

# Splitters

## Type XKA



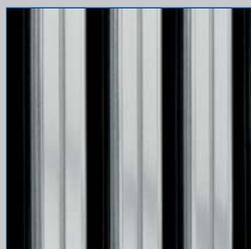
### For high insertion loss with broadband damping, even in the high-frequency range

Energy-saving splitters, ready to be used in air conditioning systems

- Attenuation effect due to absorption
- Energy efficient due to aerodynamically profiled frame (radius > 15 mm)
- Acoustic data measured to ISO 7235
- Absorption material is biosoluble and hence hygienically safe
- Absorption material faced with glass fibre fabric as a protection against erosion due to airflow velocities up to 20 m/s
- Absorption material non-combustible, to EN 13501, fire rating class A1
- Intermediate sizes in increments of 1 mm
- Operating temperature up to 100 °C

Optional equipment and accessories

- Additional perforated sheet metal to protect the absorption material
- Stainless steel, aluminium and PUR-coated constructions upon request



Splitter frames with folded edges



Tested to VDI 6022

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### Application

#### Application

- Sound attenuator splitters of Type XKA, used for the reduction of fan noise and air-regenerated noise in air conditioning systems
- Attenuation effect due to absorption
- Broadband attenuation even in the high frequency range
- Hygiene tested and certified to VDI 6022
- For use in potentially explosive atmospheres (ATEX), zones 1, 2, 21 and 22 (outside)

#### Special characteristics

- Increased insertion loss even in the high-frequency range
- Up to 30 % lower differential pressure
- Energy efficient and/or space saving due to aerodynamically profiled frame
- Hygiene tested and certified
- Multi-section construction available for large

#### dimensions

##### Nominal sizes

- H: 300, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800 mm (intermediate sizes 150 – 2500 mm in increments of 1 mm)
- Height subdivided: 2501 – 5000 mm, in increments of 1 mm
- L: 500, 750, 1000, 1250, 1500 mm (intermediate sizes 501 – 2500 mm in increments of 1 mm)
- Length subdivided: 2501 – 3000 mm in increments of 1 mm
- Undivided construction: H + L 4000 mm max., H and L 1500 mm max. (if one dimension is 1500 mm, the other one must not exceed 1500 mm)

### Description

#### Variants

- XKA100: Splitter thickness 100 mm
- XKA200: Splitter thickness 200 mm
- XKA230: Splitter thickness 230 mm
- XKA300: Splitter thickness 300 mm

#### Construction

##### Splitter surface

- F: Glass fibre fabric
- L: Glass fibre fabric and additional perforated sheet metal to protect the absorption material

#### Parts and characteristics

- Aerodynamically profiled frame
- Absorption material to reduce air-regenerated noise by absorption

#### Useful additions

- U-sheets/clamp sheets to join subdivided attenuator splitters

#### Construction features

- Aerodynamically profiled splitter frame (radius > 15 mm) that enables a reduction of turbulence both upstream and downstream; frame with grooves for increased rigidity
- Frame edges are folded to protect the infill
- Operating temperature up to 100 °C (construction with perforated sheet metal up to 300 °C for 8h max.)

#### Materials and surfaces

- Splitter frames made of galvanised sheet steel
- Absorption material 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 fabric as a protection against erosion through airflow velocities of up to 20 m/s
- Inert to fungal and bacterial growth

#### Standards and guidelines

- Insertion loss and sound power level of air-regenerated noise tested to ISO 7235
- Meets the hygiene requirements of VDI 6022, DIN 1946, parts 1 and 2 as well as of VDI 3803
- Directive 94/9/EC: Equipment and protective systems intended for use in potentially explosive atmospheres

#### Maintenance

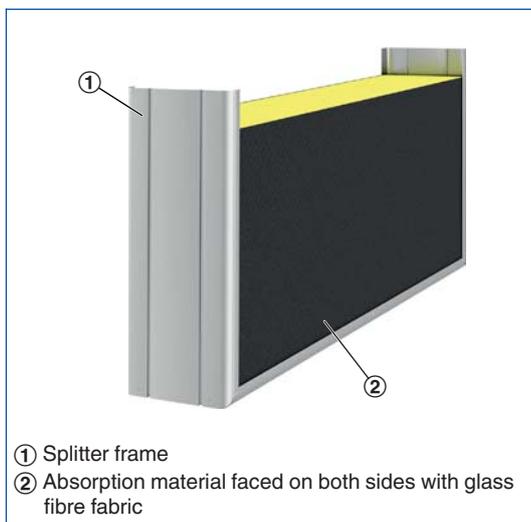
- Maintenance-free as construction and materials are not subject to wear

## Functional description

The attenuation effect of the XKA splitters is due to absorption.

The splitters have a mineral wool infill as absorption material.

## Schematic illustration of XKA



<b>Splitter thickness</b>	100, 200, 230, 300 mm
<b>Nominal sizes</b>	150 × 500 mm – 1499 × 2500, 2500 × 1499 or 1500 × 1500 mm
<b>Height subdivided</b>	2501 – 5000 mm
<b>Length subdivided</b>	1501 – 3000 mm
<b>Intermediate sizes</b>	In increments of 1 mm
<b>Operating temperature</b>	Up to 100 °C

The length (L) of sound attenuator splitters refers to the airflow direction

Quick sizing tables provide a good overview of the insertion loss and of differential pressures for different airway widths and airflow velocities. Intermediate values can be calculated with our Easy Product Finder design programme.

The sound power levels  $L_{WA}$  apply to sound attenuators with a cross-sectional area ( $B \times H$ ) of  $1 \text{ m}^2$ .

The differential pressures apply to sound attenuators with a height of 1 m.

**MSA, MKA, XSA, XKA, RKA, air-regenerated noise**

$v_s$	m/s	4	6	8	10	12	14	16	18	20
$L_{WA}$	dB(A)	21	31	38	43	48	51	55	58	60

**XKA100, XSA100, insertion loss and differential pressure**

L	S	Centre frequency $f_m$ [Hz]								$v_s$ [m/s]		
		63	125	250	500	1000	2000	4000	8000	4	10	20
mm	mm	$D_e$ Hz								$\Delta p_{st}$ Pa		
500	40	3	5	10	18	37	45	31	23	5	32	>80
	60	4	8	19	29	46	50	39	32	7	44	>80
1000	40	4	7	16	26	42	47	34	26	5	33	>80
	60	6	11	27	39	50	50	47	40	9	55	>80
1500	40	6	9	23	35	50	50	42	34	6	38	>80
	60	5	5	14	27	44	46	31	20	5	29	>80
	100	7	14	36	50	50	50	50	49	11	66	>80
2000	40	7	12	30	45	50	50	50	41	7	44	>80
	60	6	7	19	34	50	50	39	26	5	32	>80
	100	3	4	11	24	38	24	14	10	4	25	>80
	200	9	18	44	50	50	50	50	50	12	77	>80
2500	40	8	14	37	50	50	50	50	49	8	50	>80
	60	7	8	23	42	50	50	48	32	6	34	>80
	100	4	5	13	29	46	30	17	12	4	26	>80
	200	10	21	50	50	50	50	50	50	14	>80	>80
3000	40	10	17	44	50	50	50	50	50	9	56	>80
	60	8	9	28	49	50	50	50	37	6	37	>80
	100	5	6	16	34	50	50	20	13	4	27	>80
	200	10	21	50	50	50	50	50	50	14	>80	>80

**XKA200, XSA200, insertion loss and differential pressure**

L	S	Centre frequency $f_m$ [Hz]								$v_s$ [m/s]		
		63	125	250	500	1000	2000	4000	8000	4	10	20
		$D_e$								$\Delta p_{st}$		
mm	mm	Hz								Pa		
500	50	2	12	18	31	44	42	29	23	9	58	>80
	100	3	8	15	32	46	38	23	16	6	35	>80
1000	50	6	14	22	44	50	50	36	27	11	67	>80
	200	2	5	11	22	25	18	11	7	3	21	>80
1500	50	8	20	31	50	50	50	48	33	12	75	>80
	100	5	12	22	47	50	50	31	20	6	40	>80
	200	3	7	15	31	35	24	14	8	4	23	>80
	400	2	4	11	18	15	9	6	5	2	15	61
2000	50	10	27	40	50	50	50	50	39	13	>80	>80
	100	6	16	28	50	50	50	39	24	7	44	>80
	200	4	9	20	41	45	30	17	10	4	25	>80
	400	2	5	14	24	19	11	7	6	3	17	67
2500	50	13	34	47	50	50	50	50	45	15	>80	>80
	100	7	21	34	50	50	50	45	27	8	48	>80
	200	4	11	23	50	50	36	19	11	4	28	>80
	400	3	7	16	29	21	13	8	6	3	18	72
3000	50	16	42	50	50	50	50	50	50	16	>80	>80
	100	8	26	39	50	50	50	50	31	8	53	>80
	200	5	13	27	50	50	41	21	12	5	30	>80
	400	3	8	18	34	24	14	9	7	3	19	77

**XKA230, XSA230, insertion loss and differential pressure**

L	S	Centre frequency $f_m$ [Hz]								$v_s$ [m/s]		
		63	125	250	500	1000	2000	4000	8000	4	10	20
		$D_e$								$\Delta p_{st}$		
mm	mm	Hz								Pa		
500	60	4	7	12	25	34	25	19	18	9	57	>80
1000	60	5	12	20	35	48	40	27	21	10	66	>80
	115	4	8	16	27	35	27	18	15	6	35	>80
	230	3	5	12	18	20	14	10	9	3	20	>80
1500	60	6	16	27	46	50	50	35	25	12	74	>80
	115	5	12	22	36	46	37	24	18	6	40	>80
	230	3	7	16	25	28	19	12	11	4	23	>80
	460	2	2	11	15	10	1	0	3	2	15	59
2000	60	7	21	35	50	50	50	43	29	13	>80	>80
	115	5	15	28	45	50	47	29	21	7	44	>80
	230	4	9	21	32	36	24	14	13	4	25	>80
	460	3	4	14	20	15	1	0	4	3	16	64
2500	60	8	25	43	50	50	50	50	33	15	>80	>80
	115	6	19	35	50	50	50	34	24	8	48	>80
	230	5	12	26	40	43	28	17	14	4	27	>80
	460	4	5	18	25	19	0	0	5	3	17	69
3000	60	9	30	50	50	50	50	50	37	16	>80	>80
	115	7	22	41	50	50	50	40	27	8	52	>80
	230	6	14	31	47	50	33	19	16	5	29	>80
	460	5	6	21	31	23	0	0	5	3	19	74

XKA300, XSA300, insertion loss and differential pressure

L	S	Centre frequency $f_m$ [Hz]								$v_s$ [m/s]		
		63	125	250	500	1000	2000	4000	8000	4	10	20
mm	mm	$D_e$								$\Delta p_{st}$		
		Hz								Pa		
500	75	4	7	17	25	34	32	22	18	10	63	>80
	150	2	5	11	16	19	17	12	9	5	33	>80
1000	75	6	15	24	42	48	50	33	26	11	71	>80
	150	3	9	18	27	34	28	17	11	6	36	>80
	300	1	6	11	15	16	13	8	7	3	21	>80
1500	75	8	20	33	50	50	50	44	30	13	79	>80
	150	3	14	26	38	46	39	21	13	6	39	>80
	300	2	8	16	21	21	17	10	8	4	22	>80
	600	1	6	11	12	9	6	4	5	2	15	60
2000	75	10	25	42	50	50	50	50	34	14	>80	>80
	150	4	18	33	48	50	50	26	16	7	42	>80
	300	2	11	20	26	26	21	12	9	4	23	>80
	600	1	7	14	16	11	7	5	5	2	15	60
2500	75	13	30	50	50	50	50	50	38	15	>80	>80
	150	5	23	40	50	50	50	30	18	7	45	>80
	300	3	14	25	32	32	25	13	10	4	25	>80
	600	1	9	17	19	13	7	5	6	3	16	64
3000	75	15	35	50	50	50	50	50	42	16	>80	>80
	150	6	28	48	50	50	50	35	20	8	48	>80
	300	3	17	30	38	37	29	15	11	4	26	>80
	600	2	11	21	23	14	8	5	6	3	17	68

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

Sound attenuator splitters used for the reduction of fan noise and air-regenerated noise in air conditioning systems. Attenuation effect due to absorption. Energy-saving as well as hygiene tested and certified.

Installation kit consists of an aerodynamically profiled frame (radius > 15 mm) and absorption material.

Frame edges are folded to protect the sound absorbing infill.

Insertion loss and sound power level of the air-regenerated noise tested to ISO 7235.

Meets the hygiene requirements of VDI 6022, DIN 1946, parts 2 and 4, as well as of VDI 3803.

### Special characteristics

- Increased insertion loss even in the high-frequency range
- Up to 30 % lower differential pressure
- Energy efficient and/or space saving due to aerodynamically profiled frame
- Hygiene tested and certified
- Multi-section construction available for large dimensions

### Materials and surfaces

- Splitter frames made of galvanised sheet steel
- Absorption material 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 fabric as a protection against erosion through airflow velocities of up to 20 m/s
- Inert to fungal and bacterial growth

### Construction

Splitter surface

- F: Glass fibre fabric
- L: Glass fibre fabric and additional perforated sheet metal to protect the absorption material

### Technical data

- Splitter thickness: 100, 200, 230, 300 mm
- Nominal sizes: 150 × 500 mm – 1499 × 2500, 2500 × 1499 or 1500 × 1500 mm
- Height subdivided: up to 5000 mm
- Length subdivided: up to 3000 mm
- Intermediate sizes: in increments of 1 mm
- Operating temperature: up to 100 °C

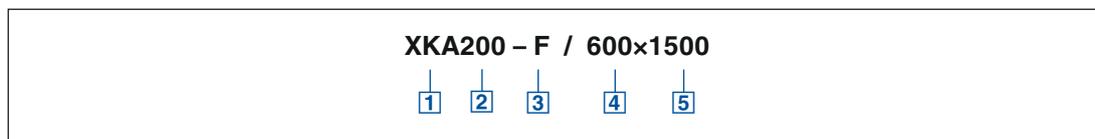
The length (L) of splitter attenuators refers to the airflow direction.

### Sizing data

- B \_\_\_\_\_ [mm]
- H \_\_\_\_\_ [mm]
- L (in airflow direction) \_\_\_\_\_ [mm]
- $\dot{V}$  \_\_\_\_\_ [m<sup>3</sup>/h]
- $D_e$  at 250 Hz \_\_\_\_\_ [dB]
- $\Delta p_{st}$  \_\_\_\_\_ [Pa]

The length (L) of sound attenuator splitters and splitter attenuators refers to the airflow direction. Remember this with regard to vertical ducting.

**XKA**



**1** Type

**XKA** Sound attenuator splitter

**4** Height H [mm]

**5** Length L in airflow direction [mm]

**2** Splitter thickness [mm]

- 100
- 200
- 230
- 300

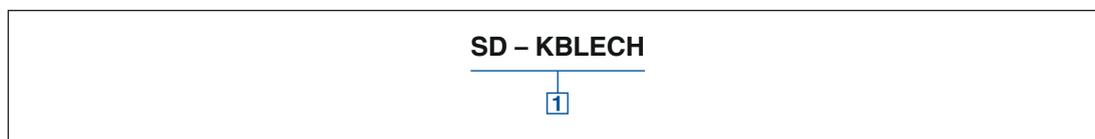
**3** Splitter surface

- F** Glass fibre fabric
- L** Glass fibre fabric under perforated sheet metal

**Order example: XKA100-L/1500x1500**

<b>Splitter thickness</b>	100 mm
<b>Splitter surface</b>	Glass fibre fabric and perforated sheet metal
<b>Height</b>	1500 mm
<b>Length</b>	1500 mm

**Fitting accessories to join subdivided attenuator splitters**



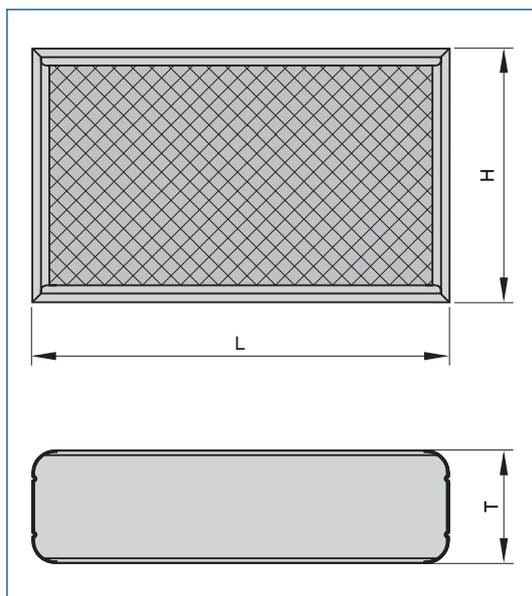
**1** Part

- SD-KBLECH** Clamp sheet for MKA, XKA, RKA200
- SD-KAP100** U-sheet for MKA100, XKA100
- SD-KAP200** U-sheet for MKA200, XKA200, RKA200
- SD-KAP230** U-sheet for MKA230, XKA230
- SD-KAP300** U-sheet for XKA300

- H: 300, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800 mm (intermediate sizes 150 – 2500 mm in increments of 1 mm)
- Height subdivided: 2501 – 5000 mm, in increments of 1 mm
- L: 500, 750, 1000, 1250, 1500 mm (intermediate sizes 501 – 2500 mm in increments of 1 mm)
- Length subdivided: 2501 – 3000 mm in increments of 1 mm
- Undivided construction: H + L 4000 mm max., H and L 1500 mm max. (if one dimension is 1500 mm, the other one must not exceed 1500 mm)

The total weight of a splitter sound attenuator is the combined weight of the casing (with standard flange or angle section frame) and all splitters. The total weight for intermediate sizes can be generated with our Easy Product Finder design programme.

## XKA



## XKA100, weights

H	Glass fibre fabric (-F)					Glass fibre fabric and perforated sheet metal (-L)				
	L [mm]									
	500	750	1000	1250	1500	500	750	1000	1250	1500
mm	kg									
300	2	2	3	4	4	3	4	5	6	7
600	3	4	4	5	6	5	7	9	11	13
900	4	5	6	7	8	7	10	12	15	18
1200	5	6	7	9	10	9	12	16	20	23
1500	5	7	9	10	12	11	15	20	24	28
1800	7	9	11	14	16	13	19	24	30	35

**XKA200, weights**

H	Glass fibre fabric (-F)					Glass fibre fabric and perforated sheet metal (-L)				
	L [mm]									
	500	750	1000	1250	1500	500	750	1000	1250	1500
mm	kg									
300	3	4	5	6	7	4	6	7	9	10
600	5	6	8	9	11	7	10	12	15	18
900	6	8	11	13	15	10	13	17	21	25
1200	8	11	13	16	19	12	17	22	27	32
1500	10	13	16	19	22	15	21	27	33	39
1800	12	16	21	25	29	19	26	34	41	49

**XKA230, weights**

H	Glass fibre fabric (-F)					Glass fibre fabric and perforated sheet metal (-L)				
	L [mm]									
	500	750	1000	1250	1500	500	750	1000	1250	1500
mm	kg									
300	3	5	6	7	8	4	6	8	10	11
600	5	7	9	11	12	7	10	13	16	19
900	7	10	12	14	17	10	14	19	23	27
1200	9	12	15	18	21	13	19	24	29	34
1500	11	15	18	22	25	16	23	29	35	42
1800	14	19	24	28	33	20	29	37	45	53

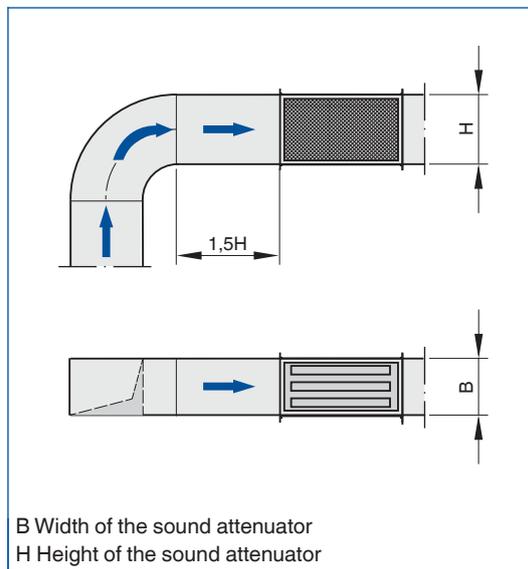
**XKA300, weights**

H	Glass fibre fabric (-F)					Glass fibre fabric and perforated sheet metal (-L)				
	L [mm]									
	500	750	1000	1250	1500	500	750	1000	1250	1500
mm	kg									
300	4	6	7	9	10	5	7	9	11	14
600	7	9	11	14	16	9	12	16	19	22
900	9	12	15	18	21	12	17	22	27	31
1200	12	15	19	23	27	16	22	28	34	40
1500	14	19	23	28	33	19	27	34	42	49
1800	18	24	30	36	42	24	34	43	53	62

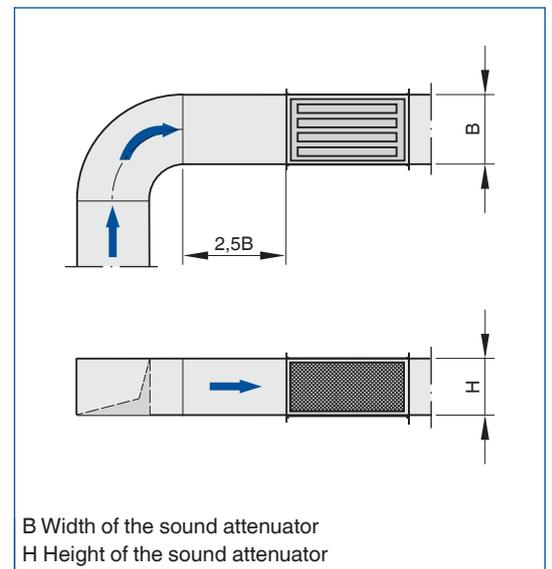
**Installation and commissioning**

- Splitters are supplied as ready-to-install kits
- Follow the installation information and comply with the general codes of good practice in order to achieve the given performance data
- Up to height  $H = 1200$  mm: any installation orientation, but we recommend upright installation of splitters
- From height  $H = 1201$  mm: upright installation only
- The length ( $L$ ) of sound attenuator splitters and splitter sound attenuators refers to the airflow direction; be sure to note how width, height and length are defined, particularly in case of a vertical airflow
- Installation in ducts outside of closed rooms requires sufficient protection against the effects of weather

**Upstream conditions after bends, junctions or a narrowing or widening of the duct, vertical upstream section, splitters upright**

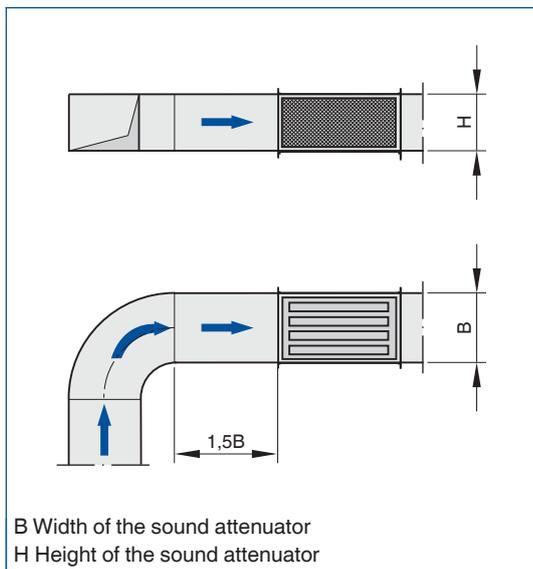


**Upstream conditions after bends, junctions or a narrowing or widening of the duct, vertical upstream section, splitters horizontal**

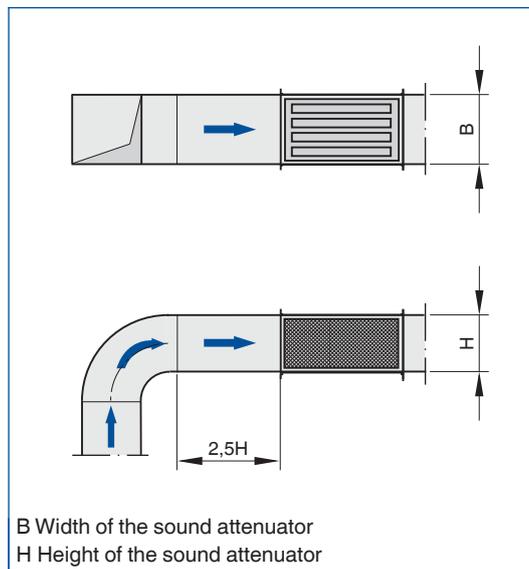


Horizontal installation only for splitters up to height 1200 mm

Upstream conditions after bends, junctions or a narrowing or widening of the duct, horizontal upstream section, splitters upright

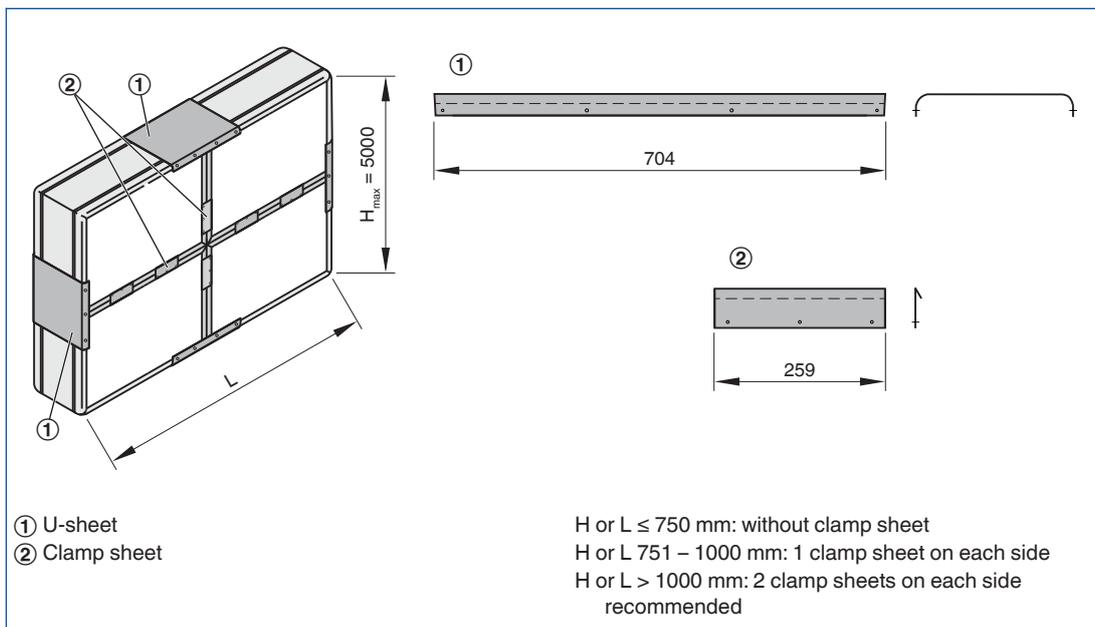


Upstream conditions after bends, junctions or a narrowing or widening of the duct, horizontal upstream section, splitters horizontal



Horizontal installation only for splitters up to height 1200 mm

#### Assembly of subdivided splitters



**Principal dimensions**

**ØD [mm]**

Outer diameter of the spigot

**ØD<sub>3</sub> [mm]**

Outer diameter of circular silencers

**L [mm]**

Length of attenuator/silencer including spigot (in airflow direction)

**L<sub>1</sub> [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<sub>m</sub> [Hz]**

Octave band centre frequency

**L<sub>WA</sub> [dB(A)]**

A-weighted sound power level of air-regenerated noise

**D<sub>e</sub> [dB]**

Insertion loss

**Ḃ [m<sup>3</sup>/h] and [l/s]**

Volume flow rate

**Δp<sub>st</sub> [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.