Spigot with groove

Spigot with lip seal

Socket-type spigot

Attenuators

CK

Circular silencers with splitter for the reduction of noise in circular ducts of ventilation and air conditioning systems

Circular silencer with sound absorbing splitter providing increased insertion loss

- Aerodynamic splitter provides increased insertion loss
- Choice of various splitter thicknesses ensures best possible application
- Attenuation effect due to absorption
- The sound absorbing material is non-combustible mineral wool and non-hazardous to health according to the German TRGS 905 (Technical Rules for Hazardous Substances) and EU directive 97/69/EC
- Acoustic data measured to ISO 7235
- Leakage class C or D (depending on size) to EN 15727.
- For use in areas with potentially explosive atmospheres (according to EC Directive 2014/34/EU (ATEX)), zones 1, 2, and zones 21 and 22 (outside) according to EC Directive 1999/92/EC

Optional equipment and accessories

- Spigot with lip seal, for circular connecting ducts to EN 1506 or EN 13180
- Socket-type spigot suitable for circular ducts to EN 1506 or EN 13180

General information

Application
- Circular silencer for the reduction of noise
- 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
- Choice of 2 splitter widths for each nominal diameter
  - Increased insertion loss with a wider splitter
  - Reduced differential pressure with a smaller splitter
- The sound absorbing material is non-combustible
- Insulation thickness 2" or 4"
- Leakage class D for nominal sizes up to and including 16"
- Leakage class C from nominal size 18"

Nominal sizes
- ØD: 10", 12", 16", 18", 20", 22", 25", 28", 31", 35", 39"
- L: 20", 39", 59"

Variants
Insulation thickness
- 050: Circular silencer with 2" insulation
- 100: Circular silencer with 4" insulation

Splitter width
- T: 2", 4", 6", 8", 10", 12"

Construction
Circular silencer
- No entry: galvanised steel 1.0917
- A2: Stainless steel 1.4301

Type of connection:
- No entry: spigot with groove on both ends
- D2: Spigot with lip seal on both ends
- AS: Spigot with lip seal and socket-type spigot on one end

Parts and characteristics
- Circular casing
- Perforated inner tube
- Splitter
- Absorption material

Construction features
- Circular casing
  - Outer duct: spiral duct, galvanised steel 1.0917
  - Outer duct: plain duct, stainless steel 1.4301
- Splitter
  - Aerodynamic shape, galvanised steel 1.0917 or stainless steel 1.4301
- Spigot suitable for circular ducts to EN 1506 or EN 13180
- Lip seals up to nominal size 31
- Max. operating pressure 8 in WC
- Max. airflow velocity 3937 fpm
- Max. operating temperature 194 °F

Materials and surfaces
- Spitter made of galvanised sheet steel 1.0917 or stainless steel 1.4301
- Outer duct and perforated inner duct are spiral ducts made of galvanised steel 1.0917
- Plain outer duct made of stainless steel 1.4301
- Perforated inner duct made of galvanised steel or stainless steel 1.4301
- Spigot made of galvanised steel 1.0917 or stainless steel 1.4301
- Absorption material is mineral wool
  - To EN 13501, fire rating class A1, non-combustible
  - Non-hazardous to health according to the German TRGS 905 (Technical Rules for Hazardous Substances) and EU directive 97/69/EC
  - Protection against erosion from airflow velocities up to 20 m/s
    - Inner duct with non-woven fibre (fleece)
    - Splitters faced with glass fibre scrim
  - Inert to fungal and bacterial growth according to EN 846

Standards and guidelines
- Insertion loss and sound power level of air-regenerated noise tested to ISO 7235
- Meets the hygiene requirements of VDI 6022, VDI 3803 Part 1 and DIN 1946 Part 4
- EC Directive 2014/34/EC (ATEX): Equipment and protective systems intended for use in areas with potentially explosive atmospheres
- EC Directive 1999/92/EC (ATEX): Improvement of the safety and health protection of workers potentially at risk from explosive atmospheres
- Leakage class and pressure class according to EN 15727

Maintenance
- Low-maintenance as construction and materials are not subject to wear

Technical data

Nominal sizes	10" 3 39"
Operating pressure	8 in WC max.
Operating temperature	194 °F max.

Quick sizing

The stated differential pressures for circular silencers vary, they depend on the splitter and the duct diameter.

Insulation thickness 2", insertion loss D_e [dB]

Nominal size	Nominal length	Splitter width	Centre frequency f_m [Hz]							
			2	5	10	20	39	79	157	315
10	20	2	1	2	5	10	20	23	15	8
10	20	4	2	3	7	12	23	28	21	13
10	39	2	3	5	10	19	38	44	30	15
10	39	4	4	6	14	23	44	50	40	26
10	59	2	4	7	15	28	50	50	43	22
10	59	4	6	9	20	33	50	50	50	37
12	20	2	1	2	4	9	19	21	9	4
12	20	4	2	3	6	10	24	23	13	6
12	39	2	2	4	9	17	36	40	18	8
12	39	4	4	5	11	20	47	45	25	12
12	59	2	3	5	12	24	50	50	25	11
12	59	4	6	8	16	29	50	50	37	18
16	20	4	1	1	4	7	17	17	8	3
16	20	6	3	6	13	24	35	25	16	9
16	39	4	2	3	7	14	32	32	15	6
16	39	6	6	11	24	45	50	48	30	17
16	59	4	3	4	10	21	46	47	22	9
16	59	6	8	15	35	50	50	50	44	25

Insulation thickness 4", insertion loss D_e [dB]

Nominal size	Nominal length	Splitter width	Centre frequency f_m [Hz]							
			2	5	10	20	39	79	157	315
10	20	2	1	5	9	16	22	24	17	10
10	20	4	2	6	11	18	26	29	25	17
10	39	2	3	9	17	30	43	46	33	19
10	39	4	4	11	20	35	50	50	49	33
10	59	2	4	13	25	44	50	50	48	28
10	59	4	6	16	29	50	50	50	50	48
12	20	2	1	4	8	15	18	20	9	5
12	20	4	2	5	9	16	23	22	13	7
12	39	2	2	8	15	28	34	38	18	9
12	39	4	4	10	17	31	44	43	26	14
12	59	2	3	11	21	41	50	50	26	14
12	59	4	6	14	25	45	50	50	37	20
16	20	4	1	3	6	12	21	15	8	5
16	20	6	2	4	8	16	24	18	12	8
16	39	4	2	5	12	23	40	29	16	10
16	39	6	4	7	16	32	46	35	23	15
16	59	4	3	7	18	33	50	42	23	15
16	59	6	6	11	24	46	50	50	33	21
18	20	4	1	2	5	11	18	12	6	4
18	20	6	2	2	6	13	21	15	8	5
18	39	4	2	3	10	22	35	22	12	8
18	39	6	4	4	12	25	41	28	16	10
18	59	4	3	4	15	31	50	32	17	12
18	59	6	5	6	17	36	50	41	23	15
20	20	6	1	2	6	12	18	13	7	5
20	20	8	2	3	7	14	20	15	9	7
20	39	6	2	4	11	23	35	24	14	10
20	39	8	4	5	13	26	38	29	18	13
20	59	6	3	6	16	33	50	35	21	15
20	59	8	5	7	18	38	50	42	26	19
22	20	6	1	3	6	12	14	10	6	5
22	20	8	2	4	7	13	16	13	7	6
22	39	6	2	6	12	23	28	20	11	9
22	39	8	4	7	13	25	31	24	14	11
22	59	6	3	9	18	33	40	29	16	13
22	59	8	5	10	19	36	45	35	20	16
24	20	8	1	2	6	12	14	9	6	5
24	20	10	2	3	7	14	16	11	8	6
24	39	8	2	4	11	24	27	17	12	10
24	39	10	3	5	13	26	31	21	15	12
24	59	8	3	6	16	34	39	25	18	15
24	59	10	5	8	19	38	45	30	21	18
28	20	8	1	2	5	12	12	7	5	5
28	20	10	2	2	6	13	13	8	6	5
28	39	8	2	3	10	23	23	14	10	9
28	39	10	3	4	11	25	25	16	11	10

Nominal size	Nominal length	Splitter width	Centre frequency f_m [Hz]							
			63	125	250	500	1000	2000	4000	8000
28	59	8	3	5	14	33	34	20	15	13
28	59	10	5	6	17	36	37	23	16	15
31	20	10	1	2	6	12	11	7	5	5
31	20	12	2	3	7	12	13	7	6	5
31	39	10	2	4	12	23	22	13	10	9
31	39	12	3	5	13	24	25	14	11	10
31	59	10	2	6	17	33	32	18	15	13
31	59	12	5	8	19	35	36	20	16	15
35	20	10	1	2	6	11	9	6	4	4
35	20	12	2	2	6	12	10	6	5	4
35	39	10	2	4	11	21	18	11	8	8
35	39	12	3	4	12	23	20	11	9	8
35	59	10	2	5	16	31	26	16	12	11
35	59	12	4	6	18	33	28	17	13	12
39	20	12	1	2	6	11	8	5	5	4
39	39	12	3	4	12	20	16	10	9	7
39	59	12	4	6	18	29	24	14	13	11

Differential pressure Δp_t[in WC]

Nominal size	Splitter width	q_v		Nominal length		
		l/s	cfm	20	39	59
10	2	194	412	0.04	0.04	0.04
10	4	194	412	0.1	0.2	0.2
10	2	333	706	0.1	0.1	0.1
10	4	333	706	0.4	0.5	0.5
12	2	333	706	0.01	0.02	0.02
12	4	333	706	0.01	0.02	0.02
12	2	1000	2119	0.1	0.1	0.1
12	4	1000	2119	0.1	0.1	0.1
16	4	389	824	0.05	0.05	0.06
16	6	389	824	0.08	0.08	0.09
16	4	833	1766	0.2	0.2	0.3
16	6	833	1766	0.3	0.4	0.4
18	4	611	1295	0.07	0.08	0.08
18	6	611	1295	0.1	0.1	0.1
18	4	1111	2354	0.2	0.3	0.3
18	6	1111	2354	0.3	0.4	0.4
20	6	778	1648	0.04	0.04	0.04
20	8	778	1648	0.08	0.09	0.1
20	6	1556	3296	0.2	0.2	0.2
20	8	1556	3296	0.3	0.4	0.4
22	6	1000	2119	0.04	0.04	0.04
22	8	1000	2119	0.07	0.08	0.08
22	6	2222	4709	0.2	0.2	0.2
22	8	2222	4709	0.3	0.4	0.4
25	8	1250	2649	0.06	0.06	0.07
25	10	1250	2649	0.1	0.1	0.1
25	8	2083	4414	0.2	0.2	0.2

Nominal size	Splitter width	q_v		Nominal length		
		l/s	cfm	20	39	59
25	10	2083	4414	0.3	0.4	0.4
28	8	1556	3296	0.04	0.05	0.05
28	10	1556	3296	0.07	0.08	0.08
28	8	3472	7357	0.2	0.2	0.3
28	10	3472	7357	0.3	0.4	0.4
31	10	2000	4238	0.04	0.04	0.04
31	12	2000	4238	0.07	0.08	0.08
31	10	4500	9535	0.2	0.2	0.2
31	12	4500	9535	0.3	0.4	0.4
35	10	2500	5297	0.04	0.05	0.05
35	12	2500	5297	0.06	0.07	0.08
35	10	5833	12360	0.2	0.3	0.3
35	12	5833	12360	0.3	0.4	0.4
39	12	3125	6621	0.08	0.09	0.09
39	12	6667	14126	0.3	0.4	0.4

Specification text

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

Circular silencers with integral splitter for better acoustic performance, rigid construction, for ventilation and air conditioning systems, available in 11 nominal sizes and with 2 insulation thicknesses.
Insertion loss measured according to ISO 7235.
Casing with acoustic and thermal insulation.
Galvanised steel or stainless steel.
Optimised differential pressure upstream and downstream of the integral splitter due to the aerodynamic shape.
Choice of splitter widths for optimised differential pressure or increased insertion loss.
Various types of connection, suitable for circular ducts to EN 1506 or EN 13180.
Leakage class C or D (depending on size) to EN 15727.

Special features

- Insertion loss measured according to ISO 7235
- Choice of 2 splitter widths for each nominal diameter
  - Increased insertion loss with a wider splitter
  - Reduced differential pressure with a smaller splitter
- The sound absorbing material is non-combustible
- Insulation thickness 2" or 4"
- Leakage class D for nominal sizes up to and including 16"
- Leakage class C from nominal size 18"

Materials and surfaces

- Spitter made of galvanised sheet steel 1.0917 or stainless steel 1.4301
- Outer duct and perforated inner duct are spiral ducts made of galvanised steel 1.0917
- Plain outer duct made of stainless steel 1.4301
- Perforated inner duct made of galvanised steel or stainless steel 1.4301
- Spigot made of galvanised steel 1.0917 or stainless steel 1.4301
- Absorption material is mineral wool
  - To EN 13501, fire rating class A1, non-combustible
  - Non-hazardous to health according to the German TRGS 905 (Technical Rules for Hazardous Substances) and EU directive 97/69/EC
  - Protection against erosion from airflow velocities up to 20 m/s
    - Inner duct with non-woven fibre (fleece)
    - Splitters faced with glass fibre scrim
  - Inert to fungal and bacterial growth according to EN 846

Construction

Circular silencer
- No entry: galvanised steel 1.0917
- A2: Stainless steel 1.4301

Type of connection:
- No entry: spigot with groove on both ends
- D2: Spigot with lip seal on both ends
- AS: Spigot with lip seal and socket-type spigot on one end

Technical data

- Nominal size: 10", 12", 16", 18", 20", 22", 25", 28", 31", 35", 39"
- Insulation thickness: 2", 4"
- Nominal length: 20", 39", 59"
- Operating pressure: 8 in WC max.
- Airflow velocity: 3937 fpm max.
- Operating temperature: 194 °F max.

Sizing data

- ØD [in]
- ØL [in]
- $ØL_1$ [in]
- qv [cfm]
- De [dB]
- Δpst [in WC]

Order code

CK – A2 / D2 / 12 × 59 / 4 – 2
| | | | | | | |
1 2 3 4 5 6 7

1 Type

CK Circular silencer with splitter

2 Material

No entry: galvanised steel (1.0917)

A2 Stainless steel (1.4301)

3 Type of connection

No entry: spigot with groove on both ends

D2 Spigot with lip seal on both ends

AS Spigot with lip seal and socket-type spigot on one end

4 Nominal size [in]

10, 12, 16, 18, 20, 22, 25, 28, 31, 35, 39

5 Nominal length [in]

20, 39, 59

6 Insulation thickness [in]

2, 4

7 Splitter thickness [in]

2, 4, 6, 8, 10, 12

Order example: CK–A2/D2/12×59/4–2

Material	Galvanised steel (1.0917)
Material	Stainless steel (1.4301)
Type of connection	Spigot with lip seal on both ends
Nominal size [in]	12
Length [mm]	59
Insulation thickness [in]	4
Splitter width [in]	2

Order example: CK/10×59/4–4

Type	CK
Material	Galvanised steel (1.0917)
Type of connection	Spigot with groove on both ends
Nominal size [in]	10
Length [in]	59
Insulation thickness [in]	4
Splitter width [in]	4

Dimensions and weight

CK: Dimensions:

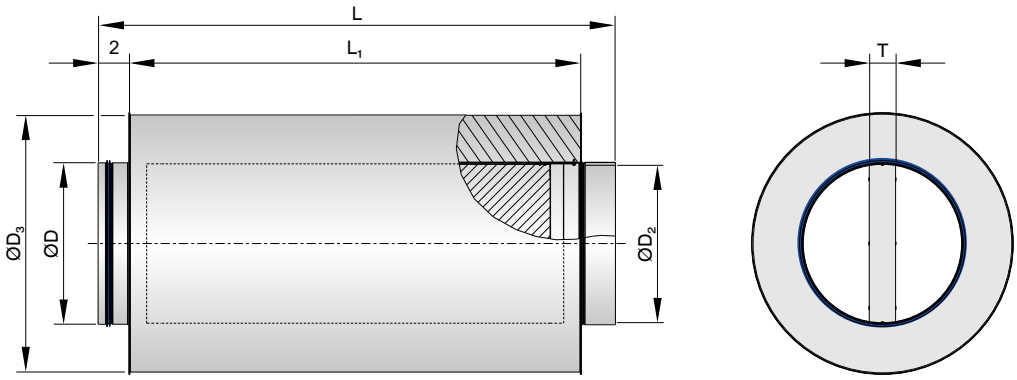

Illustration showing connection type AS

CK: Dimensions

NS	ØD	Insulation thickness 2		Insulation thickness 4	
		$ØD_2$	$ØD_3$	$ØD_2$	$ØD_3$
10	10	10	14	10	18
12	12	12	16	12	20
16	16	16	20	16	24
18	18			18	25
20	20			20	28
22	22			22	32
25	25			25	32
28	28			28	36
31	31			31	40
35	35			35	44
39	39			39	50

No entry: spigot with groove to EN1506 ØD
D2: Spigot with groove to EN1506 ØD
AS: Spigot with lip seal ØD and socket-type spigot on one end $ØD_2$

CK: Lengths

LN	L	L_1
20	20	15
39	39	35
59	59	54

CK-0: Weight without splitter [lbs]

NS	Insulation thickness 2			Insulation thickness 4		
	LN			LN		
	20	39	59	20	39	59
10	13	24	33	20	33	46
12	18	31	44	22	37	53
16	22	37	55	31	55	79
18				33	57	82
20				40	68	97
22				44	77	110
25				46	82	115
28				57	104	150
31				66	117	170
35				77	139	201
39				84	152	223

CK-A2: Weight without splitter [lbs]

NS	Insulation thickness 2			Insulation thickness 4		
	LN			LN		
	20	39	59	20	39	59
10	15	26	37	20	33	49
12	18	31	46	22	40	55
16	22	40	57	29	51	71
18				31	53	73
20				35	62	88
22				40	71	99
25				44	75	104
28				51	84	119
31				57	97	137
35				66	117	165
39				75	130	185

CK-...×20: Weight of splitter [lbs]

LN 20	T					
NS	2	4	6	8	10	12
10	2	4				
12	2	4				
16		4	7			
18		4	7			
20			7	9		
22			7	9		
25				11	13	
28				11	13	
31					15	18
35					18	20
39						22

CK-...×39: Weight of splitter [lbs]

LN 39	T					
NS	2	4	6	8	10	12
10	4	7				
12	4	7				
16		9	11			
18		9	11			
20			11	15		
22			13	15		
25				18	22	
28				20	22	
31					24	29
35					26	33
39						35

CK-...×59: Weight of splitter [lbs]

LN 59	T					
NG	2	4	6	8	10	12
10	7	9				
12	7	9				
16		11	15			
18		11	15			
20			18	22		
22			18	22		
25				24	31	
28				26	33	
31					35	42
35					40	46
39						49

Installation details

Installation and commissioning

- Follow the installation manual and comply with the general codes of good practice in order to achieve the given performance data
- Installation in ducts outside closed rooms requires sufficient protection against the effects of weather
- Due to its weight the silencer must be supported, e.g. by a suitable fixing system.

Nomenclature

ØD [in]
Outer diameter of the spigot

ØD$_3$ [in]
Inside diameter of the socket-type spigot

ØD$_3$ [in]
Outer diameter of circular silencers

L_N [in]
Nominal length

L [in]
Length of sound attenuator including spigot (always in airflow direction)

L_1
Length of acoustic cladding and acoustically effective length

T [in]
Splitter thickness

n [ ]
Number of flange screw holes

m [lbs]
Weight

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

q_v [cfm]
Volume flow rate

p_t [in WC]
Total differential pressure

Lengths
All lengths are given in inches [in] unless stated otherwise.

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 given as 50 dB, based on practical conditions.