16	4

CA/.../VF2, lengths

Nominal length	L	L_1
	mm	mm
500	480	380
1000	980	880
1500	1480	1380

CA/.../VF2, weights

Nominal size	CA-050			CA-100		
	500	1000	1500	500	1000	1500
	m					
	kg	kg	kg	kg	kg	kg
100	4	7		6	11	
125	6	10		8	14	
160	8	13		10	17	
200	8	14		10	18	
250	10	17	23	12	21	30
315	14	22	30	16	27	37
400	18	28	37	21	33	45
450					36	49
500					39	55
560						59
630						67
710						73
800						82

Installation and commissioning

- Any installation orientation
- Installation in ducts outside of closed rooms requires sufficient protection against the effects of weather

Principal dimensions

ØD [mm]
Outer diameter of the spigot

$ØD_3$ [mm]
Outer diameter of circular silencers

L [mm]
Length of attenuator/silencer including spigot (in airflow direction)

L_1 [mm]
Length of acoustic cladding and acoustically effective length

B [mm]
Attenuator width and duct width (upright splitters)

H [mm]
Attenuator height and duct height (upright splitters)

T [mm]
Splitter thickness

S [mm]
Airway width

n [ ]
Number of flange screw holes

m [kg]
Weight

Nomenclature

f_m [Hz]
Octave band centre frequency

L_{WA} [dB(A)]
A-weighted sound power level of air-regenerated noise

D_e [dB]
Insertion loss

$\dot{V}$ [m^3/h] and [l/s]
Volume flow rate

Δp_{st} [Pa]
Static differential pressure

All sound power levels are based on 1 pW.

All values were measured in a TROX lab and to EN ISO 7235. Intermediate values may be achieved by interpolation.

Lab measurements exceeding 50 dB are indicated as 50 dB, in line with common practice.