



ABSORPTION SILENCERS, WITH 200 and 100 mm BAFFLES

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OVERVIEW TECHNICAL CHARACTERISTICS

OVERVIEW:

The rectangular shaped SA series of silencers are basic elements for air-conditioning plants, as they allow the noise generated in air ducting to be reduced. They can be used for air or smoke intake or expulsion systems, ventilation for soundproofed cabins, cooling circuits for generator sets, and in air-conditioning and ventilation systems.

ABSORPTION SILENCERS:

These are used for all applications in which mean and high sound frequencies are between 500 Hz and 8000 Hz.

ABSORPTION SILENCERS AND RESONANCE:

These are used in all special applications where mean and low sound frequencies are between 120 Hz and 1000 Hz.

CHARACTERISTICS:

Silencer - outer frame: Made of galvanised steel sheet.

Silencer - fixing: By tightening bolts or nuts to connect the silencer's flange to that on the ducting.

Baffles - holding frame: In galvanised steel sheet.

Absorption and resonance baffles - holding sheet: The height of the baffle (H) is broken down into two equal sections and for the entire depth (P) the lower part is covered by a solid sheet. The upper part may be covered by a micro-expanded sheet.

Baffles - material used: Jacket made of high density mineral fibre, covered externally by a protective glass film.

Baffles - reaction to fire: Not inflammable - class 0.

SPECIAL SILENCERS:

SAR Model with baffles enclosed in micro-expanded steel sheet.

SARF model as the SAR but with baffles enclosed in micro-expanded steel sheet and water-repellent fibre form.

SR model absorption and resonance silencer

SRR model as per SR but with baffles enclosed by micro-expanded steel sheet.

SRRF MODEL as per SR but with baffles enclosed by micro-expanded steel sheet and water-repellent fiber form.

SL model External frame and baffle holding frame made of raw aluminium sheet.

SLR model as per SL but with baffles enclosed by micro-expanded steel sheet.

SLRF model as per SL but with baffles enclosed by micro-expanded steel sheet and water-repellent fibre form.

SI model Outer frame and baffle holding frame made of stainless steel sheet.

SIR model as per SI but with baffles enclosed by micro-expanded steel sheet.

SIRF model as per SI but with baffles enclosed by micro-expanded steel sheet and water-repellent fibre form.



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APPLICATIONS
SELECTION EXAMPLE

TABLE N° 1 APPLICATIONS IN TERMS OF NOISE EXPRESSED IN NR AND dB (A)		
	dB(A)	NR
Recording and music diffusion studios	20	25
Libraries and old age homes	25	30
Hospital wards	30	35
Multi-purpose halls, auditoriums, theatres, management	35	40
Medical consulting rooms	35	40
Data processing centres, and chemical and photographic	40	45
Open-plan offices and working environments	45	50
Waiting rooms, reception, and stores in general	50	55
Light industrial workshops, shopping centres, and shops	60	65
150,000 M3/H - FREQUENCY 500 TO 8000 Hz	200 mm absorption baffles	
150,000 M3/H - FREQUENCY 120 TO 1000 Hz	200 mm absorption and resonance baffles	
20,000 M3/H - FREQUENCY 500 TO 8000 Hz	100 mm absorption baffles	
20,000 M3/H - FREQUENCY 120 TO 1000 Hz	100 mm absorption and resonance baffles	

The noise indices indicated in table n 1 must be compared carefully with the reference standards for some specific plants.

In order to be able to calculate the exact size of silencer required, the following parameters must be defined:

- a) The noise level for the room, from table n 1.
- b) The type of baffles used from tables n 2 - 3 - 11 - 12, the pitch between baffles in mm, the depth of the silencer, and the noise attenuation in (dB) related to frequencies in (Hz).
- c) The base and height dimensions (BxH) from tables n 7 & 16 for the silencer in relation to the air flow rate (Q) expressed in m³/h and the front velocity expressed in m/s.
- d) The exact size of the base of the silencers from tables n 4 & 13 and the number of baffles related to the pitch.
- e) The load loss in (Pa) from tables n 6 & 15 and the front velocity at a distance of one metre, and the correction coefficient for the load losses for silencers of other depths from tables n 8 & 17.
- f) The noise generated by the silencer in NR from tables n 5 & 14 in relation to the baffle pitch.

EXAMPLE :

Plant with a ducted ventilation or air-conditioning system in a theatre:

- a) Noise index NR 35
- b) The attenuation by the silencer, taken for a theoretical phonometric acoustic analysis of the system, is as follows.

frequenza in Hz	63	125	250	500	1000	2000	4000	8000
dB di analisi	7	11	24	27	30	31	24	19



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APPLICATIONS SELECTION EXAMPLE

- c) Silencer flow rate 5900 m³/h
- d) Maximum expected load loss 38 Pa.
- e) maximum expected silencer depth 1200 mm.

SOLUTION :

The air flow rate of about 5900 m³/h defines the size of the baffle base (100 mm).

The mean low frequencies highlighted on the phonometric analysis spectrum define the use of **absorption and resonance** baffles.

Having defined the type of baffles (**absorption and resonance**) and the size of the base (**100 mm**) the values that are closest to those obtained in the analysis calculation must be sought in the reference table (n 12).

The data given in this table is shown below.

1000 mm DEEP SILENCER								
"D" baffle pitch in (mm)	Frequency in Hz							
	63	125	250	500	1000	2000	4000	8000
100	5	8	13	14	17	16	13	12
90	5	9	15	16	19	18	14	13
80	6	10	17	18	22	21	16	14
70	6	10	18	19	24	23	17	15
60	7	11	21	22	27	26	19	17
50	8	13	24	26	32	31	23	20

Values we are interested in

The frequencies in Hz define the distance between baffles (**50 mm**) and the depth of the silencer (**1000 mm**).

The distance between baffles (**50 mm**) and the load loss provided for in the design (**maximum 38 Pa**) are used in table n 15 to define the air front velocity in m/s $V_f = 3$.

The design air flow rate of $Q = 5900$ m³/h and front velocity of $V_f = 3$ m/s are used in diagram table n 16 to determine the height (**H**) of **600 mm** and an approximation of the base (**B**) of **900 mm** for the silencer.

The distance between baffles of **50 mm** and the approximate base size of **900 mm** are used in the reference table (n 13) to determine the exact size of the base and the number of baffles, equal to **6**. We can see that in this case a base of **900 mm** corresponds exactly to the dimension in the table.

CALCULATION CHECKS :

Noise generated by the silencer: Tables n 5 & 14 show the noise generate in relation to the front velocity as the air passes. It is best to check that the noise level does not exceed the relevant NR values shown in table n 1 in which case selection must be repeated reducing the front velocity V_f .

Load losses: The load losses that relate to tables n 6 & 15 relate to a silencer depth of 1000 mm. For other depths the load loss calculation must be repeated, using the correction coefficient shown in tables n 8 & 17.



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ABSORPTION SILENCERS	
TABLE N° 2 ATTENUATION BY SILENCERS EXPRESSED IN (dB) AND MEASURED FOR DIFFERENT BAFFLE PITCHES, WITH REFERENCE TO 8 OCTAVE BANDS, EXPRESSED IN (Hz).	

500 mm DEEP SILENCER									1700 mm DEEP SILENCER								
"D" baffle pitch in (mm)	Frequency in Hz								"D" baffle pitch in (mm)	Frequency in Hz							
	63	125	250	500	1000	2000	4000	8000		63	125	250	500	1000	2000	4000	8000
200	4	5	7	11	15	12	9	8	200	7	9	17	31	45	34	25	20
180	4	5	7	12	17	13	10	9	180	7	9	18	34	49	40	28	22
160	4	5	8	13	19	15	11	9	160	8	10	20	38	>50	42	32	26
140	4	6	8	14	20	17	12	10	140	8	11	23	42	>50	49	35	28
120	5	6	9	16	23	19	14	11	120	9	13	26	49	>50	>45	40	32
100	5	7	11	19	27	23	16	13	100	10	15	29	>52	>50	>45	47	38
700 mm DEEP SILENCER									2000 mm DEEP SILENCER								
"D" baffle pitch in (mm)	Frequency in Hz								"D" baffle pitch in (mm)	Frequency in Hz							
	63	125	250	500	1000	2000	4000	8000		63	125	250	500	1000	2000	4000	8000
200	4	5	8	14	21	16	13	10	200	7	9	18	34	>50	37	28	22
180	4	5	9	16	23	18	14	11	180	7	10	20	38	>50	43	32	25
160	4	6	10	18	26	20	15	12	160	8	11	22	43	>50	48	34	28
140	5	6	11	19	29	23	17	13	140	9	13	26	47	>50	>50	38	31
120	5	7	13	22	33	28	19	17	120	10	14	29	>50	>50	>50	44	35
100	6	8	15	27	39	32	22	18	100	11	17	35	>50	>50	>50	>50	40
1000 mm DEEP SILENCER									2200 mm DEEP SILENCER								
"D" baffle pitch in (mm)	Frequency in Hz								"D" baffle pitch in (mm)	Frequency in Hz							
	63	125	250	500	1000	2000	4000	8000		63	125	250	500	1000	2000	4000	8000
200	4	5	10	19	28	20	16	13	200	8	12	20	38	>50	40	30	25
180	5	5	11	21	30	23	17	14	180	10	13	23	43	>50	47	34	27
160	5	6	12	23	34	26	19	16	160	10	14	25	47	>50	>50	39	30
140	6	7	14	25	38	30	21	17	140	11	15	29	>50	>50	>50	46	34
120	6	8	16	28	44	35	24	20	120	12	17	34	>50	>50	>50	>50	40
100	7	10	19	35	>50	42	29	23	100	13	20	39	>50	>50	>50	>50	46
1200 mm DEEP SILENCER									2500 mm DEEP SILENCER								
"D" baffle pitch in (mm)	Frequency in Hz								"D" baffle pitch in (mm)	Frequency in Hz							
	63	125	250	500	1000	2000	4000	8000		63	125	250	500	1000	2000	4000	8000
200	5	7	13	23	34	25	19	16	200	8	12	21	40	>50	44	35	27
180	6	7	15	26	37	29	21	17	180	9	13	24	46	>50	>50	38	30
160	6	8	16	28	42	32	23	19	160	10	14	27	>50	>50	>50	44	33
140	7	9	18	32	47	37	26	21	140	11	15	31	>50	>50	>50	47	36
120	7	10	20	36	>50	43	30	24	120	12	17	36	>50	>50	>50	>50	44
100	8	12	23	44	>50	>52	35	28	100	13	20	43	>50	>50	>50	>50	>50
1500 mm DEEP SILENCER																	
"D" baffle pitch in (mm)	Frequency in Hz																
	63	125	250	500	1000	2000	4000	8000									
200	6	9	16	27	40	30	22	18									
180	7	10	17	29	45	34	24	20									
160	7	10	18	33	50	40	27	22									
140	8	11	20	37	>50	46	31	24									
120	9	12	24	43	>50	>50	35	29									
100	10	14	28	>52	>50	>52	41	33									



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ABSORPTION AND RESONANCE SILENCERS
TABLE N° 3 ATTENUATION OF SILENCERS EXPRESSED IN (dB) MEASURED FOR DIFFERENT BAFFLE PITCH AND RELATED TO 8 OCTAVE BANDS, EXPRESSED IN (Hz).

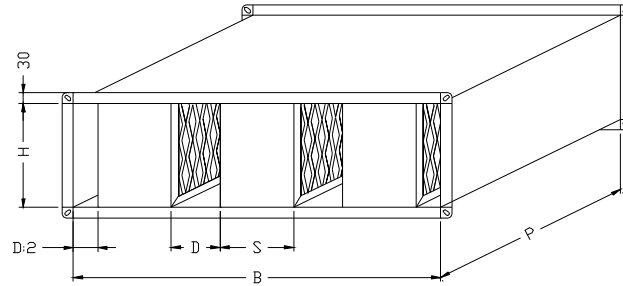
500 mm DEEP SILENCER									1700 mm DEEP SILENCER								
"D" baffle pitch in (mm)	Frequency in Hz								"D" baffle pitch in (mm)	Frequency in Hz							
	63	125	250	500	1000	2000	4000	8000		63	125	250	500	1000	2000	4000	8000
200	4	6	8	9	9	7	6	6	200	7	12	22	23	24	17	12	12
180	4	6	9	9	9	7	6	6	180	7	13	25	26	27	18	13	13
160	4	7	9	10	10	8	6	7	160	8	14	28	29	30	21	15	15
140	5	7	11	11	11	9	7	7	140	8	16	30	31	32	23	16	16
120	5	8	12	12	13	10	7	7	120	9	18	34	36	37	26	18	18
100	5	9	13	14	15	11	8	8	100	10	22	40	42	43	30	21	21
700 mm DEEP SILENCER									2000 mm DEEP SILENCER								
"D" baffle pitch in (mm)	Frequency in Hz								"D" baffle pitch in (mm)	Frequency in Hz							
	63	125	250	500	1000	2000	4000	8000		63	125	250	500	1000	2000	4000	8000
200	5	7	11	11	11	9	7	7	200	7	13	24	26	27	18	13	13
180	5	7	12	12	12	9	8	8	180	8	15	27	28	29	20	14	14
160	5	8	13	13	14	10	8	8	160	8	17	30	31	32	23	16	16
140	6	9	14	14	15	11	9	9	140	9	19	33	34	36	25	18	18
120	6	10	16	16	17	13	9	9	120	10	22	38	41	42	29	20	20
100	6	11	19	19	20	15	10	10	100	12	27	46	47	49	33	23	23
1000 mm DEEP SILENCER									2200 mm DEEP SILENCER								
"D" baffle pitch in (mm)	Frequency in Hz								"D" baffle pitch in (mm)	Frequency in Hz							
	63	125	250	500	1000	2000	4000	8000		63	125	250	500	1000	2000	4000	8000
200	5	8	13	14	15	11	8	8	200	7	14	27	28	29	20	14	14
180	5	9	14	15	16	11	9	9	180	8	16	29	30	31	22	15	15
160	5	10	16	17	18	13	9	9	160	8	19	32	34	35	24	17	17
140	6	11	18	19	20	14	10	10	140	9	20	37	38	40	28	19	19
120	6	12	21	22	23	16	12	12	120	10	23	43	44	46	42	22	22
100	7	14	24	25	26	19	13	13	100	12	28	50	>50	>50	47	25	25
1200 mm DEEP SILENCER									2500 mm DEEP SILENCER								
"D" baffle pitch in (mm)	Frequency in Hz								"D" baffle pitch in (mm)	Frequency in Hz							
	63	125	250	500	1000	2000	4000	8000		63	125	250	500	1000	2000	4000	8000
200	6	9	16	17	18	12	9	9	200	8	17	30	31	32	23	14	14
180	6	10	17	18	19	13	10	10	180	9	18	32	34	35	24	16	16
160	6	11	19	20	22	15	11	11	160	10	20	36	37	39	27	19	18
140	7	12	22	23	24	17	12	12	140	11	23	41	42	44	30	22	22
120	7	14	25	26	27	19	14	14	120	12	26	47	50	50	35	25	25
100	8	17	29	31	32	22	15	15	100	14	30	>50	>50	>50	42	28	28
1500 mm DEEP SILENCER																	
"D" baffle pitch in (mm)	Frequency in Hz																
	63	125	250	500	1000	2000	4000	8000									
200	6	10	18	20	20	14	10	10									
180	6	11	21	22	23	15	11	11									
160	7	12	24	25	25	17	12	12									
140	7	14	26	27	28	19	14	14									
120	8	17	29	30	32	22	16	16									
100	9	19	34	36	38	26	18	18									



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TECHNICAL DRAWING - BASE DIMENSIONS -
NOISE GENERATED - LOAD LOSSES



200 mm Baffles	TABLE N° 4 EXACT DIMENSIONS THAT CAN BE MADE FOR THE SILENCER BASES AND NUMBER OF BAFFLES IN RELATION TO THE PITCH								
	Number of baffles								
	1	2	3	4	5	6	7	8	9
Baffle pitch in (mm)	B (mm)								
200	200	400	600	800	1000	1200	1400	1600	1800
180	180	360	540	720	900	1080	1260	1440	1620
160	160	320	480	640	800	960	1120	1280	1440
140	140	280	420	560	700	840	980	1120	1260
120	120	240	360	480	600	720	840	960	1080
100	100	200	300	400	500	600	700	800	900

200 mm Baffles	TABLE N° 5 NOISE GENERATED BY THE SILENCER IN RELATION TO THE FRONT VELOCITY								
	Front velocity in m/s								
	Pitch in (mm)	2	3	4	5	6	7	8	9
100-120		NR 25	NR30	NR35	NR 40	NR 45			
140-160			NR 25	NR30	NR35	NR 40	NR 45		
180-200			NR 25	NR30	NR35	NR 40	NR 45		

200 mm Baffles	TABLE N° 6 LOAD LOSSES IN PASCAL AND AIR FRONT VELOCITY FOR A DEPTH OF 1 METRE								
	Distance between baffles in mm.								
			200	180	160	140	120	100	
Front velocity V_f in m/s	3,0				20	25	40		
	3,5				25	30	40	60	
	4,0		20	25	30	40	55	80	
	4,5		25	30	40	50	65	100	
	5,0		35	40	50	60	85	120	
	5,5		40	50	60	75	100	150	
	6,0		50	60	70	90	120		
	7,0		65	80	100	120	160		
	8,0		85	100	130	160			
	9,0		110	125	150				
	10,0		130	150					



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SELECTION DIAGRAM
LOAD LOSS CORRECTION COEFFICIENT

TABLE N° 7
DIAGRAM FOR SELECTING A SILENCER WITH 200 mm BAFFLES

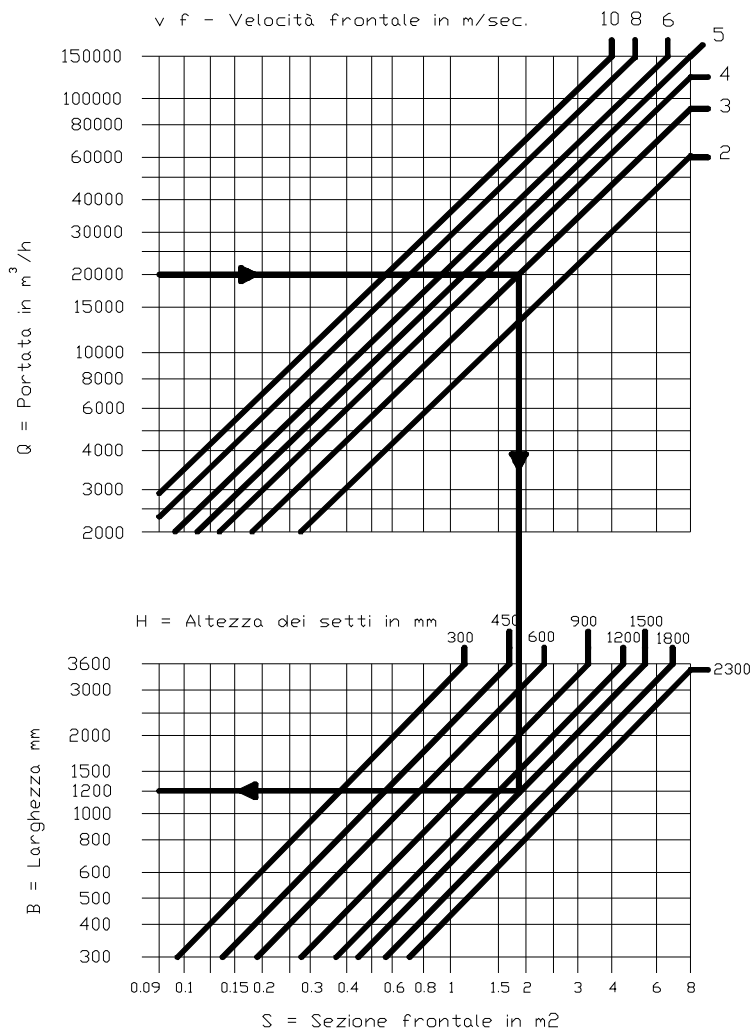


TABLE N° 8
**LOAD LOSS CORRECTION COEFFICIENT FOR
SILENCERS WITH A DEPTH NOT EQUAL TO 1000 mm**

Depth	500 mm	0,9
	1000 mm	1
	1500 mm	1,12
	2000 mm	1,25
	2500 mm	1,36

"B" mm.	da	300	600	900	1200	1500	1800	2100	2400
	a	400	800	1200	1600	2000	2400	2800	3200
	N° baffles	1	2	3	4	5	6	7	8



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ABSORPTION SILENCERS
TABLE N°11 ATTENUATION OF SILENCERS EXPRESSED IN (dB) MEASURED FOR DIFFERENT BAFFLE PITCHES AND RELATED TO 8 OCTAVE BANDS EXPRESSED IN (Hz).

500 mm DEEP SILENCER									1700 mm DEEP SILENCER								
"D" baffle pitch in (mm)	Frequency in Hz								"D" baffle pitch in (mm)	Frequency in Hz							
	63	125	250	500	1000	2000	4000	8000		63	125	250	500	1000	2000	4000	8000
100	3	3	6	9	19	23	16	12	100	6	6	13	26	>50	>50	>50	34
90	3	4	6	10	22	26	18	13	90	6	8	14	29	>50	>50	>50	38
80	3	4	7	11	25	29	20	15	80	7	9	16	34	>50	>50	>50	46
70	4	5	7	12	27	31	22	16	70	7	9	17	34	>50	>50	>50	49
60	4	5	8	13	31	36	25	18	60	8	10	18	38	>50	>50	>50	>50
50	4	5	9	15	36	42	29	20	50	9	11	23	46	>50	>50	>50	>50
700 mm DEEP SILENCER									2000 mm DEEP SILENCER								
"D" baffle pitch in (mm)	Frequency in Hz								"D" baffle pitch in (mm)	Frequency in Hz							
	63	125	250	500	1000	2000	4000	8000		63	125	250	500	1000	2000	4000	8000
100	4	4	7	12	28	32	22	17	100	6	7	14	28	>50	>50	>50	36
90	4	5	7	13	31	36	25	18	90	6	8	15	31	>50	>50	>50	42
80	4	5	8	15	35	40	28	20	80	7	9	17	35	>50	>50	>50	49
70	5	6	9	16	38	45	30	22	70	8	10	18	37	>50	>50	>50	>50
60	5	6	10	19	45	>50	36	25	60	8	10	20	44	>50	>50	>50	>50
50	5	7	11	21	>50	>50	42	30	50	9	12	26	49	>50	>50	>50	>50
1000 mm DEEP SILENCER									2200 mm DEEP SILENCER								
"D" baffle pitch in (mm)	Frequency in Hz								"D" baffle pitch in (mm)	Frequency in Hz							
	63	125	250	500	1000	2000	4000	8000		63	125	250	500	1000	2000	4000	8000
100	4	4	9	16	36	42	29	20	100	7	9	16	30	>50	>50	>50	42
90	4	5	10	17	41	48	33	22	90	7	10	18	34	>50	>50	>50	48
80	5	6	11	19	48	>50	38	27	80	8	11	20	38	>50	>50	>50	>50
70	6	6	11	21	50	>50	40	28	70	9	12	22	40	>50	>50	>50	>50
60	6	7	12	24	>50	>50	48	32	60	10	13	24	47	>50	>50	>50	>50
50	7	8	14	27	>50	>50	>50	38	50	11	14	28	>50	>50	>50	>50	>50
1200 mm DEEP SILENCER									2500 mm DEEP SILENCER								
"D" baffle pitch in (mm)	Frequency in Hz								"D" baffle pitch in (mm)	Frequency in Hz							
	63	125	250	500	1000	2000	4000	8000		63	125	250	500	1000	2000	4000	8000
100	4	5	10	18	44	48	36	25	100	8	9	18	34	>50	>50	>50	46
90	4	6	11	21	48	50	41	29	90	9	11	19	38	>50	>50	>50	>50
80	5	7	13	23	49	>50	46	34	80	10	12	21	43	>50	>50	>50	>50
70	6	7	14	25	>50	>50	49	38	70	10	13	24	44	>50	>50	>50	>50
60	6	8	16	28	>50	>50	>50	40	60	11	15	27	48	>50	>50	>50	>50
50	7	9	18	34	>50	>50	>50	48	50	12	17	32	>50	>50	>50	>50	>50
1500 mm DEEP SILENCER																	
"D" baffle pitch in (mm)	Frequency in Hz																
	63	125	250	500	1000	2000	4000	8000									
100	5	6	11	22	>50	>50	42	28									
90	6	7	12	25	>50	>50	46	33									
80	7	8	14	28	>50	>50	>50	37									
70	8	8	16	30	>50	>50	>50	40									
60	8	9	17	34	>50	>50	>50	47									
50	9	10	20	40	>50	>50	>50	>50									



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ABSORPTION AND RESONANCE SILENCERS

TABLE N° 12 ATTENUATION OF SILENCERS EXPRESSED IN (dB) MEASURED FOR DIFFERENT
BAFFLE PITCHES AND RELATED TO 8 OCTAVE BANDS, EXPRESSED IN (Hz).

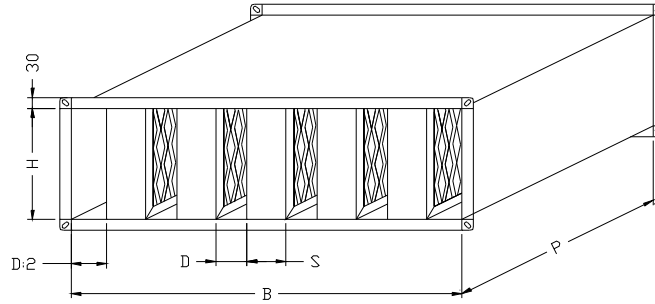
500 mm DEEP SILENCER									1700 mm DEEP SILENCER								
"D" baffle pitch in (mm)	Frequency in Hz								"D" baffle pitch in (mm)	Frequency in Hz							
	63	125	250	500	1000	2000	4000	8000		63	125	250	500	1000	2000	4000	8000
100	4	6	8	9	10	10	8	8	100	7	12	21	22	29	27	20	18
90	4	6	9	9	11	11	9	8	90	7	13	24	25	32	30	22	20
80	4	7	10	10	12	12	10	9	80	8	15	28	30	39	37	27	24
70	5	7	11	11	13	13	10	9	70	8	16	30	32	40	38	27	24
60	5	8	12	13	15	14	11	10	60	9	18	34	35	44	43	32	29
50	5	8	14	15	18	17	13	12	50	10	21	40	42	49	>50	37	33
700 mm DEEP SILENCER									2000 mm DEEP SILENCER								
"D" baffle pitch in (mm)	Frequency in Hz								"D" baffle pitch in (mm)	Frequency in Hz							
	63	125	250	500	1000	2000	4000	8000		63	125	250	500	1000	2000	4000	8000
100	5	7	11	12	14	13	10	9	100	8	13	24	25	32	30	22	20
90	5	8	13	13	16	15	11	10	90	8	14	27	29	37	34	25	23
80	6	9	14	14	18	17	13	12	80	9	16	30	32	41	38	29	25
70	6	9	15	15	19	18	13	13	70	9	17	33	34	44	42	30	28
60	6	9	17	17	21	20	15	14	60	19	20	38	40	49	47	36	32
50	6	11	19	20	25	27	17	16	50	12	24	45	47	>50	>50	42	37
1000 mm DEEP SILENCER									2200 mm DEEP SILENCER								
"D" baffle pitch in (mm)	Frequency in Hz								"D" baffle pitch in (mm)	Frequency in Hz							
	63	125	250	500	1000	2000	4000	8000		63	125	250	500	1000	2000	4000	8000
100	5	8	13	14	17	16	13	12	100	8	14	27	28	35	32	24	22
90	5	9	15	16	19	18	14	13	90	9	16	30	31	40	38	26	24
80	6	10	17	18	22	21	16	14	80	9	18	33	35	45	42	30	28
70	6	10	18	19	24	23	17	15	70	10	20	36	38	49	46	33	30
60	7	11	21	22	27	26	19	17	60	11	22	42	44	>50	>50	38	37
50	8	13	24	26	32	31	23	20	50	13	25	>50	>50	>50	>50	46	42
1200 mm DEEP SILENCER									2500 mm DEEP SILENCER								
"D" baffle pitch in (mm)	Frequency in Hz								"D" baffle pitch in (mm)	Frequency in Hz							
	63	125	250	500	1000	2000	4000	8000		63	125	250	500	1000	2000	4000	8000
100	6	9	16	17	21	20	15	14	100	9	16	29	30	40	38	27	25
90	6	10	18	19	22	22	15	15	90	10	18	xx	35	43	42	30	27
80	7	11	20	21	26	25	18	16	80	10	20	36	40	48	48	33	31
70	7	12	22	23	29	28	20	17	70	11	22	41	43	>50	>50	37	33
60	8	14	26	29	33	32	23	18	60	12	24	48	>50	>50	>50	43	30
50	9	16	29	31	40	37	27	25	50	14	28	>50	>50	>50	>50	>50	46
1500 mm DEEP SILENCER																	
"D" baffle pitch in (mm)	Frequency in Hz																
	63	125	250	500	1000	2000	4000	8000									
100	7	10	19	20	25	23	18	16									
90	7	12	21	22	28	26	19	18									
80	8	14	23	25	30	29	23	21									
70	8	15	26	27	34	33	24	22									
60	9	16	30	31	38	36	27	25									
50	9	18	35	47	46	44	32	29									



ABSORPTION SILENCERS WITH 100 mm BAFFLES

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TECHNICAL DRAWING - BASE DIMENSIONS -
NOISE GENERATED - LOAD LOSSES



100 mm Baffles	TABLE N° 13 EXACT SIZES THAT CAN BE MADE FOR SILENCER BASES AND NUMBER OF BAFFLES IN RELATION TO PITCH								
	Number of baffles								
	1	2	3	4	5	6	7	8	9
Baffle pitch in (mm)	B (mm)								
100	100	200	300	400	500	600	700	800	900
90	90	180	270	360	450	540	630	720	810
80	80	160	240	320	400	480	560	640	720
70	70	140	210	280	350	420	490	560	630
60	60	120	180	240	300	360	420	480	540
50	50	100	150	200	250	300	350	400	450

100 mm Baffles	TABLE N° 14 NOISE GENERATED BY THE SILENCER IN RELATION TO FRONT VELOCITY								
	Front velocity in m/s								
	Pitch in (mm)	2	3	4	5	6	7	8	9
50-60		NR 25	NR30	NR35	NR 40	NR 45			
70-80			NR 25	NR30	NR35	NR 40	NR 45		
90-100			NR 25	NR30	NR35	NR 40	NR 45		

100 mm Baffles	TABLE N° 15 LOAD LOSSES IN PASCAL AND AIR FRONT VELOCITY FOR A DEPTH OF 1 METRE								
	Distance between baffles in mm.								
	Frontal velocity V_f in m/s		100	90	80	70	60	50	
					20	25	40		
	3,0				25	30	40	60	
	3,5				30	40	55	80	
	4,0	20	25	30	40	50	65	100	
	4,5	25	30	40	50	60	85	120	
	5,0	35	40	50	60	75	100	150	
	5,5	40	50	60	70	90	120		
	6,0	50	60	70	90	120			
	7,0	65	80	100	120	160			
	8,0	85	100	130	160				
	9,0	110	125	150					
	10,0	130	150						



ABSORPTION SILENCERS WITH 100 mm BAFFLES

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SELECTION DIAGRAM - LOAD LOSS CORRECTION
COEFFICIENT

TABLE N° 16
SELECTION DIAGRAM FOR A SILENCER WITH 100 mm BAFFLES

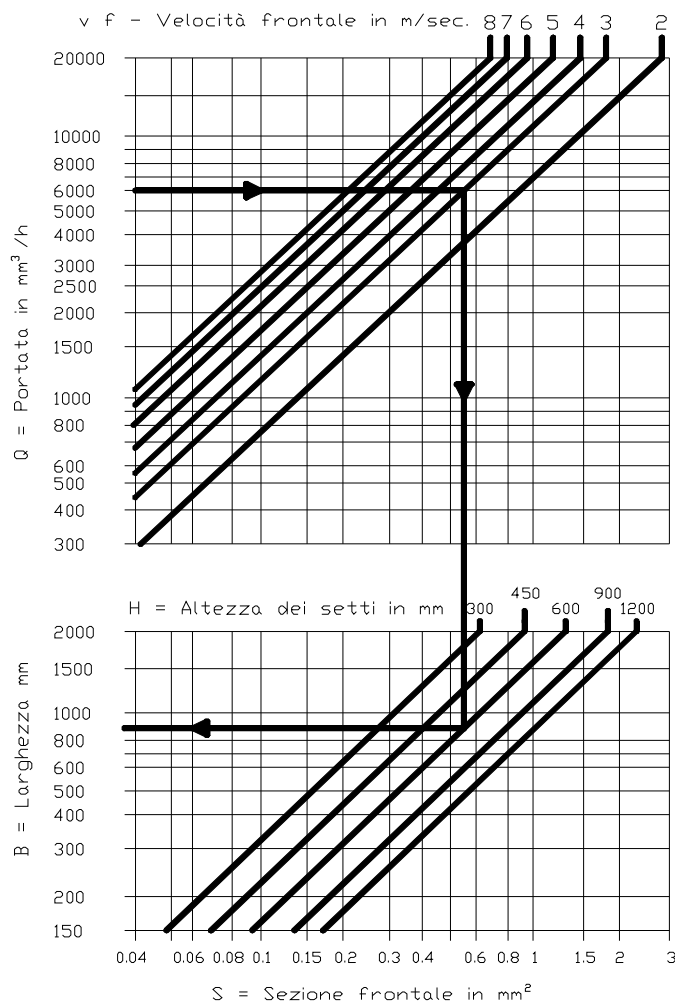
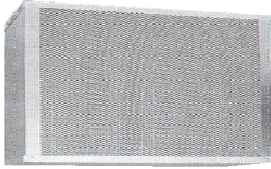


TABLE N° 17
LOAD LOSS CORRECTION COEFFICIENT FOR
SILENCERS WITH A DEPTH NOT EQUAL TO 1000 mm

Depth	500 mm	0,9
	1000 mm	1
	1500 mm	1,12
	2000 mm	1,25
	2500 mm	1,36

"B" mm.	da	150	300	450	600	750	900	1050	1200
	a	200	400	600	800	1000	1200	1400	1600
	N° baffles	1	2	3	4	5	6	7	8

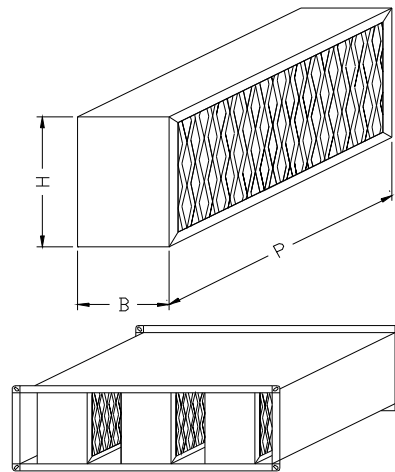
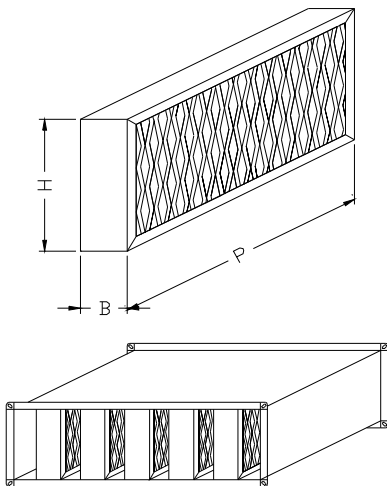




BAFFLES FOR ABSORPTION SILENCERS - ABSORPTION/RESONANCE SILENCERS

TECHNICAL DRAWING
TECHNICAL CHARACTERISTICS

SS1
SS2
SS35
SERIES



CHARACTERISTICS:

Baffles, holding frame : In galvanised steel sheet.

Absorption baffles, holding sheet : In micro-expanded sheet.

Absorption and resonance baffles, holding sheet : the baffle is divided into two equal part in height (H) and the lower part is coated throughout its depth by a solid sheet. The top part may be coated with a micro-expanded sheet.

Baffles, materials used : Jacket in high density mineral fibre, coated externally with a protective glass film.

Baffles, reaction to fire : Not inflammable - class 0.

SPECIAL BAFFLES:

SSR model with baffles enclosed in micro-expanded steel sheet.

SSRF model with baffles enclosed in micro-expanded steel sheet and water-repellent fibre form.

SSL model baffle holding frame made of raw aluminium sheet.

SSLR model as per SSL but with baffles enclosed by micro-expanded steel sheet.

SSLRF model as per SSL but with baffles enclosed by micro-expanded steel sheet and water-repellent fibre form.

SSI model baffle holding frame made of stainless steel sheet.

SSIR model as per SSI but with baffles enclosed by micro-expanded steel sheet.

SSIRF model as per SSI but with baffles enclosed by micro-expanded steel sheet and water-repellent fibre form.





CIRCULAR ABSORPTION SILENCERS WITH OR WITHOUT POD

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OVERVIEW TECHNICAL CHARACTERISTICS

OVERVIEW:

The SC series of circular silencers are basic element in any air-conditioning system, as they make it possible to reduce the noise propagated in the air ducting. Various assembly systems can be used, allowing them to be used for air or smoke intake or extraction systems, ventilation for soundproof cabins, cooling circuits for generator sets, and air-conditioning and ventilation systems, as well as fitting them directly on axial fans or on outlet of centrifugal fans.

SILENCERS WITH POD :

These are used in all special applications, with an air flow rate that varies from a minimum of 1500 m³/h to a maximum of 360,000 m³/h.

SILENCERS WITHOUT POD :

These are used in all applications where the air flow rate varies from a minimum of 1500 m³/h to a maximum of 540,000 m³/h.

CHARACTERISTICS :

Silencer, outer frame : made of galvanised steel sheet.

Silencer, fixing without flanges : By reinforced couplings in the circular duct.

Silencer, fixing with flanges : By tightening bolts or nuts on flanges with holes on the two ends of the silencer and on the axial fan or circular duct.

Silencer, fixing with collar : By tightening pressure collars between the two edges at the two ends of the silencer, and that on the circular duct fitted with an edging.

Absorption baffle, holding frame : Enclosed in the cylindrical silencer with galvanised steel sheet.

Absorption baffle, external holding sheet : In micro-expanded sheet.

Absorption baffle, material used : Jacket in high density mineral fibre, coated externally with a protective glass film.

Baffle, reaction to fire : Not inflammable - class 0.

Pod, holding frame : In galvanised steel sheet.

Pod, protective sheet : In micro-expanded steel sheet, to avoid delamination of the mineral fibre due to the passage of the airflow.

Pod, construction system, material used, and assembly system : Designed and made with a conical shape in order to reduce the noise caused by the impact of air and dynamic losses at the intake, the pod contains a soundproofing jacket made of high density mineral fibre, that is coated externally by a film of protective glass, enclosed by a micro-expanded steel sheet. The fixing position for the pod is concentric, inside the holding frame.

Pod, reaction to fire : Not inflammable - class 0.



CIRCULAR ABSORPTION SILENCERS, WITH OR WITHOUT POD

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APPLICATIONS - DEFINITIONS -
SELECTION EXAMPLE

TABLE N° 1 APPLICATIONS RELATED TO NOISE EXPRESSED IN NR AND dB (A)

Music recording and diffusion studios	20	25
Libraries and old age homes	25	30
Hospital wards	30	35
Multi-purpose halls, auditoriums, theatres, management	35	40
Medical consulting rooms	35	40
Data processing centres, chemical and photographic	40	45
Open-plan offices and working environments	45	50
Waiting rooms, reception, and stores in general	50	55
Light industry workshops, shopping centres and shops	60	65
540,000 M3/H - FREQUENCIES 500 TO 8000 Hz	Cylindrical baffle without pod	
360,000 M3/H - FREQUENCIES 500 TO 8000 Hz	Cylindrical baffle with a soundproof pod inside	

The noise indices shown on table n° 1 must be carefully compared with the reference standards for specific plants.

DEFINING THE ATTENUATION VALUE

The attenuation values measured and defined relate to silencers fitted in a ducted plant system (duct - silencer - duct). Where silencers are positioned at the end of ducting, or fitted directly to the inlet on an axial fan or intake on a centrifugal fan, the designer must calculate the values shown in tables n° (2 - 3 - 4) (6 - 7 - 8) by simply adding the values shown on the right hand side of these tables.

DEFINING THE SOUND ATTENUATION

Sound attenuation (or an increase in attenuation) is the difference between the sound pressure measured at the airflow intake to the silencer, and the sound pressure measured at the outlet end of the silencer. The measurements taken during trial tests included noise generated by the unit itself (or decrease in attenuation), with the noise created due to the airflow passing through the silencer being taken into account.

SELECTING A SILENCER

In order to be able to calculate the exact size of a silencer, the following parameters must be determined:

- The noise level for the room from table n° 1.
- The sound attenuation (in dB) from tables n° (2 - 3 - 4) (6 - 7 - 8), with reference to frequencies in (Hz) and thus the type of silencer used (with or without pod), and the depth of the silencer.
- The load loss and diameter of the silencer in relation to a depth which in turn depends on the diameter, from tables n° (3 - 9) in relation to the air flow rate (Q) expressed in m³/h. For depths of 1,5 and 2 times the diameter, multiply the load loss correction coefficients given in table n°(3) and by interpolation in table n°(9) .



CIRCULAR ABSORPTION SILENCERS WITHOUT POD

SAC
SERIES

ATTENUATION PERFORMANCE

TABLE N° 2
ATTENUATION FOR SILENCERS EXPRESSED IN (dB)
WITH REFERENCE TO 8 OCTAVE BANDS EXPRESSED IN (Hz).

D x1 SILENCER WITH A DEPTH EQUAL TO ITS DIAMETER

Nominal diameter		Fitted in a ducting system								Other applications				
		Frequencies in Hz								Frequencies in Hz				
		63	125	250	500	1000	2000	4000	8000	63	125	250	500	>1000
		Attenuation in dB								Attenuation in dB				
250	254	1	3	5	9	14	10	7	8	15	10	5	0	0
300	315	2	4	6	10	14	10	7	8	15	10	5	0	0
350	355	2	4	6	10	14	10	7	8	14	8	4	0	0
400	406	2	4	6	10	14	10	7	8	13	7	4	0	0
450	457	2	4	6	10	14	10	7	8	12	6	3	0	0
500	508	2	4	6	10	14	10	7	8	11	6	2	0	0
550	560	2	4	6	10	14	10	7	8	10	5	2	0	0
600	630	3	4	8	14	14	9	8	7	9	5	1	0	0
700	710	3	4	8	14	14	9	8	7	8	4	1	0	0
800	810	3	4	8	14	14	9	8	7	7	3	1	0	0
900	1000	3	4	9	14	14	8	7	7	6-5	2	0	0	0
1120	1250	3	4	9	14	14	8	7	7	5	2-1	0	0	0
1400	1600	4	5	10	14	11	7	6	6	3-2	1	0	0	0
1800		4	5	10	14	11	7	6	6	2	0	0	0	0

TABLE N° 3
ATTENUATION OF SILENCERS EXPRESSED IN (dB)
IN RELATION TO 8 OCTAVE BANDS EXPRESSED IN (Hz).

D x1,5 SILENCER DEPTH, ONE AND A HALF TIMES ITS DIAMETER

Nominal diameter		Fitted in a ducting system								Other applications				
		Frequencies in Hz								Frequencies in Hz				
		63	125	250	500	1000	2000	4000	8000	63	125	250	500	>1000
		Attenuation in dB								Attenuation in dB				
250	254	2	4	7	12	15	11	8	9	15	10	5	0	0
300	315	3	5	8	13	16	12	9	9	15	10	5	0	0
350	355	3	5	8	13	16	12	9	9	14	8	4	0	0
400	406	3	5	8	13	16	12	9	9	13	7	4	0	0
450	457	3	5	8	13	16	12	9	9	12	6	3	0	0
500	508	3	5	8	13	16	12	9	9	11	6	2	0	0
550	560	3	5	8	13	16	12	9	9	10	5	2	0	0
600	630	4	5	10	16	16	11	9	8	9	5	1	0	0
700	710	4	5	10	16	16	11	9	8	8	4	1	0	0
800	810	4	5	10	16	16	11	9	8	7	3	1	0	0
900	1000	4	5	10	16	14	10	9	8	6-5	2	0	0	0
1120	1250	4	5	10	16	14	10	9	8	5	2-1	0	0	0
1400	1600	5	6	11	16	13	9	8	7	3-2	1	0	0	0
1800		5	6	11	16	13	9	8	7	2	0	0	0	0



CIRCULAR ABSORPTION SILENCERS WITHOUT POD

SAC
SERIES

ATTENUATION AND LOAD LOSS
PERFORMANCE

TABLE N° 4
ATTENUATION FOR SILENCERS EXPRESSED IN (dB)
WITH REFERENCE TO 8 OCTAVE BANDS, EXPRESSED IN (Hz).

D x 2 SILENCER WITH A DEPTH EQUAL TO TWICE ITS DIAMETER

Nominal diameter		Fitted in a ducting system								Other applications				
		Frequencies in Hz								Frequencies in Hz				
		63	125	250	500	1000	2000	4000	8000	63	125	250	500	>1000
		Attenuation in dB								Attenuation in dB				
250	254	4	7	12	18	22	17	13	13	15	10	5	0	0
300	315	4	7	12	18	22	17	13	13	15	10	5	0	0
350	355	4	7	12	18	22	17	13	13	14	8	4	0	0
400	406	4	7	11	17	21	17	13	12	13	7	4	0	0
450	457	4	7	11	17	21	17	13	12	12	6	3	0	0
500	508	4	7	10	15	19	16	12	10	11	6	2	0	0
550	560	4	7	10	15	19	16	12	10	10	5	2	0	0
600	630	6	8	14	23	24	15	13	10	9	5	1	0	0
700	710	6	8	13	22	22	14	13	9	8	4	1	0	0
800	810	6	8	12	20	18	13	11	9	7	3	1	0	0
900		6	8	14	22	20	13	12	10	6-5	2	0	0	0
1000		6	8	13	21	18	12	11	10	5	2	0	0	0
1120	1250	6	8	12	19	15	11	10	9	5	2	0	0	0
1400		8	9	15	20	19	12	11	9	3	1	0	0	0
1600		8	9	14	20	17	11	10	9	2	1	0	0	0
1800		8	9	13	19	14	10	9	8	2	0	0	0	0

TABLE N° 5
LOAD LOSSES IN PASCAL AND AIR FRONT VELOCITY
FOR A DEPTH EQUAL TO THE DIAMETER

Nominal diameter		Q (m ³ /s)												For depths of 1,5 and 2 times the diameter multiply the values in this table by 1,5 and 2.			
		0,4	0,6	1	2	4	6	10	15	20	30	40	50				
		ΔP (Pascal)															
250	254	1,8	3,5	9,0													
300	315	2,0	3,7	10,0													
350	355	2,0	3,7	10,0													
400	406		0,8	5,2	9,1	3,0											
450	457		0,8	5,2	9,1	3,0											
500	508				3,0	10,0	21,0										
550	560				3,0	10,0	21,0										
600	630					3,4	7,4	2,0									
700	710					3,4	7,4	2,0									
800	810						1,8	5,3	11,0	19,0							
900							1,8	5,3	11,0	19,0							
1000	1120							1,6	3,5	6,3	12,0	20,0					
1250									1,1	2,1	3,8	6,7	10,0				
1400										1,1	2,2	3,8	5,5				
1600												2,0	3,0				
1800													1,2	1,8			



CIRCULAR ABSORPTION SILENCERS WITH POD

SACO
SERIES

ATTENUATION PERFORMANCE

TABLE N° 6
ATTENUATION FOR SILENCERS EXPRESSED IN (dB)

D x 1 SILENCERS WITH A DEPTH EQUAL TO THEIR DIAMETER

Nominal diameter		Fitted in a ducting system								Other applications				
		Frequencies in Hz								Frequencies in Hz				
		63	125	250	500	1000	2000	4000	8000	63	125	250	500	>1000
		Attenuation in dB								Attenuation in dB				
250	254	4	6	8	13	20	21	18	16	15	10	5	0	0
300	315	4	6	8	13	20	21	18	16	15	10	5	0	0
350	355	4	6	8	13	20	21	18	16	14	8	4	0	0
400	406	4	6	8	12	18	19	16	14	13	7	4	0	0
450	457	4	6	8	12	18	19	16	14	12	6	3	0	0
500	508	4	6	8	11	13	16	12	11	11	6	2	0	0
550	560	4	6	8	11	13	16	12	11	10	5	2	0	0
600	630	4	6	9	17	26	21	18	12	9	5	1	0	0
700	710	4	6	9	17	23	20	18	11	8	4	1	0	0
800	810	4	6	9	16	17	16	14	11	7	3	1	0	0
900		4	6	11	22	21	16	14	11	6-5	2	0	0	0
1000		4	6	11	20	19	15	13	11	5	2	0	0	0
1120	1250	4	6	11	17	17	14	12	11	5	2	0	0	0
1400		5	7	12	21	20	14	12	9	3	1	0	0	0
1600		5	7	12	19	18	13	11	9	2	1	0	0	0
1800		5	7	12	15	16	12	10	8	2	0	0	0	0

TABLE N° 7
ATTENUATION FOR SILENCERS EXPRESSED IN (dB)

D x 1.5 SILENCER WITH A DEPTH ONE AND A HALF TIMES ITS DIAMETER

Nominal diameter		Fitted in a ducting system								Other applications				
		Frequencies in Hz								Frequencies in Hz				
		63	125	250	500	1000	2000	4000	8000	63	125	250	500	>1000
		Attenuation in dB								Attenuation in dB				
250	254	5	7	11	18	25	27	23	21	15	10	5	0	0
300	315	5	7	11	18	25	27	23	21	15	10	5	0	0
350	355	5	7	11	18	25	27	23	21	14	8	4	0	0
400	406	5	7	11	16	21	22	19	17	13	7	4	0	0
450	457	5	7	11	16	21	22	19	17	12	6	3	0	0
500	508	5	7	11	13	14	16	12	12	11	6	2	0	0
550	560	5	7	11	13	14	16	12	12	10	5	2	0	0
600	630	5	8	12	23	32	27	24	16	9	5	1	0	0
700	710	5	8	12	21	27	25	23	14	8	4	1	0	0
800	810	5	8	12	19	19	19	22	13	7	3	1	0	0
900		5	8	14	22	26	22	18	13	6-5	2	0	0	0
1000		5	8	14	20	22	20	17	13	5	2	0	0	0
1120	1250	5	8	14	17	18	17	15	13	5	2	0	0	0
1400		7	10	16	24	25	21	14	11	3	1	0	0	0
1600		7	10	16	21	22	18	13	11	2	1	0	0	0
1800		7	10	16	17	18	16	12	10	2	0	0	0	0



CIRCULAR ABSORPTION SILENCERS WITH POD

SACO
SERIES

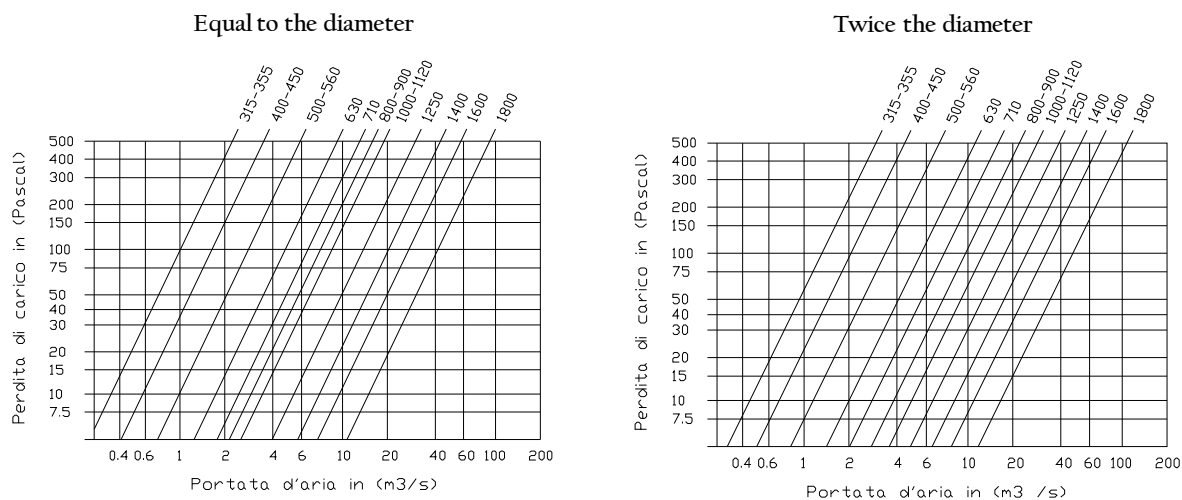
ATTENUATION AND
LOAD LOSS PERFORMANCE

TABLE N° 8
ATTENUATION FOR SILENCERS EXPRESSED IN (dB)

D x 2 SILENCER WITH A DEPTH THAT IS TWICE ITS DIAMETER

Nominal diameter		Fitted in a ducting system								Other applications				
		Frequencies in Hz								Frequencies in Hz				
		63	125	250	500	1000	2000	4000	8000	63	125	250	500	>1000
		Attenuation in dB								Attenuation in dB				
250	254	7	10	15	24	32	35	30	28	15	10	5	0	0
300	315	7	10	15	24	32	35	30	28	15	10	5	0	0
350	355	7	10	15	24	32	35	30	28	14	8	4	0	0
400	406	7	10	15	21	26	26	24	22	13	7	4	0	0
450	457	7	10	15	21	26	26	24	22	12	6	3	0	0
500	508	7	10	15	16	17	17	13	13	11	6	2	0	0
550	560	7	10	15	16	17	17	13	13	10	5	2	0	0
600	630	8	11	16	30	39	35	32	22	9	5	1	0	0
700	710	8	11	16	27	32	32	29	19	8	4	1	0	0
800	810	8	11	16	24	23	23	24	17	7	3	1	0	0
900		8	11	19	30	32	30	24	17	6-5	2	0	0	0
1000		8	11	19	26	27	26	22	17	5	2	0	0	0
1120	1250	8	11	19	21	20	22	20	16	5	2	0	0	0
1400		10	14	22	28	31	29	18	15	3	1	0	0	0
1600		10	14	22	25	27	25	16	15	2	1	0	0	0
1800		10	14	22	21	21	21	15	14	2	0	0	0	0

TABLE N° 9
LOAD LOSSES IN PASCAL AND AIR FRONT DIAMETER FOR SILENCERS WITH A DEPTH
EQUAL TO AND TWICE THEIR DIAMETER



Use interpolation between the values for 1 and 2 times the diameter to determine values for silencers
with a depth one and a half times their diameter

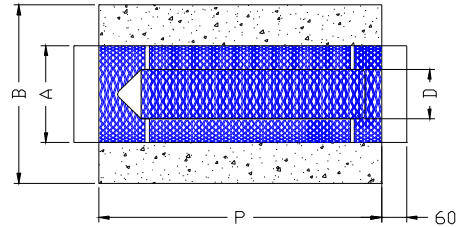
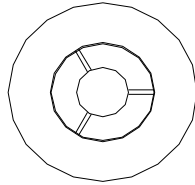


CIRCULAR ABSORPTION SILENCER WITH AND WITHOUT POD

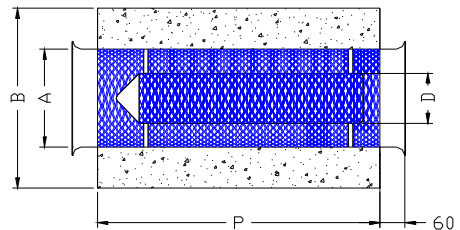
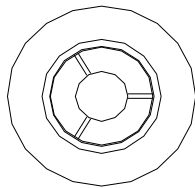
SAC
SACO
SERIES

TECHNICAL DRAWING
DIMENSIONS AND WEIGHTS

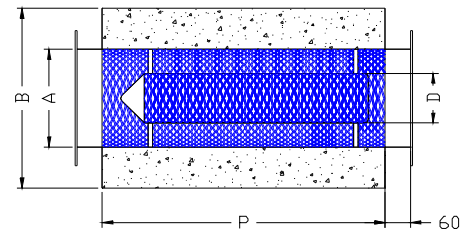
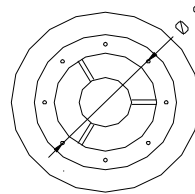
SILENCER WITH COUPLING POD -
SACIO MODEL



SILENCER WITH POD AND EDGING -
SACCO MODEL



SILENCER WITH POD AND FLANGE -
SACFO MODEL



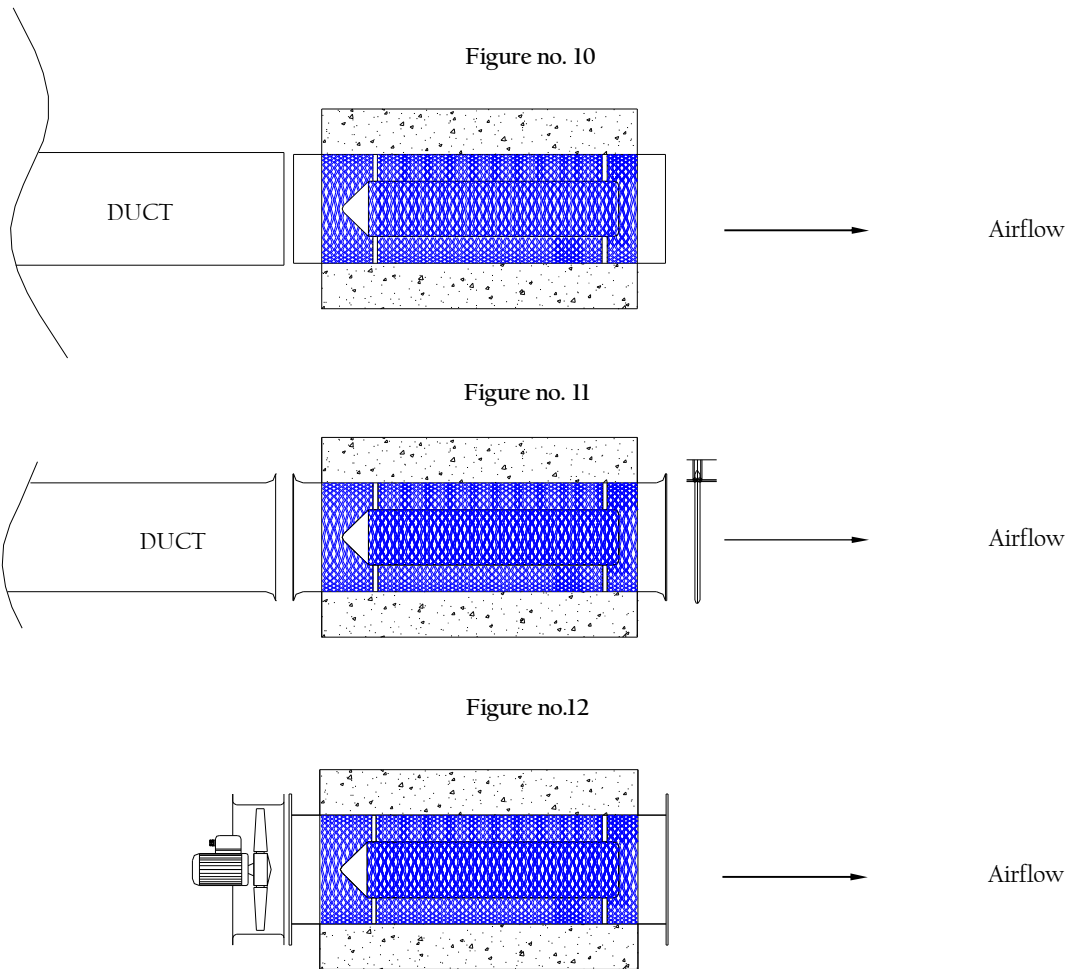
Ø	Dimensions in mm								Flange			Mineral	Approximate weight in kg					
	P =				Diameters				n° holes	Bolts	Sp. mm	Thickness mm	SACI SACC SACF			SACIO SACCO SACFO		
	Dx1	Dx1,5	Dx2	Dx2	A	B	C	D					Dx1	Dx1,5	Dx2	Dx1	Dx1,5	Dx2
250	250	375	500	625	245	390	290	125	6	M8	45	72,5	6	10	13	8	12	14
300	300	450	600	750	295	440	340	150	8	M8	45	72,5	8	11	14	10	14	16
315	315	473	630	788	310	455	355	158	8	M8	45	72,5	8	11	14	10	14	16
350	350	525	700	875	345	490	395	175	8	M8	50	72,5	10	14	17	12	16	18
355	355	533	710	888	350	495	400	178	8	M8	50	72,5	10	14	17	12	16	18
400	400	600	800	1000	395	540	450	200	8	M8	55	72,5	12	17	21	14	21	26
450	450	675	900	1125	445	610	500	225	8	M8	55	82,5	15	20	24	17	24	29
500	500	750	1000	1250	495	660	560	250	12	M10	65	82,5	18	25	32	23	32	39
550	550	825	1100	1375	545	710	610	275	12	M10	65	82,5	21	28	35	28	37	44
560	560	840	1120	1400	555	720	620	280	12	M10	65	82,5	21	28	35	28	37	44
600	600	900	1200	1500	595	760	660	300	12	M10	65	82,5	24	33	43	32	44	55
630	630	945	1260	1575	625	790	690	315	12	M10	65	82,5	24	33	43	32	44	55
700	700	1050	1400	1750	695	860	770	350	16	M10	75	82,5	35	49	63	44	62	78
710	710	1065	1420	1775	705	870	780	355	16	M10	75	82,5	35	49	63	44	62	78
800	800	1200	1600	2000	795	1000	870	400	16	M10	75	102,5	43	61	79	56	79	101
900	900	1350	1800	2250	895	1100	970	450	16	M12	75	102,5	70	94	112	130	153	175
1000	1000	1500	2000	2500	995	1200	1070	500	16	M12	75	102,5	113	137	161	143	180	216
1120	1120	1680	2240	2800	1115	1320	1190	560	20	M12	75	102,5	130	154	178	165	202	238
1250	1250	1875	2500	3125	1245	1450	1320	625	20	M12	75	102,5	152	185	213	193	240	282
1400	1400	2100	2800	3500	1395	1600	1470	700	20	M12	75	102,5	218	270	322	283	351	418
1600	1600	2400	3200	4000	1595	1800	1670	800	20	M12	75	102,5	290	434	578	377	564	751
1800	1800	2700	3600	4500	1795	2000	1870	900	20	M12	75	102,5	365	545	725	470	705	940



CIRCULAR ABSORPTION SILENCER WITH AND WITHOUT POD

ASSEMBLY SYSTEM

SERIE
SAC
SACO



Since the silencers shown in figures n° 10-11-12 are fitted with a soundproofing pod, they must be installed with the conical part inside the silencer always facing the airflow. This is essential in order to obtain maximum attenuation performance expressed in (dB), and to avoid harmful turbulence inside the ducting system.

In figure n° 10 the circular silencer has two couplings with smaller diameters than the derivation duct (nominal diameter - 5 mm) to allow insertion. We suggest sealing the metal joints with sealing tape or hygroscopic material once the joint has been formed.

In figure n° 11 the circular silencer has two couplings specifically edged to allow it to be coupled to a derivation duct with a similar edging using a pressure collar. We recommend sealign the metal joints by putting a gasket or hygroscopic material along the perimeter of the edging.

In figure n° 12 the circular silencer has two connection flanges, complete with holes on the air inlet and outlet sides. We recommend having a duct with a length at least equal to its diameter between the silencer and the fan, on the air intake side.