



**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

TECHNICAL INFORMATION

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 _____ [m³/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 Type

CAK Circular silencer

3 Length [mm]

500
1000
1500

2 Nominal size [mm]

125
160
200
250
315
400

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 |

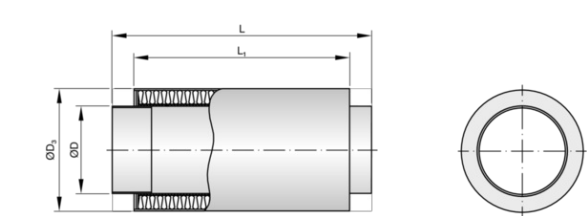
CAK, weights

| 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 |

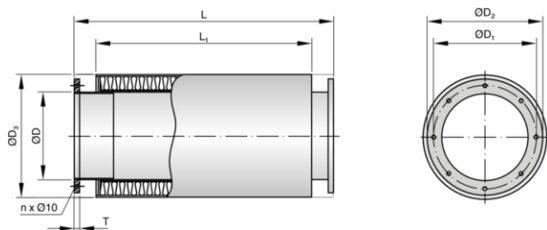
CAK/.../VF2, weights

| 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

$\varnothing D$ [mm]

Outer diameter of the spigot

$\varnothing D_3$ [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 [m³/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.