

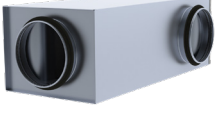
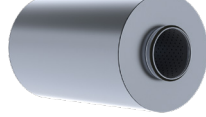



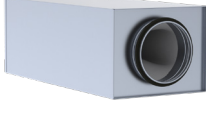

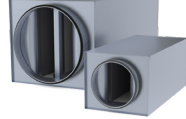


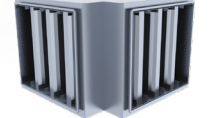




NORDsilencer
Ventilation system silencers

Contents

General	3	NRFV/NRPV Bend-silencer	
NRF 50/NRP 50 Silencer		NKL Bend-silencer	
NRF 100/NRP 100 Silencer		NKU Bend-silencer	
NRFB 100/NRPB 100 Silencer		MSK/MSP Silencer	
NKE Silencer		MSKI/MSPI Silencer	
NTF/NTP Silencer		MSKA/MSPA Silencer	
NTFA/NTPA Silencer		MPK/MPP Bend-silencer	

General

1. Material

Basic products are made of hot-dipped sheet metal, with a coating depth of 275 g/m² on both sides (material thickness 0.5-1.2 mm). Aluminium, acid-proof and zinc-magnesium coated steel products are optional.

Product materials and respective standards:

- Hot-dip galvanized steel sheet according to standard EVS-EN 10346:2015, DX51D+Z275
- Acid proof steel according to standard EVS-EN 10088-2:2014, EN 1.4436 or AISI 316
- Aluminium according to standard EVS-EN 485-1:2016, 5754 [AlMg3]
- Zinc-magnesium coated steel according to standard EVS-EN 10346:2015, DX51D+ZM310

2. Material markings

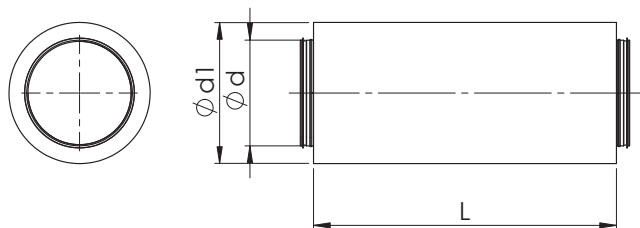
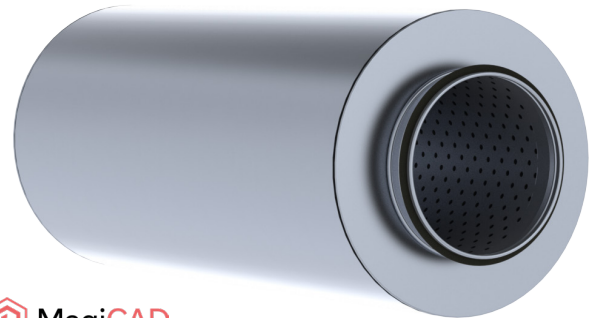
Basic materials are not mentioned in product marking (basic material – hot-dip galvanized steel sheet)

Other materials:

- H – acid-proof steel AISI 316
- AL – Aluminium
- ZM – Zinc-magnesium coated steel

NRF 50/NRP 50 Silencer

Round silencer with 50 mm sound absorption. NRF-silencer's sound absorption material is mineral wool and NRP-silencer's a synthetic sound insulation. The perforated inner tube and outer shell are manufactured of galvanized steel. Between the inner tube and the insulation, there is fabric to prevent wool particles from the duct system.



Sound attenuation and Dimensions

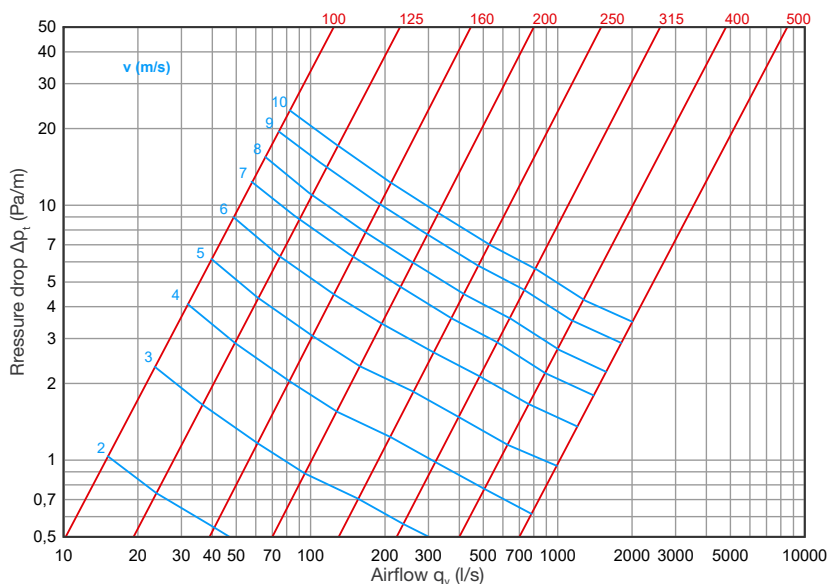
NRF 50 (absorption material is mineral wool)

Nominal size Ød mm	L, mm	Ød _i ,mm	Sound attenuation (dB)								Weight, kg
			Mean frequency of octave band (Hz)								
			63	125	250	500	1000	2000	4000	8000	
100	300	200	3	4	8	15	26	26	20	11	2.3
100	600	200	4	7	13	25	41	47	33	17	4.1
100	900	200	5	8	18	34	49	49	41	23	5.2
100	1200	200	6	9	21	41	53	52	48	28	6.5
125	300	225	2	4	7	13	19	24	17	11	2.7
125	600	225	3	6	13	24	35	43	25	16	5.2
125	900	225	3	6	15	31	45	47	35	19	6.2
125	1200	225	4	6	20	42	54	49	41	23	7.5
160	300	260	1	3	5	12	16	19	11	9	3.0
160	600	260	2	4	10	20	28	31	18	13	6.1
160	900	260	2	6	14	27	37	35	24	17	8.6
160	1200	260	2	7	17	34	48	44	30	19	9.2
200	300	300	1	2	5	10	13	16	9	8	4.1
200	600	300	2	4	9	17	23	27	15	11	6.9
200	900	300	2	5	13	23	35	37	24	15	10.9
200	1200	300	3	6	16	30	45	44	24	16	12.0
250	600	350	2	3	8	15	22	21	12	10	8.6
250	900	350	2	4	12	22	31	28	15	13	11.7
250	1200	350	3	5	14	28	38	36	18	16	16.0
315	600	415	1	2	7	12	18	13	9	9	13.4
315	900	415	1	3	8	16	24	18	12	11	16.3
315	1200	415	1	4	10	20	32	22	14	13	21.1

NRP 50 (absorption material synthetic sound insulation)

Nominal size Ød mm	L, mm	Ød ₁ , mm	Sound attenuation (dB)								Weight, kg
			Mean frequency of octave band (Hz)								
			63	125	250	500	1000	2000	4000	8000	
100	300	200	1	3	7	10	17	21	11	11	1,9
100	600	200	2	7	11	16	26	34	21	16	3,2
100	900	200	4	10	16	23	34	43	30	22	4,5
100	1200	200	6	12	20	29	42	45	35	28	5,9
125	300	225	1	2	5	8	16	17	10	8	2,2
125	600	225	1	5	9	14	23	27	17	13	3,6
125	900	225	3	7	13	19	32	40	25	19	5,1
125	1200	225	5	10	16	23	38	42	30	22	6,5
160	300	260	0	3	4	6	14	9	7	6	2,8
160	600	260	1	5	7	11	21	17	12	12	4,6
160	900	260	3	7	10	14	27	22	16	14	6,4
160	1200	260	4	8	13	19	33	28	19	17	8,4
200	300	300	0	3	5	8	16	17	10	10	3,3
200	600	300	1	4	6	10	20	20	12	12	5,3
200	900	300	2	5	9	12	24	23	15	13	7,3
200	1200	300	3	6	11	16	29	28	18	15	9,4
250	600	350	1	3	5	8	17	14	10	8	6,4
250	900	350	1	4	7	11	22	20	14	12	8,8
250	1200	350	2	6	12	19	32	47	36	28	12
315	600	415	0	2	4	7	16	9	9	8	7,8
315	900	415	1	3	5	9	20	13	11	12	11
315	1200	415	2	4	7	12	25	16	14	15	13
400	600	500	0	1	3	6	15	5	7	7	9,7
400	900	500	0	2	4	8	18	8	9	10	13,5
400	1200	500	0	2	5	10	23	9	12	12	15,9
500	600	600	0	0	1	4	9	3	4	4	12,1
500	900	600	0	1	2	6	12	5	5	5	16,9
500	1200	600	0	1	2	8	14	6	7	7	19,9

Technical data



Product codes

NRF 50 - d - L

Marking

NRF 50 – absorption material mineral wool

NRP 50 – absorption material synthetic sound insulation

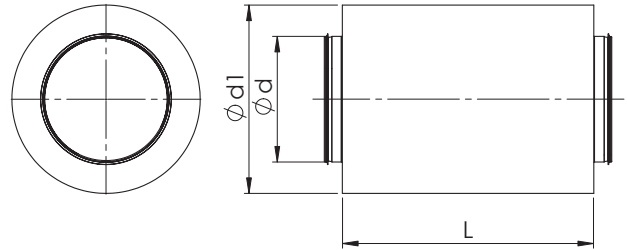
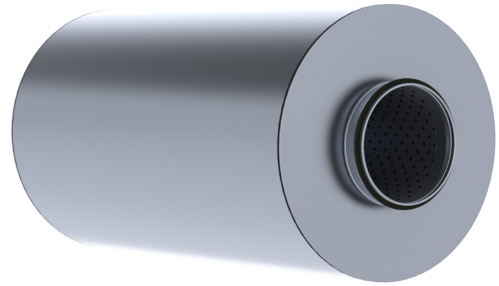
Diameter d

Length L

Example: NRF 50 315-900

NRF 100/NRP 100 Silencer

Round silencer with 100 mm sound absorption. NRF-silencer's sound absorption material is mineral wool and NRP-silencer's a synthetic sound insulation. The perforated inner tube and outer shell are manufactured of galvanized steel. Between the inner tube and the insulation, there is fabric to prevent wool particles from entering the duct system.



Sound attenuation and dimensions

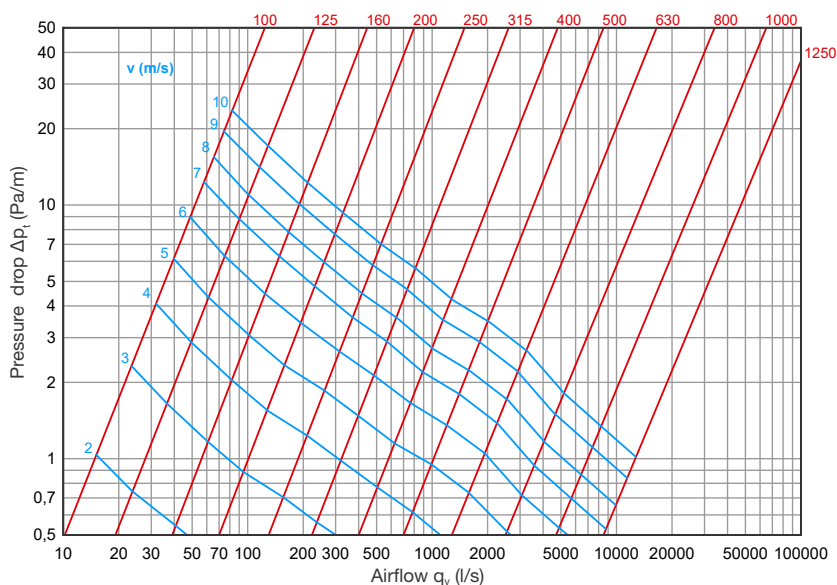
NRF 100 (absorption material is mineral wool)

Nominal size Ød mm	L, mm	Ød _i , mm	Sound attenuation (dB)								Weight, kg
			Mean frequency of octave band (Hz)								
			63	125	250	500	1000	2000	4000	8000	
100	300	305	3	5	12	17	23	28	21	11	5,6
100	600	305	6	10	18	28	39	44	32	17	9,0
100	900	305	7	12	25	37	51	50	42	23	13,0
100	1200	305	8	13	30	40	55	52	46	29	16,1
125	300	325	4	5	9	14	18	24	18	11	6,1
125	600	325	4	9	17	25	34	38	25	17	9,3
125	900	325	6	10	23	34	46	47	36	20	13,0
125	1200	325	8	12	28	38	52	51	42	24	17,0
160	300	360	4	3	7	11	15	20	13	9	7,1
160	600	360	4	7	14	21	29	34	18	13	11,4
160	900	360	5	9	20	31	41	45	25	16	15,7
160	1200	360	7	10	28	34	48	49	29	19	20,0
200	300	400	4	3	6	9	13	16	10	8	9,3
200	600	400	5	5	10	15	22	26	18	13	14,0
200	900	400	5	8	19	24	35	33	19	15	19,0
200	1200	400	7	9	24	33	44	42	23	16	22,0
250	300	450	2	3	4	7	13	16	10	7	13,0
250	600	450	4	4	11	15	21	21	12	11	15,0
250	900	450	3	5	16	22	31	24	14	12	22,0
250	1200	450	5	7	21	28	40	34	17	15	28,0
315	300	510	2	3	3	6	12	14	8	6	14,0
315	600	510	1	4	8	11	17	14	9	9	18,0
315	900	510	2	5	12	16	25	19	12	11	25,0
315	1200	510	3	6	17	23	34	25	15	14	32,0
400	300	600	2	2	3	5	9	12	7	5	20,0
400	600	600	1	4	6	7	10	9	7	6	25,0
400	900	600	2	5	12	15	20	15	12	9	32,0
400	1200	600	4	6	15	20	27	21	13	13	42,0
500	600	710	1	2	5	7	11	10	7	5	38,0
500	900	710	2	5	9	12	14	11	9	9	41,0
500	1200	710	3	5	11	17	19	14	12	11	51,0
630	900	840	2	4	7	12	14	11	9	7	50,0
630	1200	840	3	5	11	16	14	13	9	7	64,0
800	900	1000	2	4	8	12	11	9	8	6	76,0
800	1200	1000	2	4	9	13	12	10	9	7	81,0
1000	900	1200	0	1	7	7	4	3	3	3	84,0
1000	1200	1200	1	3	9	9	6	4	4	4	106,0
1250	1200	1450	1	3	9	6	5	4	3	2	129,0

NRP 100 (absorption material synthetic sound insulation)

Nominal size Ød mm	L, mm	Ød ₁ , mm	Sound attenuation (dB)								Weight, kg
			Mean frequency of octave band (Hz)								
			63	125	250	500	1000	2000	4000	8000	
100	300	305	3	6	13	14	27	23	19	11	5,3
100	600	305	7	11	17	17	32	34	31	19	8,6
100	900	305	9	15	24	32	50	48	42	28	12,5
100	1200	305	11	15	27	31	55	51	46	33	14,8
125	300	325	4	6	8	12	21	20	17	12	5,7
125	600	325	5	11	16	14	32	28	23	18	8,7
125	900	325	8	12	22	21	43	40	35	22	12,0
125	1200	325	11	15	29	26	52	48	45	30	16,0
160	300	360	4	4	8	9	18	17	12	10	6,6
160	600	360	5	9	13	11	31	28	18	15	11,0
160	900	360	6	11	21	18	38	35	26	18	15,4
160	1200	360	8	12	29	21	49	39	31	22	19,0
200	300	400	6	4	7	8	21	18	11	12	9,0
200	600	400	5	6	10	7	24	22	19	14	13,2
200	900	400	6	9	18	10	31	26	19	16	18,0
200	1200	400	8	11	23	20	40	34	24	18	21,0
250	300	450	2	3	4	7	13	16	10	7	13,0
250	600	450	5	6	9	6	22	18	13	11	14,0
250	900	450	3	6	14	9	27	19	14	13	21,0
250	1200	450	6	8	19	14	33	27	18	17	27,0
315	300	510	2	3	3	6	12	14	8	6	14,0
315	600	510	1	5	6	5	16	13	9	9	18,0
315	900	510	2	6	9	9	23	18	12	13	24,0
315	1200	510	4	8	14	12	27	23	17	17	32,0
400	300	600	2	2	3	5	9	12	7	5	19,0
400	600	600	2	5	3	3	8	9	7	6	23,0
400	900	600	2	5	9	9	17	15	12	10	31,0
400	1200	600	4	8	12	10	21	20	14	14	39,0
500	600	710	1	2	3	5	10	9	6	5	37,0
500	900	710	2	6	6	9	12	9	8	10	40,0
500	1200	710	2	5	8	12	16	13	12	11	49,0
630	900	840	2	5	4	11	13	10	11	7	47,0
630	1200	840	3	5	8	14	13	12	12	7	60,0
800	900	1000	2	4	8	12	11	9	8	7	71,0
800	1200	1000	2	4	8	12	12	9	9	8	76,0
1000	900	1200	0	2	5	7	4	3	3	4	63,0
1000	1200	1200	1	3	8	10	6	5	5	7	79,0
1250	1200	1450	1	3	8	7	5	4	3	3	96,0

Technical data



Product codes

NRF 100 - d - L

Marking _____

NRF 100 – absorption material mineral wool
 NRP 100 – absorption material synthetic sound insulation

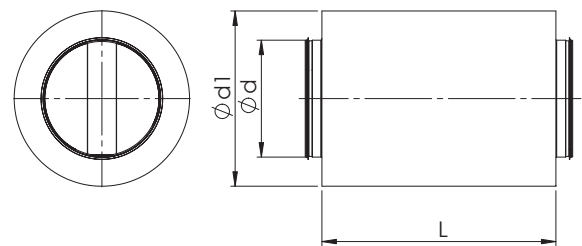
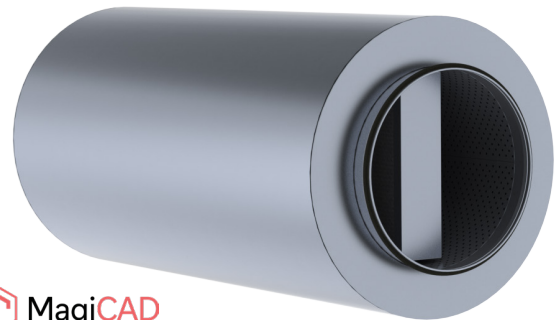
Diameter d _____

Lenght L _____

Example: NRF 100 315-900

NRFB 100/NRPB 100 Silencer

Round silencer with 100 mm sound absorption and 100 mm absorption element. NRFB-silencer's sound absorption material is mineral wool and NRPB-silencer's a synthetic sound insulation. The perforated inner tube and outer shell are manufactured of galvanized steel. Between the inner tube and the insulation, there is fabric to prevent wool particles from entering the duct system.



Sound attenuation and dimensions

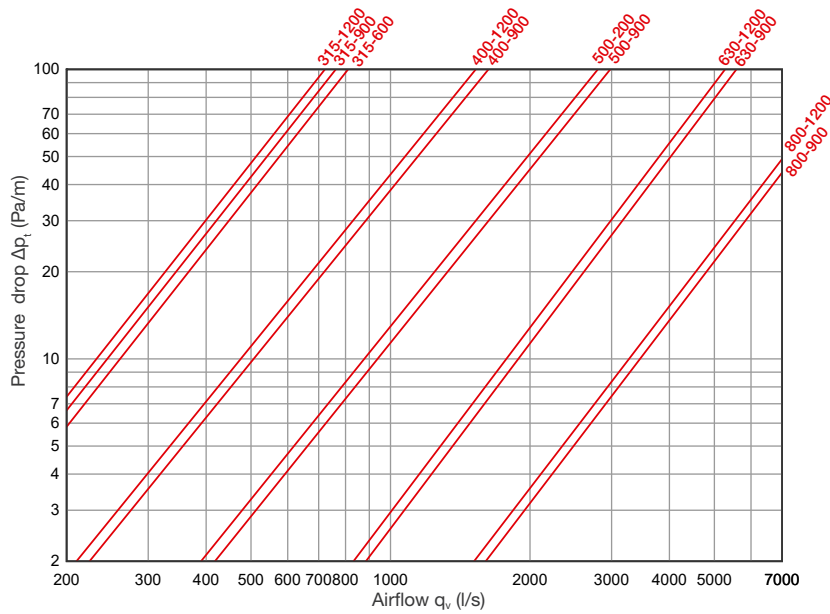
NRFB 100 (absorption material mineral wool)

Nominal size $\varnothing d$ mm	L, mm	$\varnothing d_1$, mm	Sound attenuation (dB)								Weight, kg
			Mean frequency of octave band (Hz)								
			63	125	250	500	1000	2000	4000	8000	
315	600	515	3	7	11	18	24	33	23	16	25,5
315	900	515	4	8	16	26	34	43	30	20	37,3
315	1200	515	7	12	23	34	42	52	35	23	48,1
400	900	600	4	8	13	21	30	34	22	15	45,2
400	1200	600	5	11	19	28	37	42	26	18	57,9
500	900	225	3	6	11	18	27	25	16	13	53,1
500	1200	700	4	8	15	23	33	32	20	15	70,1
630	900	830	2	5	9	15	23	18	13	10	66,0
630	1200	830	3	7	12	19	28	21	15	12	83,6
800	900	1000	1	3	7	15	23	17	10	7	84,6
800	1200	1000	2	5	9	14	21	17	11	9	107,8

NRPB 100 (absorption material synthetic sound insulation)

Nominal size $\varnothing d$ mm	L, mm	$\varnothing d_1$, mm	Sound attenuation (dB)								Weight, kg
			Mean frequency of octave band (Hz)								
			63	125	250	500	1000	2000	4000	8000	
315	600	515	3	7	8	9	22	31	23	17	24
315	900	515	4	9	12	15	30	41	30	22	35
315	1200	515	8	14	18	20	34	48	34	23	45
400	900	600	4	8	12	15	26	34	22	16	42
400	1200	600	5	12	15	15	29	40	26	18	54
500	900	700	3	7	7	12	24	15	15	14	49
500	1200	700	3	9	10	16	26	24	20	15	64
630	900	830	2	6	6	14	21	16	16	10	61
630	1200	830	3	7	9	16	26	19	17	12	78
800	900	1000	1	3	7	15	23	17	9	8	80
800	1200	1000	2	5	9	13	22	16	11	11	102

Technical data



Product codes

NRFB 100 - d - L

Marking

- NRFB 100 – absorption material mineral wool
- NRPB 100 – absorption material synthetic sound insulation

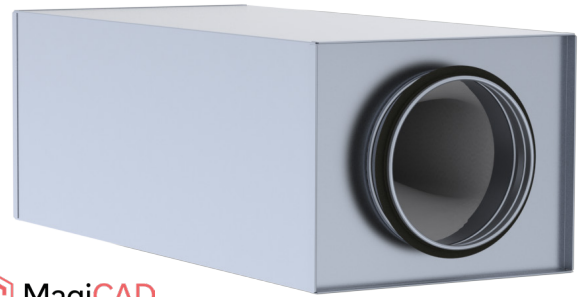
Diameter d

Length L

Example: NRFB 100 315-900

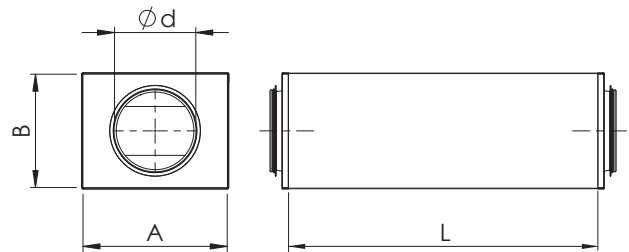
NKE Silencer

NKE rectangular silencer with round duct connections and without perforated sheet inside. Suitable for general ventilation system silencer, especially in situations where the silencer dimensions should be smaller and the absorption values should be good.



Design and Dimensions

NKE's outer shell is made of galvanized sheet steel. Connections are with rubber gaskets. Sound absorption duct element with good attenuation characteristics is made from special formed synthetic material and covered by fabric. Standard lengths 600 and 1000 mm.

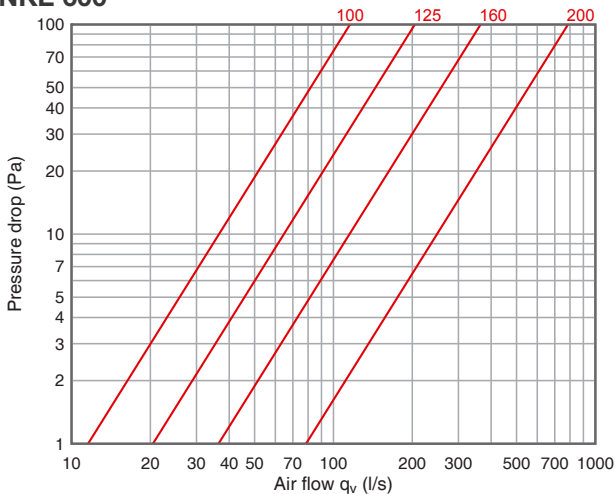


Sound attenuation

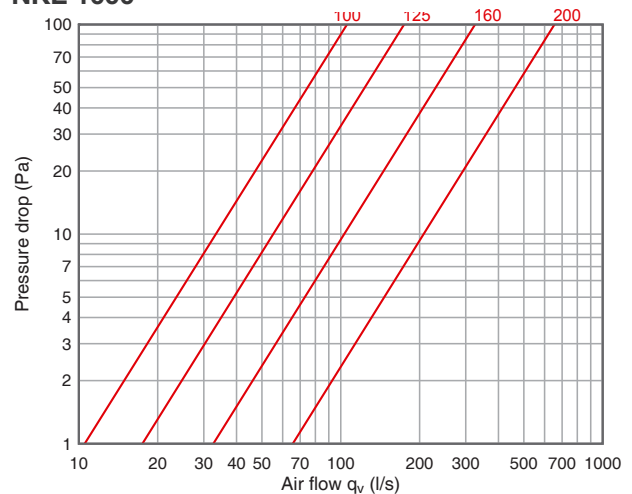
Nominal size Ød mm	L, mm	A, mm	B, mm	Sound attenuation (dB)								Weight, kg
				Mean frequency of octave band (Hz)								
				63	125	250	500	1000	2000	4000	8000	
100	600	215	160	8	7	16	19	25	38	38	36	3,6
125	600	245	185	7	7	11	17	27	31	25	23	4,2
160	600	285	225	6	7	10	15	20	22	21	18	5,0
200	600	325	260	8	5	9	12	7	17	13	15	5,9
100	1000	215	160	8	16	19	27	39	49	40	47	5,4
125	1000	245	185	8	11	15	25	39	47	38	35	6,2
160	1000	285	225	8	12	15	23	33	42	34	25	7,6
200	1000	325	260	8	12	13	24	27	37	21	23	8,7

Pressure drop

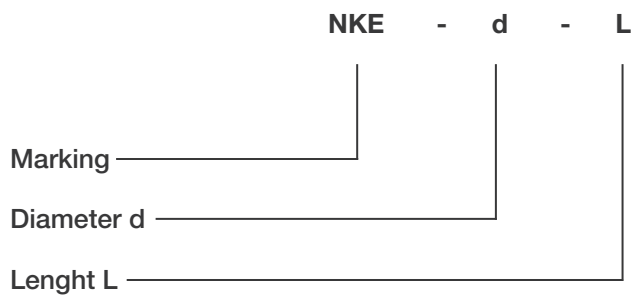
NKE 600



NKE 1000



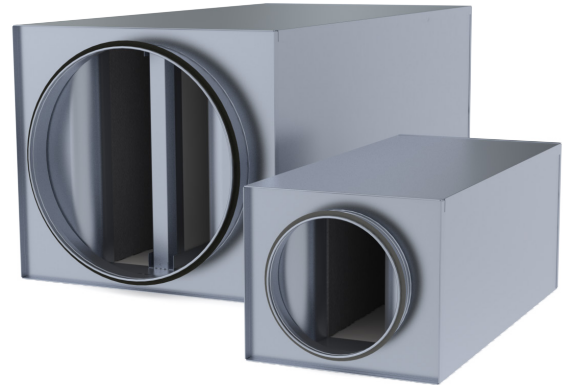
Product codes



Example: NKE 125-600

NTF/NTP Silencer

NTF rectangular silencer with round duct connections and without perforated sheet inside. Suitable for general ventilation system silencer, especially in situations where the silencer dimensions should be smaller and the absorption values should be good.



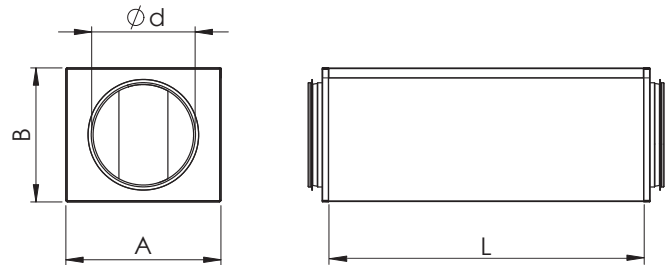
Advantages:

- Silencer's dimensions are minimized while maintaining excellent noise reduction characteristics
- Low pressure drop due to streamlined geometry
- Insulation material is resistant to cleaning (nylon brush)
- Insulation material coating does not absorb moisture
- Density class C

Design and Dimensions

NTF/NTP silencers outer shell is made of galvanized sheet steel. Connections are with rubber gaskets. Sound absorption duct element with good attenuation characteristics is made from mineral wool (Cleantec coated) or synthetic material. Used synthetic insulation is classified as M1. Silencers with Ø 400-600 includes also separate absorption element.

Standard lengths 300, 600 and 1000 mm.



Sound attenuation

Sound attenuation is specified to ISO 7235, i.e. static integral attenuation for duct products.

NTF (absorption material mineral wool)

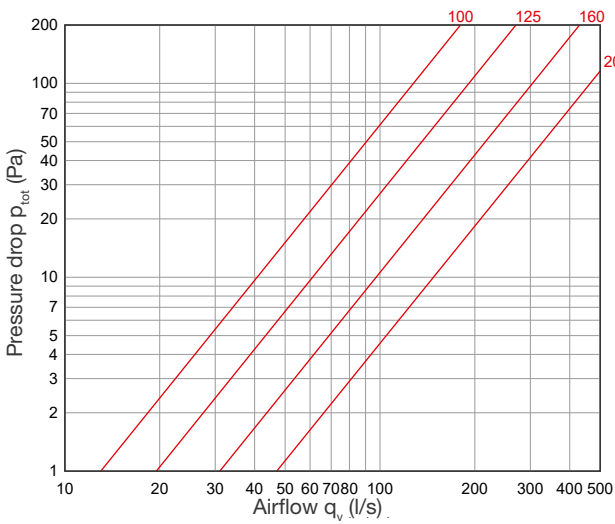
Nominal size	Ød mm	L, mm	A, mm	B, mm	Sound attenuation (dB)								Weight, kg
					Mean frequency of octave band (Hz)								
					63	125	250	500	1000	2000	4000	8000	
	100	300	210	155	7	8	11	20	22	20	20	15	3,0
	100	600	210	155	9	16	19	32	41	43	40	26	4,7
	100	1000	210	155	7	28	28	50	50	51	51	45	6,9
	125	300	225	180	3	11	8	16	17	16	15	11	3,4
	125	600	225	180	6	17	14	31	35	39	34	23	5,3
	125	1000	225	180	6	24	20	49	50	50	47	31	7,8
	160	300	280	215	3	5	8	13	13	16	15	11	4,4
	160	600	280	215	6	9	15	23	28	31	26	19	6,8
	160	1000	280	215	8	15	20	42	41	50	43	30	10,0
	200	300	295	255	3	4	7	11	12	15	11	9	5,0
	200	600	295	255	5	10	15	20	24	26	21	15	7,7
	200	1000	295	255	7	16	25	40	48	49	40	27	11,3
	250	600	325	305	7	7	13	17	22	22	17	12	9,1
	250	1000	325	305	10	13	22	32	40	39	29	21	13,3
	315	600	365	370	3	6	10	13	17	15	14	12	10,8
	315	1000	365	370	6	9	16	22	28	25	21	17	15,8
	400	600	510	455	6	8	10	14	23	30	24	16	17,5
	400	1000	510	455	7	14	17	24	38	44	41	27	25,5
	500	600	560	555	1	9	11	20	26	26	21	16	21,6
	500	1000	560	555	4	12	20	30	40	40	34	25	31,6
	630	600	720	685	8	9	13	19	23	25	19	16	30,4
	630	1000	720	685	13	15	21	33	39	38	32	25	45,1

NTP (absorption material synthetic sound insulation)

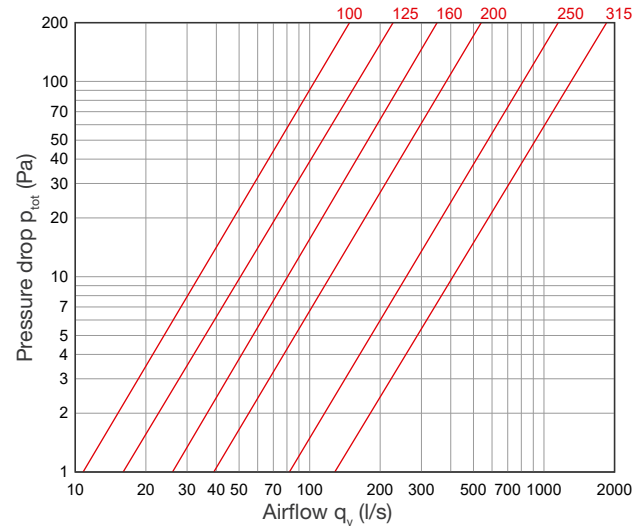
Nominal size				Sound attenuation (dB)								Weight, kg
Ød mm	L, mm	A, mm	B, mm	Mean frequency of octave band (Hz)								
				63	125	250	500	1000	2000	4000	8000	
100	300	210	155	8	10	8	10	16	24	20	15	2,9
100	600	210	155	16	15	14	17	29	35	37	31	4,5
100	1000	210	155	14	22	18	29	37	46	44	43	6,6
125	300	225	180	4	11	7	11	20	20	16	12	3,3
125	600	225	180	7	14	11	18	28	33	34	23	5,1
125	1000	225	180	14	18	16	25	36	44	44	37	7,5
160	300	280	215	5	8	7	13	21	19	17	13	4,3
160	600	280	215	13	9	10	19	29	33	30	22	6,6
160	1000	280	215	13	13	16	26	37	44	44	37	9,6
200	300	295	255	4	6	7	12	17	15	12	9	4,8
200	600	295	255	16	7	11	17	28	31	24	17	7,4
200	1000	295	255	17	11	16	24	37	43	42	30	10,8
250	600	325	305	11	4	9	16	27	24	18	13	8,7
250	1000	325	305	14	8	14	22	34	39	27	18	12,7
315	600	365	370	4	5	8	14	22	16	15	12	10,3
315	1000	365	370	8	8	12	20	30	29	22	17	15,0
400	600	510	455	7	7	11	17	21	25	22	18	16,4
400	1000	510	455	8	11	15	25	33	36	35	29	23,7
500	600	560	555	0	8	10	18	24	26	23	19	20,3
500	1000	560	555	3	11	15	25	36	37	38	35	29,4
630	600	720	685	8	8	11	18	24	26	22	19	28,2
630	1000	720	685	11	12	17	27	34	37	36	27	41,4

Pressure drop for dimensions 100-315

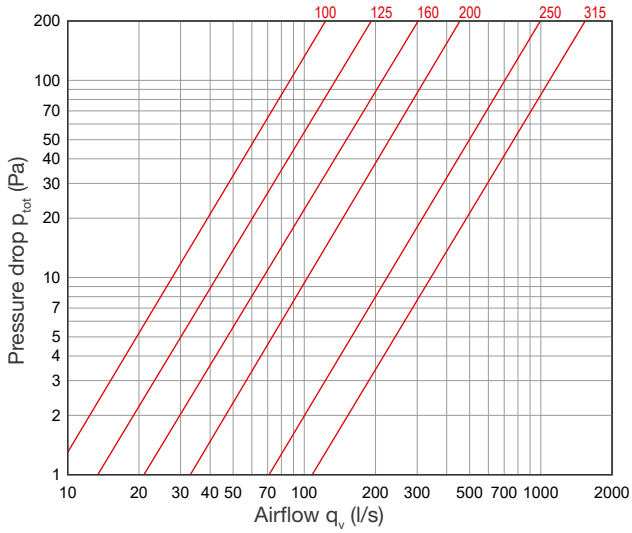
NTF/NTP L=300



NTF/NTP L=600

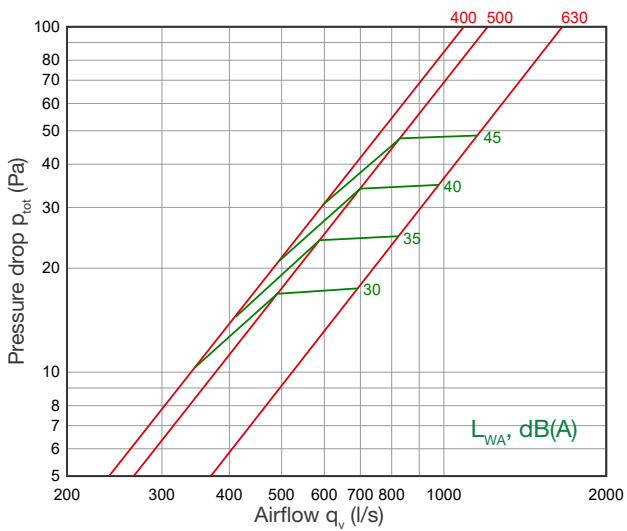


NTF/NTP L=1000

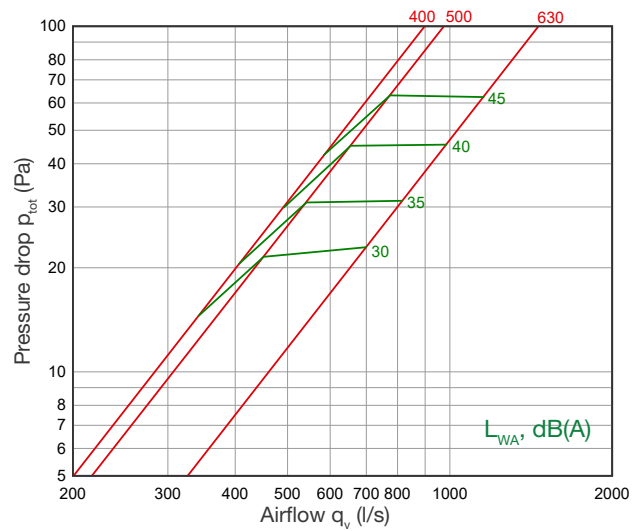


Pressure drop for dimensions 400-600

NTF/NTP L=600



NTF/NTP L=1000



$$L_{w,okt} = L_{WA} + K_{okt}$$

NTF/NTP	Sound level correction factor K_{okt} (dB)							
	63	125	250	500	1k	2k	4k	8k
NTF/NTP 400-600	17	7	-1	-4	-5	-9	-15	-21
NTF/NTP 400-1000	14	5	0	-4	-5	-8	-15	-22
NTF/NTP 500-600	7	5	0	-3	-5	-8	-14	-21
NTF/NTP 500-1000	8	5	1	-3	-5	-9	-15	-22
NTF/NTP 600-600	10	4	-3	-4	-4	-7	-15	-20
NTF/NTP 600-1000	8	3	-4	-4	-5	-6	-14	-22

Product codes

NTF - d - L

Marking

NTF – absorption material mineral wool
NTP – absorption material synthetic sound insulation

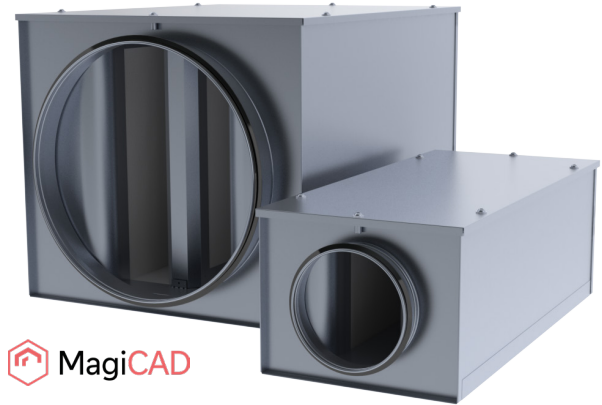
Diameter d

Lenght

Example: NTF 160-600

NTFA/NTPA Silencer, openable

NTFA openable rectangular silencer with round duct connections and without perforated sheet inside. Suitable for general ventilation system silencer, especially in situations where the silencer dimensions should be smaller and the absorption values should be good.



Advantages:

- Silencer's dimensions are minimized while maintaining excellent noise reduction characteristics
- Low pressure drop due to streamlined geometry
- Insulation material is resistant to cleaning (nylon brush)
- Insulation material coating does not absorb moisture
- Used as a cleaning and inspection door
- Density class C

Design and Dimensions

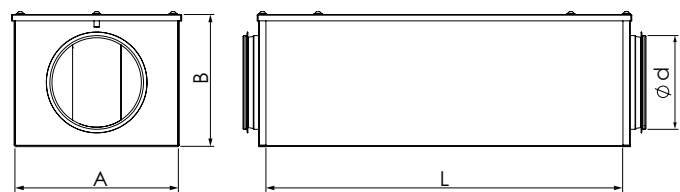
NTFA/NTPA silencers outer shell is made of galvanized sheet steel. Connections are with rubber gaskets. Sound absorption duct element with good attenuation characteristics is made from mineral wool (Cleantec coated) or synthetic material. Used synthetic insulation is classified as M1.

Silencers with Ø 400-600 includes also separate absorption element. Standard lengths 300, 600 and 1000 mm.

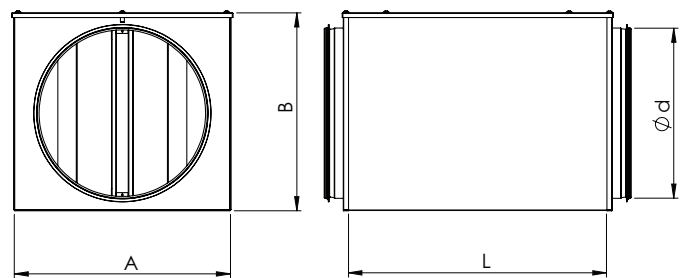
Sound attenuation

Sound attenuation is specified to ISO 7235, i.e. static integral attenuation for duct products.

Ø 100-315



Ø 400-630



NTFA (absorption material mineral wool)

Nominal size	Ød mm	L, mm	A, mm	B, mm	Sound attenuation (dB)							Weight, kg	
					Mean frequency of octave band (Hz)								
					63	125	250	500	1000	2000	4000	8000	
100	300	210	161	161	7	8	11	20	22	20	20	15	3,1
100	600	210	161	161	9	16	19	32	41	43	40	26	4,8
100	1000	210	161	161	7	28	28	50	50	51	51	45	7,1
125	300	225	186	186	3	11	8	16	17	16	15	11	3,5
125	600	225	186	186	6	17	14	31	35	39	34	23	5,5
125	1000	225	186	186	6	24	20	49	50	50	47	31	8,0
160	300	280	221	221	3	5	8	13	13	16	15	11	4,5
160	600	280	221	221	6	9	15	23	28	31	26	19	7,0
160	1000	280	221	221	8	15	20	42	41	50	43	30	10,2
200	300	295	261	261	3	4	7	11	12	15	11	9	5,2
200	600	295	261	261	5	10	15	20	24	26	21	15	7,9
200	1000	295	261	261	7	16	25	40	48	49	40	27	11,6

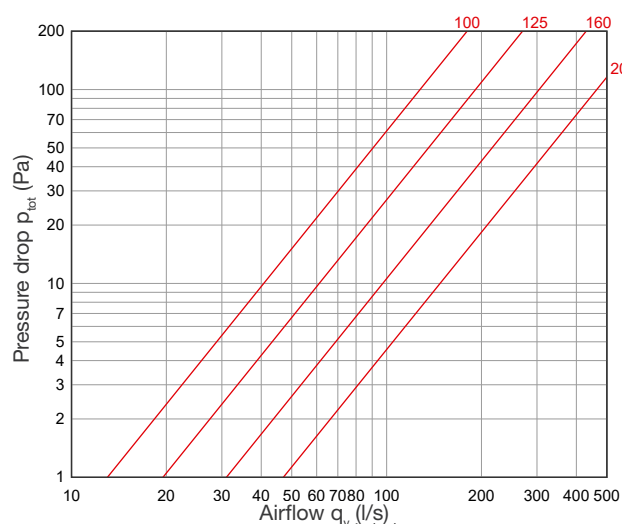
Nominal size Ød mm	L, mm	A, mm	B, mm	Sound attenuation (dB)								Weight, kg
				Mean frequency of octave band (Hz)								
				63	125	250	500	1000	2000	4000	8000	
250	600	325	311	7	7	13	17	22	22	17	12	9,3
250	1000	325	311	10	13	22	32	40	39	29	21	13,6
315	600	365	376	3	6	10	13	17	15	14	12	11,1
315	1000	365	376	6	9	16	22	28	25	21	17	16,2
400	600	510	461	6	8	10	14	23	30	24	16	17,9
400	1000	510	461	7	14	17	24	38	44	41	27	26,1
500	600	560	561	1	9	11	20	26	26	21	16	22,1
500	1000	560	561	4	12	20	30	40	40	34	25	32,3
630	600	720	691	8	9	13	19	23	25	19	16	31,1
630	1000	720	691	13	15	21	33	39	38	32	25	46,1

NTPA (absorption material synthetic sound insulation)

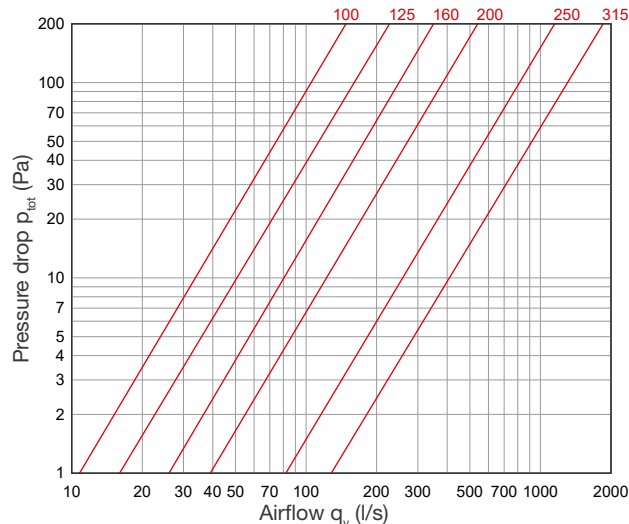
Nominal size Ød mm	L, mm	A, mm	B, mm	Sound attenuation (dB)								Weight, kg
				Mean frequency of octave band (Hz)								
				63	125	250	500	1000	2000	4000	8000	
100	300	210	161	8	10	8	10	16	24	20	15	3,0
100	600	210	161	16	15	14	17	29	35	37	31	4,7
100	1000	210	161	14	22	18	29	37	46	44	43	6,9
125	300	225	186	4	11	7	11	20	20	16	12	3,4
125	600	225	186	7	14	11	18	28	33	34	23	5,4
125	1000	225	186	14	18	16	25	36	44	44	37	7,8
160	300	280	221	5	8	7	13	21	19	17	13	4,3
160	600	280	221	13	9	10	19	29	33	30	22	6,9
160	1000	280	221	13	13	16	26	37	44	44	37	10,0
200	300	295	261	4	6	7	12	17	15	12	9	5,0
200	600	295	261	16	7	11	17	28	31	24	17	7,7
200	1000	295	261	17	11	16	24	37	43	42	30	11,3
250	600	325	311	11	4	9	16	27	24	18	13	9,1
250	1000	325	311	14	8	14	22	34	39	27	18	13,3
315	600	365	376	4	5	8	14	22	16	15	12	10,8
315	1000	365	376	8	8	12	20	30	29	22	17	15,6
400	600	510	464	7	7	11	17	21	25	22	18	17,1
400	1000	510	461	8	11	15	25	33	36	35	29	24,7
500	600	560	561	0	8	10	18	24	26	23	19	21,2
500	1000	560	561	3	11	15	25	36	37	38	35	30,6
630	600	720	691	8	8	11	18	24	26	22	19	29,4
630	1000	720	691	11	12	17	27	34	37	36	27	43,1

Pressure drop for dimensions 100-315

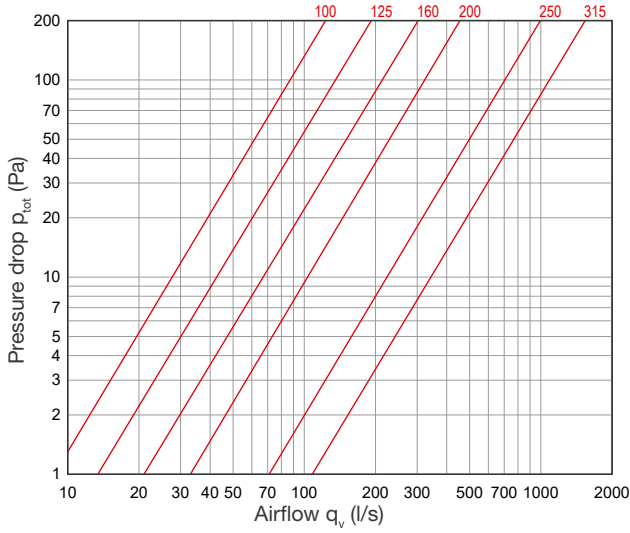
NTFA/NTPA L=300



NTFA/NTPA L=600

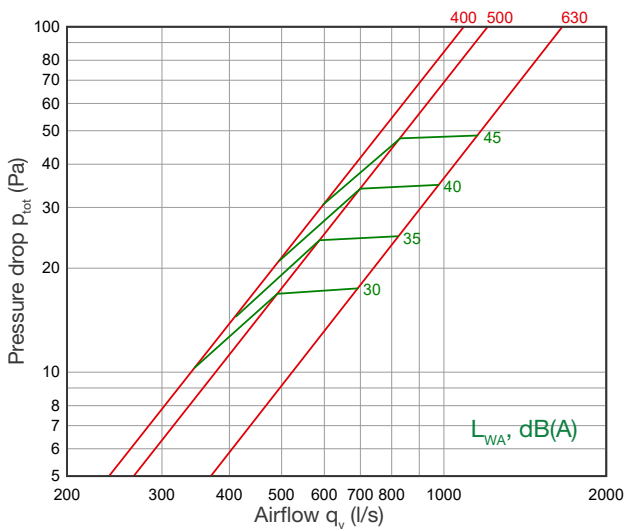


NTFA/NTPA L= 1000

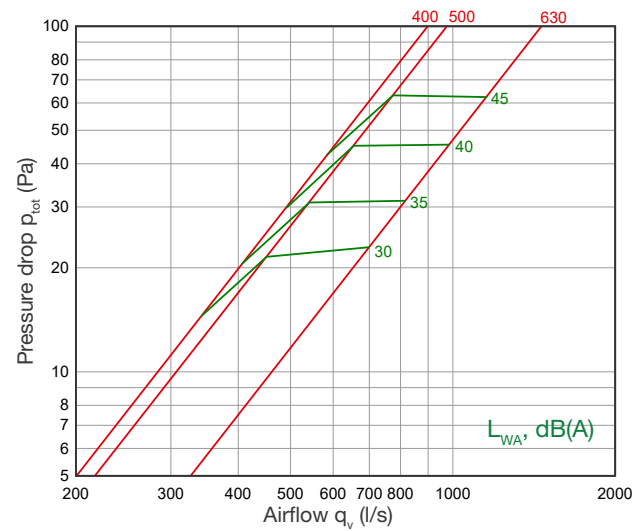


Pressure drop for dimensions 400-630

NTFA/NTPA L=600



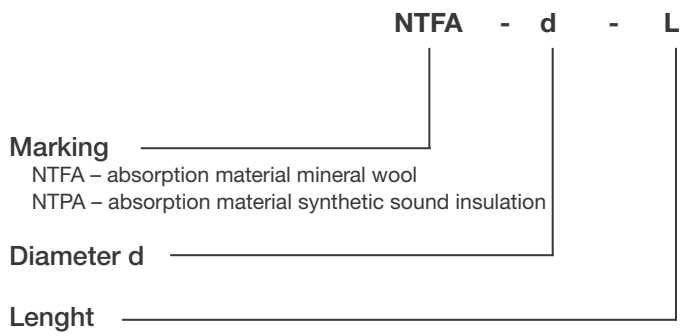
NTFA/NTPA L=1000



$$L_{w,okt} = L_{WA} + K_{okt}$$

NTFA/NTPA	Sound level correction factor K_{okt} (dB)							
	63	125	250	500	1k	2k	4k	8k
NTFA/NTPA 400-600	17	7	-1	-4	-5	-9	-15	-21
NTFA/NTPA 400-1000	14	5	0	-4	-5	-8	-15	-22
NTFA/NTPA 500-600	7	5	0	-3	-5	-8	-14	-21
NTFA/NTPA 500-1000	8	5	1	-3	-5	-9	-15	-22
NTFA/NTPA 630-600	10	4	-3	-4	-4	-7	-15	-20
NTFA/NTPA 630-1000	8	3	-4	-4	-5	-6	-14	-22

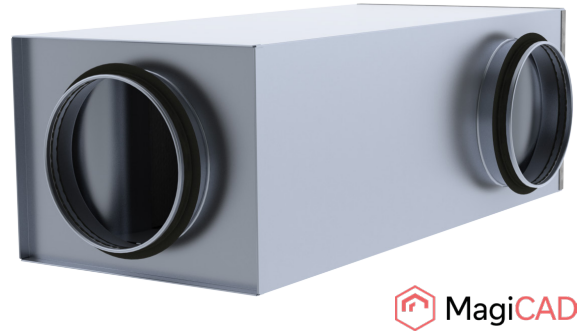
Product codes



Example: NTFA 160-600

NKL Bend silencer

Rectangular bend silencer with round duct connections and without perforated sheet inside. Suitable for general ventilation system silencer and where a horizontal right-angled change of direction is required, especially in situations where the silencer dimensions should be smaller and the absorption values should be good. We recommend using the MagiCAD web tool (www.magicad.cloud) to select the appropriate silencer and optimize the connection size and length for best performance.

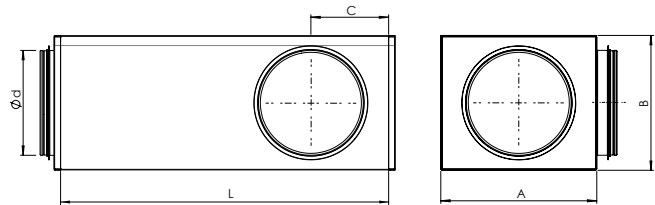


- Diameters 100-200 mm
- Silencer's dimensions are minimized while maintaining excellent noise reduction characteristics
- The compactness of the silencer makes it suitable for installation above suspended ceilings or in places where installation space is limited
- Insulation material is resistant to cleaning (nylon brush)
- Insulation material coating does not absorb moisture
- Density class C

Design and Dimensions

NKL silencers outer shell is made of galvanized sheet steel. Connections are with rubber gaskets. Sound absorption duct element with good attenuation characteristics is made from synthetic material. Used synthetic insulation is classified as M1. Standard lengths 600 and 1000 mm.

Nominal size					Weight
Ød mm	L, mm	A, mm	B, mm	C, mm	kg
100	600	210	155	100	4,8
100	1000	210	155	100	7,1
125	600	225	180	112	5,5
125	1000	225	180	112	8,0
160	600	280	215	130	7,0
160	1000	280	215	130	10,2
200	600	295	255	150	7,9
200	1000	295	255	150	11,6



Technical data

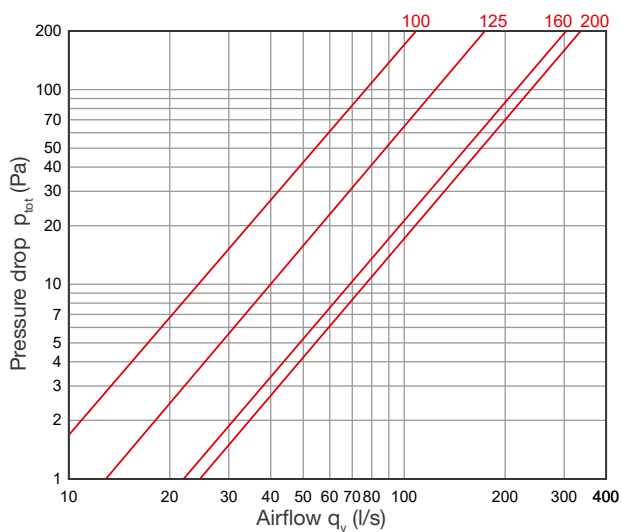
Sound attenuation

Sound attenuation is specified to ISO 7235, i.e. static integral attenuation for duct products.

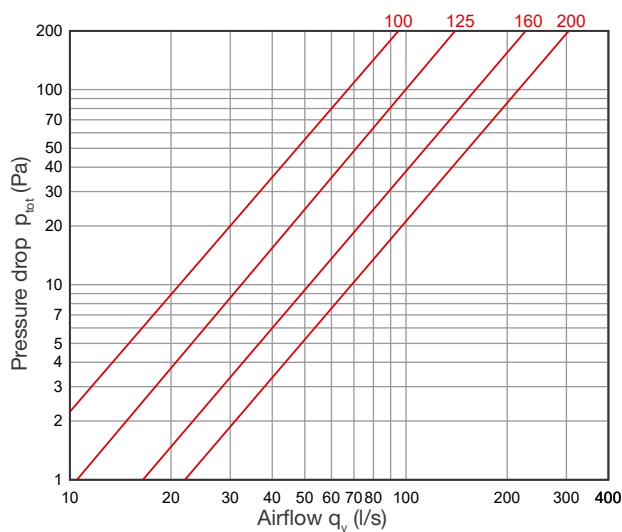
	Sound attenuation (dB)							
	Mean frequency of octave band (Hz)							
	63	125	250	500	1000	2000	4000	8000
NKL 100/600	6	16	18	17	31	37	41	35
NKL 100/1000	0	23	25	25	41	48	47	44
NKL 125/600	1	17	14	18	28	34	39	30
NKL 125/1000	4	24	20	25	37	43	47	44
NKL 160/600	0	15	14	20	28	32	31	29
NKL 160/1000	6	19	20	26	36	44	48	44
NKL 200/600	5	10	12	21	26	28	26	25
NKL 200/1000	11	13	18	27	35	44	42	36

Pressure drop

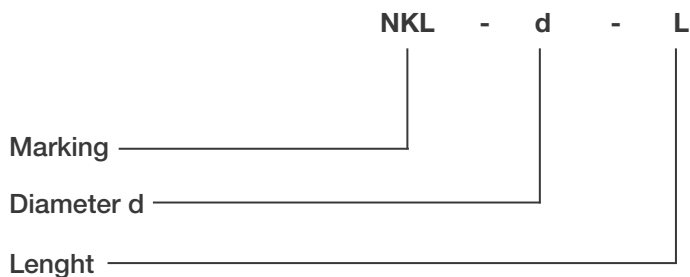
NKL L=600



NKL L=1000



Product codes



Example: NKL 160-600

NKU Bend silencer

Rectangular bend silencer with round duct connections and without perforated sheet inside. Suitable for general ventilation system silencer and where a vertical right-angled change of direction is required, especially in situations where the silencer dimensions should be smaller and the absorption values should be good. We recommend using the MagiCAD web tool (www.magicad.cloud) to select the appropriate silencer and optimize the connection size and length for best performance.

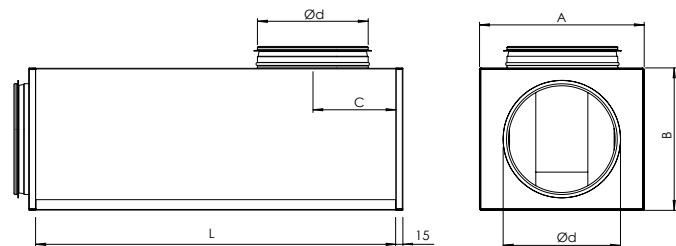


- Diameters 100-200 mm
- Silencer's dimensions are minimized while maintaining excellent noise reduction characteristics
- The compactness of the silencer makes it suitable for installation above suspended ceilings or in places where installation space is limited
- Insulation material is resistant to cleaning (nylon brush)
- Insulation material coating does not absorb moisture
- Density class C

Design and Dimensions

NKU silencers outer shell is made of galvanized sheet steel. Connections are with rubber gaskets. Sound absorption duct element with good attenuation characteristics is made from synthetic material. Used synthetic insulation is classified as M1. Standard lengths 600 and 1000 mm.

Nominal size	Weight				
Ød mm	L, mm	A, mm	B, mm	C, mm	kg
100	600	210	155	100	4,8
100	1000	210	155	100	7,1
125	600	225	180	112	5,5
125	1000	225	180	112	8,0
160	600	280	215	130	7,0
160	1000	280	215	130	10,2
200	600	295	255	150	7,9
200	1000	295	255	150	11,6



Technical data

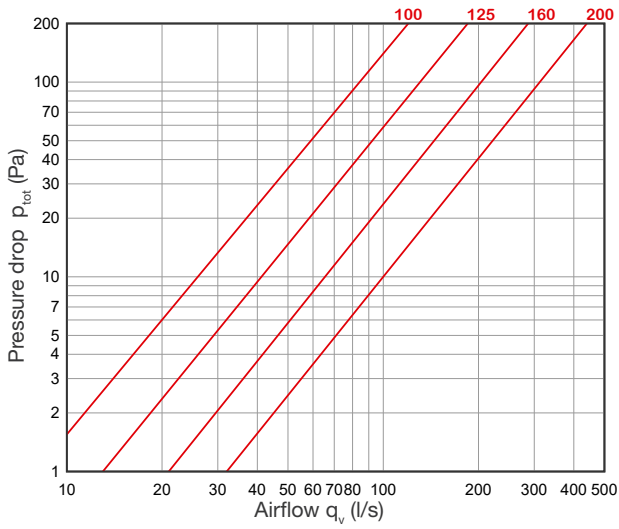
Sound attenuation

Sound attenuation is specified to ISO 7235, i.e. static integral attenuation for duct products.

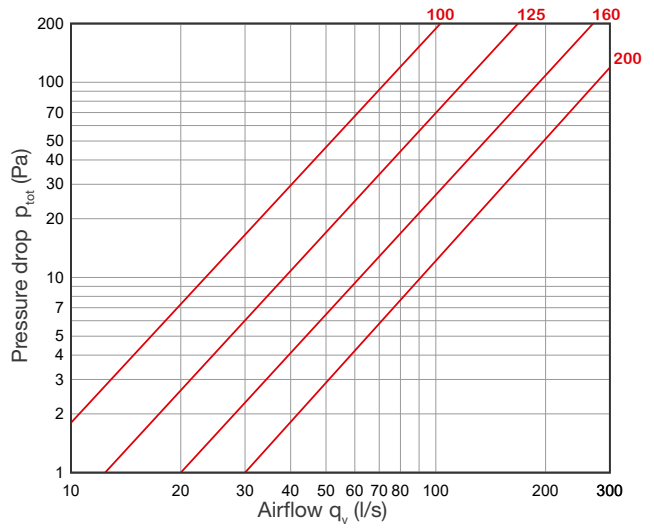
	Sound attenuation (dB)							
	Mean frequency of octave band (Hz)							
	63	125	250	500	1000	2000	4000	8000
NKU 100/600	9	15	18	17	35	38	40	36
NKU 100/1000	1	23	24	23	43	50	43	43
NKU 125/600	2	18	15	18	32	36	34	30
NKU 125/1000	4	24	20	23	41	47	48	44
NKU 160/600	1	15	15	20	32	33	29	27
NKU 160/1000	8	20	20	27	41	45	46	41
NKU 200/600	4	10	12	24	30	26	25	22
NKU 200/1000	12	12	18	30	39	42	40	34

Pressure drop

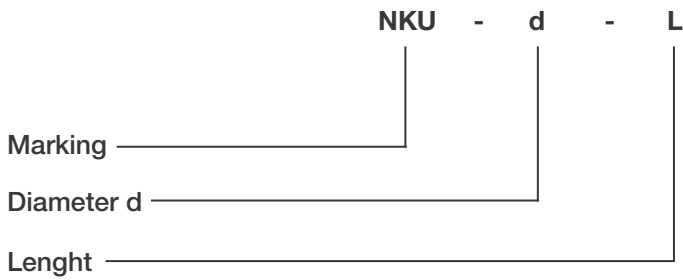
NKU L=600



NKU L=1000



Product codes

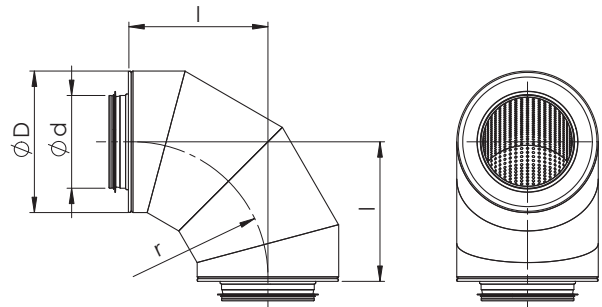


Example: NKU 160-600

NRFV/NRPV Bend silencer

Design

Round ventilation system bend silencer with round connections and rubber gaskets (according to standard EVS-EN 1506). NRFV-silencer's sound absorption material is mineral wool and NRPV-silencer's a synthetic sound insulation. The perforated inner tube and outer shell are manufactured of galvanized steel. Between the inner tube and the mineral wool insulation, there is fabric to prevent wool particles from entering the duct system.



Dimensions and Weights

Sound attenuation

NRFV, insulation thickness 50 mm (absorption material mineral wool)

Nominal size			Sound attenuation (dB)									Weight, kg
Ød mm	ØD, mm	l, mm	Mean frequency of octave band (Hz)									
			63	125	250	500	1000	2000	4000	8000		
125	225	225	2	3	7	13	22	31	30	24	3,5	
160	260	260	1	3	8	14	20	24	30	24	4,2	
200	300	300	1	3	8	14	32	26	44	25	6,7	
250	350	350	1	2	6	15	27	28	26	23	9,8	
315	415	415	0	2	4	13	18	19	17	16	14,2	

Product codes

NRFV - 100 - d

Marking

- NRFV – absorption material mineral wool
- NRPV – absorption material synthetic sound insulation

Insulation thickness

- 50 mm
- 100 mm

Diameter d

Example: NRFV 50-315

MSK/MSP Rectangular silencer

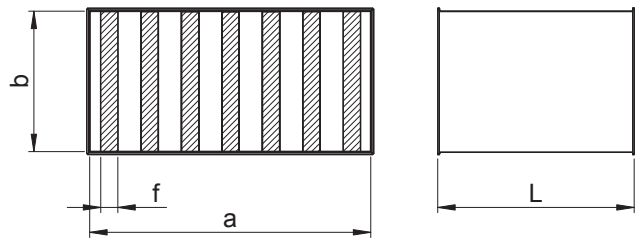
MSK/MSP-rectangular silencer for rectangular duct systems. Suitable for use in exhaust, intake, discharge and supply air handling systems.

The elements are available in a widths 100, 150, and 200 mm. Standard lengths of rectangular silencers are 1250 and 2000 mm.



Design and Dimensions

The MSK and MSP consists of an outer shell and absorption element manufactured of galvanized steel (standard) with z-flange at both ends. Silencers can also be manufactured of aluminium, stainless steel or acid-proof steel. MSK absorption material: mineral wool board, covered with black glass fibre textile. MSP absorption material: synthetic sound insulation.



MSK Sound attenuation (absorption material mineral wool)

(Width a= 400, 600, 800, 1000, 1200, 1400, 1600, 1800, 2000, 2200, 2400)

Element width	MSK Elements spacing	Lenght L	Sound attenuation (dB)							
			Mean frequency of octave band (Hz)							
			63	125	250	500	1k	2k	4k	8k
100	100	600	1	2	6	14	29	23	17	10
		900	2	3	7	18	40	29	21	12
		1250	3	5	9	23	49	37	26	15
		1500	3	6	10	29	50	43	31	18
		1800	4	6	11	34	50	46	35	20
		2200	5	8	13	39	50	49	40	23
		2400	6	9	16	43	50	50	44	25
200	100	600	2	5	13	21	27	22	18	13
		900	3	8	20	31	29	26	23	17
		1250	4	11	26	45	47	37	29	19
		1500	5	14	32	47	49	42	35	22
		1800	7	16	38	50	50	47	38	25
		2000	8	18	43	50	50	50	41	28
		2400	9	21	46	50	50	50	44	31

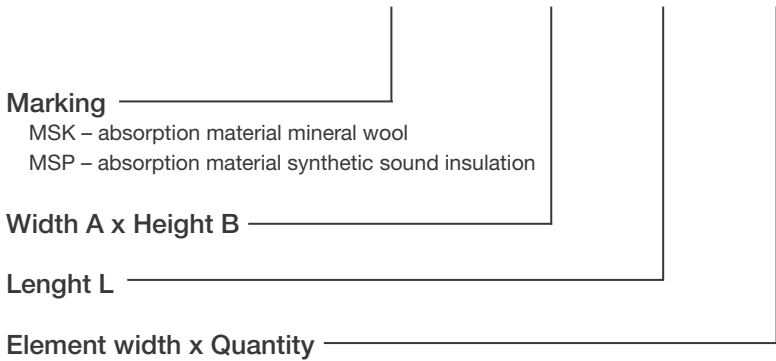
MSP sound attenuation (absorption material synthetic sound insulation)

(Width a=400, 600, 800, 1000, 1200, 1400, 1600, 1800, 2000, 2200, 2400)

MSP			Sound attenuation (dB)							
Element width	Elements spacing	Lenght L	Mean frequency of octave band (Hz)							
			63	125	250	500	1k	2k	4k	8k
100	100	600	1	2	6	10	19	19	15	11
		900	2	3	7	11	24	20	16	12
		1250	2	5	9	17	33	31	22	19
		1500	3	6	12	21	42	36	26	21
		1800	5	7	14	25	47	41	31	25
		2000	6	10	16	29	50	45	36	28
		2400	7	11	18	33	50	49	40	32
Element width	Elements spacing	Lenght L	63	125	250	500	1k	2k	4k	8k
200	100	600	3	5	12	22	23	16	14	12
		900	4	8	15	26	32	23	19	15
		1250	5	11	18	34	41	31	23	19
		1500	6	13	24	42	45	37	29	21
		1800	7	15	28	45	49	42	33	24
		2000	8	17	32	48	50	47	37	27
		2400	9	20	37	50	50	50	41	30

Product codes

MSK - A x B - L - f x n



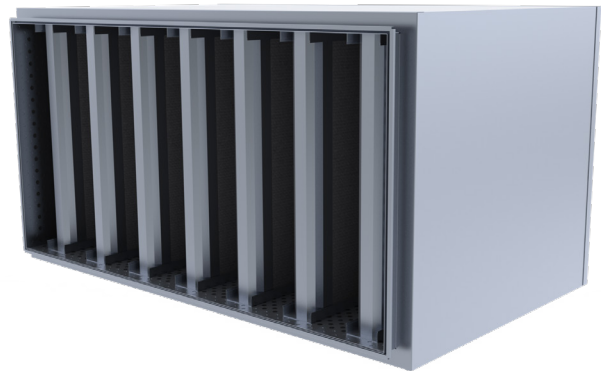
MSK – absorption material mineral wool
 MSP – absorption material synthetic sound insulation

Example: MSK 600x400–1000–100x3
MSP 600x400–1000–100x3

MSKI/MSPI Silencer

MSK/MSP-rectangular silencer for rectangular duct systems. Suitable for use in exhaust, intake and discharge, supply air handling systems.

The elements are available in a widths 100, 150 and 200 mm.
Standard lengths of rectangular silencers are 1250 and 2000 mm.

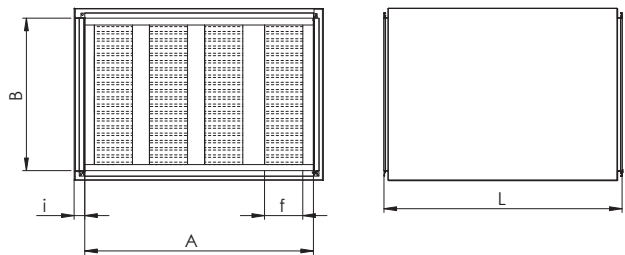


Design and Dimensions

MSKI and MSPI-silencers with noise reducing insulation are covered with galvanized sheet metal plate and the internal casing are made of perforated sheet metal plate. Dimensions **a** and **b** are for the internal casing. Z-flange are attached to the internal casing at both ends.

MSKI absorption material: mineral wool board, covered with black glass fibre textile.

MSPI absorption material: synthetic sound insulation.
For ventilation systems used in aggressive environments (or as special requirements) MSKI/MSPI silencers could be made of aluminium, stainless steel or acid-proof steel in special order.



Product codes

MSKI - i - A x B - L - f x n

Marking

- MSKI – absorption material mineral wool
- MSPI – absorption material synthetic sound insulation

Insulation

- S – thermal insulation: 50, 100 mm
- M – sound insulation: 30, 50, 100 mm
- CL50 – sound insulation "cleanable": 50 mm
- EI – fire insulation: 30, 60, 90, 120 min

Width A x Height B

Length L

Element width x Quantity

Example: MSKI-S50 600x400 - 1000 - 100x3
MSPI-M50 600x400 - 1000 - 100x3

MSKA/MSPA Silencer, openable

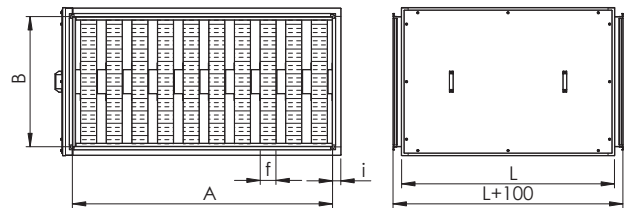
MSKA/MSPA-openable rectangular silencer for rectangular duct systems. Suitable for use in exhaust, intake, discharge and supply air handling systems.

The elements are available in a widths 100, 150 and 200 mm.
 Standard lengths of rectangular silencers are 1250 and 2000 mm.
 Silencer casing tightness class C.



Design and Dimensions

MSKA/MSPA casing and absorption elements are manufactured of galvanized steel (standard) with z-flange at both ends.
 MSKIA/MSPIA insulated outer casing and absorption elements are manufactured of galvanized steel sheet.
 Measures a and b are the internal casing dimensions.
 Z-flanges for duct connection are attached to the internal casing.
 MSKA/MSKIA absorption material: mineral wool board, covered with black glass fibre textile.
 MSPA/MSPIA absorption material: synthetic sound insulation.
 Silencers can also be manufactured of aluminium, stainless steel or acid-proof steel in special order.



MSKA Sound attenuation (absorption material mineral wool)

(Width a=400, 600, 800, 1000, 1200, 1400, 1600, 1800, 2000, 2200, 2400)

Element width	MSKA Elements spacing	Lenght L	Sound attenuation (dB)							
			Mean frequency of octave band (Hz)							
			63	125	250	500	1k	2k	4k	8k
100	100	600	1	2	6	14	29	23	17	10
		900	2	3	7	18	40	29	21	12
		1250	3	5	9	23	49	37	26	15
		1500	3	6	10	29	50	43	31	18
		1800	4	6	11	34	50	46	35	20
		2000	5	8	13	39	50	49	40	23
		2400	6	9	16	43	50	50	44	25
200	100	600	2	5	13	21	27	22	18	13
		900	3	8	20	31	29	26	23	17
		1250	4	11	26	45	47	37	29	19
		1500	5	14	32	47	49	42	35	22
		1800	7	16	38	50	50	47	38	25
		2000	8	18	43	50	50	50	41	28
		2400	9	21	46	50	50	50	44	31

MSPA sound attenuation (absorption material synthetic sound insulation)

(Width a=400, 600, 800, 1000, 1200, 1400, 1600, 1800, 2000, 2200, 2400)

MSPA			Sound attenuation (dB)							
Element width	Elements spacing	Lenght L	Mean frequency of octave band (Hz)							
			63	125	250	500	1k	2k	4k	8k
100	100	600	1	2	6	10	19	19	15	11
		900	2	3	7	11	24	20	16	12
		1250	2	5	9	17	33	31	22	19
		1500	3	6	12	21	42	36	26	21
		1800	5	7	14	25	47	41	31	25
		2000	6	10	16	29	50	45	36	28
		2400	7	11	18	33	50	49	40	32
200	100	600	3	5	12	22	23	16	14	12
		900	4	8	15	26	32	23	19	15
		1250	5	11	18	34	41	31	23	19
		1500	6	13	24	42	45	37	29	21
		1800	7	15	28	45	49	42	33	24
		2000	8	17	32	48	50	47	37	27
		2400	9	20	37	50	50	50	41	30

Product codes

MSKA - i - A x B - L - f x n

Marking

MSKA – absorption material mineral wool
 MSPA – absorption material synthetic sound insulation

Insulation

S – thermal insulation: 50, 100 mm
 M – sound insulation: 30, 50, 100 mm
 CL50 – sound insulation "cleanable": 50 mm
 EI – fire insulation: 30, 60, 90, 120 min

Width A x Height B

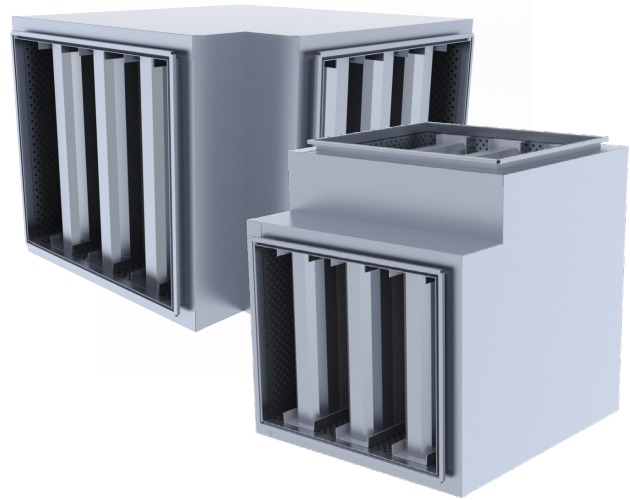
Lenght L

Element width x Quantity

Example: MSKA 500x400 - 1250 - 150x2
MSKIA-S50 500x400 - 1250 - 150x2

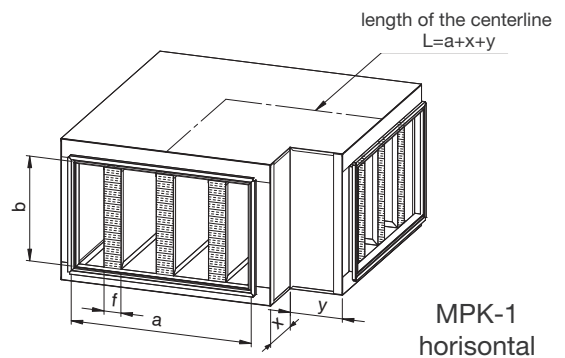
MPK/MPP Rectangular bend-silencer

PK-rectangular bend silencer is designed for noise reduction in rectangular ventilation systems. There are two different types of MPK silencers – vertical and horizontal. The outer shell can be without insulation or insulated.



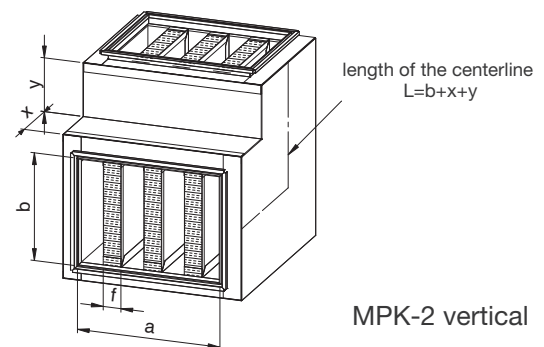
Design

MPK silencer consists of an outer shell and absorption elements manufactured of galvanized steel as standard with z-flange at both ends. MPKI silencers with noise reducing insulation are covered with galvanized sheet metal plate and the internal casing are made of perforated sheet metal plate. Dimensions a and b are for the internal casing. Z-flange are attached to the internal casing at both ends.



Sound attenuation

Choose from MSK table suitable silencer, which damping characteristics are sufficient and also calculate the length of the centerline of the silencer using the following formula:
Horizontal pad: $L = a + x + y$
Vertical pad: $L = b + x + y$



Product codes

MPK - 1 - i - A x B - x-y - f x n

Marking

- MPK – absorption material mineral wool
- MPP – absorption material synthetic sound insulation
- MPKI – insulated, absorption material mineral wool
- MPPI – insulated, absorption material synthetic sound insulation

Type

- 1 - horizontal
- 2 - vertical

Insulation

- S – thermal insulation: 50, 100 mm
- M – sound insulation: 30, 50, 100 mm
- CL50 – sound insulation "cleanable": 50 mm
- EI – fire insulation: 30, 60, 90, 120 min

Width A x Height B

Depression x-y

min. 150 mm

Element width x Quantity

Example: MPKI-1 MP50-500x400-150-150-2x100



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