TROX® TECHNIK
The art of handling air

CIRCULAR SILENCER
TYPE CAK

CAK

FOR THE REDUCTION OF NOISE IN PLASTIC CIRCULAR DUCTS FOR CONTAMINATED AIR

Plastic circular silencers for the reduction of noise in the circular ducts of extract air systems for aggressive media

- 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 flame-resistant polypropylene (PPs) to DIN 4102, building class B1
- Variant with spigot suitable for circular ducts according to DIN 8077 or DIN 8078
- Insertion loss measured according to ISO 7235
- Casing air leakage to EN 15727, class D

Optional equipment and accessories

- With flanges on both ends

Application

Application

- Plastic circular silencers Type CAK for the reduction of noise in the circular ducts of air conditioning systems
- Suitable for contaminated air
- For the reduction of air-regenerated noise of air terminal units TVRK and TVLK
- For the reduction of fan noise

Special features

- Insertion loss measured according to ISO 7235
- Absorption material is non-combustible

Nominal sizes

- 125, 160, 200, 250, 315, 400 mm

Description

Variants

- CAK: Circular silencer
- VF2: Circular silencer with flanges on both ends

Parts and characteristics

- Casing
- Perforated inner tube
- Absorption material

Accessories

- Matching flanges for both ends, including seals

Construction features

- Circular casing
- Spigot suitable for circular ducts according to DIN 8077 or DIN 8078
- Maximum operating pressure 1000 Pa
- Max. operating temperature 100 °C

Materials and surfaces

- Casing and perforated inner duct are flame-resistant polypropylene (PPs) to DIN 4102, building class B1
- Lining is mineral wool

Mineral wool

- To EN 13501, fire rating class A2, 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 D

Maintenance

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

TEHNIČKE INFORMACIJE

Technical data, Quick sizing, Specification text, Order code

Nominal sizes	125 – 400 mm
Operating pressure	1000 Pa
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.

CAK, insertion loss

Nominal size	Nominal length	Centre frequency f_m [Hz]							
		63	125	250	500	1000	2000	4000	8000
Nominal size	Nominal length	D_e							
	mm	Hz							
125	500	1	6	7	14	25	23	14	12
	1000	2	9	13	22	34	35	24	16
125	1500	3	12	19	31	42	43	33	20
160	500	0	3	5	11	22	21	12	10
	1000	1	4	9	18	30	31	19	13
160	1500	2	7	13	25	38	41	27	17
200	500	0	2	4	10	21	17	10	8
	1000	1	4	9	15	29	25	16	11
200	1500	1	6	12	21	36	33	20	14
250	500	0	2	4	9	19	13	9	8
	1000	0	4	8	14	26	22	15	11
250	1500	1	6	11	20	35	30	20	15
315	500	0	2	3	8	18	12	7	6
	1000	0	4	6	14	26	17	11	8
315	1500	1	6	9	19	34	23	15	10
400	500	0	2	3	6	14	8	6	4
	1000	0	3	6	11	25	13	10	7
400	1500	1	4	8	16	29	15	11	8

CAK, differential pressure

Nominal size	V		Nennlänge [mm]		
			500	1000	1500
Nominal size	V		Δp_{st}		
	l/s	m³/h	Pa		
125	50	180	2	2	4
	95	342	4	6	10
125	120	432	6	10	14
	145	522	6	14	20
160	80	288	2	2	2
	155	558	2	6	8
160	195	702	4	8	10
	235	846	6	10	14
200	125	450	2	2	2
	245	882	2	4	6
200	310	1116	4	6	8
	370	1332	4	8	10
250	195	702	<2	<2	<2
	385	1386	<2	4	4
250	485	1746	2	4	6
	580	2088	4	6	8
315	310	1116	<2	<2	<2
	615	2214	<2	2	4
315	770	2772	<2	4	4
	925	3330	2	4	6
400	500	1800	<2	<2	<2
	995	3582	<2	<2	2
400	1245	4482	<2	2	4
	1495	5382	<2	4	4

Plastic circular silencers for use in extract air systems subject to aggressive media; they reduce the air-regenerated noise in plastic ducts (absorption principle).

Insertion loss measured according to ISO 7235.

Absorption material is mineral wool with RAL quality mark RAL-GZ 388.

Spigot, suitable for ducts according to DIN 8077.

Casing air leakage to EN 15727, class D.

Special features

- Insertion loss measured according to ISO 7235
- Absorption material is non-combustible

Materials and surfaces

- Casing and perforated inner duct are flame-resistant polypropylene (PPs) to DIN 4102, building class B1
- Lining is mineral wool

Mineral wool

- To EN 13501, fire rating class A2, 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: 125 to 400 mm
- Operating pressure: 1000 Pa max.
- Operating temperature: 100 °C max.

Sizing data

- D _____ [mm]
- H _____ [mm]
- Insulation thickness _____ [mm]
- V _____ [m^3/h]
- D_e at 250 Hz _____ [dB]
- Δp_{st} _____ [Pa]

Order example: CAK/200×1000

Nominal size	200 mm
Length	1000 mm
Type of connection	Spigot

CAK / 160×1000 / GZ / VF2

1 2 3 4 5

1 Type

CAK Circular silencer

2 Nominal size [mm]

125
160
200
250
315
400

3 Length [mm]

500
1000
1500

4 Matching flange

No entry: none
GZ on both ends (only VF2)

5 Type of connection

No entry: spigot
VF2 Flanges on both ends

Variants, Dimensions and weight

CAK

Variant

- Circular silencer for the reduction of noise
- Spigot

CAK/.../VF2

Variant

- Circular silencer for the reduction of noise
- With flanges to make detachable connections to the ductwork

CAK, dimensions

Nominal size	ØD mm	$ØD_3$ mm	$ØD_1$ mm	$ØD_2$ mm	n	T mm
125	125	225	165	185	8	8
160	160	250	200	230	8	8
200	200	280	240	270	8	8
250	250	355	290	320	12	8
315	315	415	350	395	12	10
400	400	500	445	475	16	10

CAK, lengths

Nominal length mm L_N	L mm	L_1 mm
500	595	495
1000	1095	995
1500	1595	1495

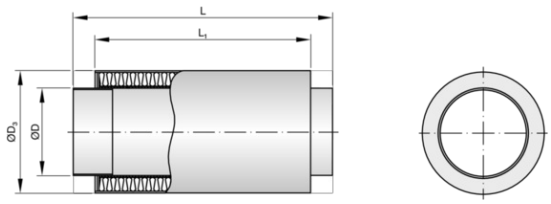
CAK, weights

Nominal size	500 m kg	1000 m kg	1500 m kg
125	2.2	4.1	5.9
160	2.6	4.7	6.8
200	3.2	5.8	8.5
250	4.3	7.6	10.9
315	4.6	8.6	12.5
400	5.2	9.3	13.4

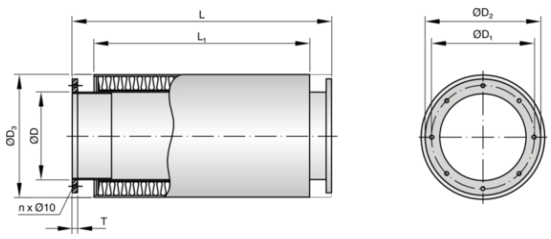
CAK/…/VF2, weights

Nominal size	500 m kg	1000 m kg	1500 m kg
125	2.5	4.4	6.2
160	3.0	5.1	7.2
200	3.6	6.2	8.9
250	4.9	8.2	11.5
315	5.3	9.3	13.7
400	6.8	10.9	15.0

CAK



CAK/…/VF2



Installation details, Basic information and nomenclature

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

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.