

TAH

HYGIENIC RECTANGULAR SILENCER



Characteristics:

TAH are hygienic rectangular silencers equipped with baffles that attenuate sound transferred by ducts in ventilation systems.

Intended use

The TAH silencers are designed for attenuating noise transferred by rectangular ducts in ventilation systems. They are usually located between fans and intake or extraction ducts as well as before intake ventilators which supply air to rooms requiring high acoustic comfort. The TAH silencers are installed in ventilation ducts that require high cleanliness. The silencer design facilitates baffle disassembly for periodic cleaning.

Design

The silencer housing is made of galvanised sheet. Inside the housing, there are galvanised sheet baffles and a sound attenuating insert made of a non-flammable sound absorbing material (Class A1 according to PN-EN 13501-1). The surface of the sound attenuating insert is additionally covered with abrasion-resistant glass fibre tissue. As standard, the TAH silencers are fitted with 20, 30 or 40 mm wide flange connection (depending of the silencer cross-section). The silencers can be ordered in custom sizes. In such a case they are marked as TAHS. All TAH and TAHS silencers are equipped with an access panel that facilitates baffle disassembly. The access panel can be located on side A or B. This should be specified when ordering. In a stainless version, the steel elements mentioned above are made of 1.4301 stainless steel (according to EN 10088).

TAH silencer versions

TAH...-AA – a silencer with absorptive baffles covered with glass fibre tissue. It is particularly recommended for attenuating medium- and high-frequency sound.

TAH...-AR – a silencer with absorption-resonator baffles covered with glass fibre tissue and with 50% of its surface covered with galvanised sheet. It is particularly recommended for attenuating low- and medium-frequency sound.

Application

The tightness of the TAH silencer housing is normally classed as A (according to EN 1507), which allows for using these silencers in ventilation systems with pressure ranging from -500 to 500 Pa. The recommended airflow speed for TAH silencers is up to 12 m/s.

Baffle and silencer cleaning

Cleaning of the baffles and the inside of the silencer housing should be conducted in dry conditions, by means of compressed air or a cloth/sponge with a little water with low-foam surfactants. Do not clean the baffles with corrosive detergents or a water jet. Excessive humidity of the baffles can result in their irreversible damage and the loss of acoustic properties.

Installation

As standard, the TAH/TAHS silencers can be installed inside buildings in both horizontal and vertical ventilation ducts, with baffles set vertically or horizontally. The silencers are installed by means of lifting slings.

Dimensions

The TAH silencers can be delivered with the following dimensions:

- width A = 150–3,000 mm
- height B = 150–2,500 mm
- length L = 500–2,000 mm
- baffle thickness GR = 100, 200 mm
- distance between baffles:
 - SZ = 50–100 mm (for baffles GR = 100 mm)
 - SZ = 50–200 mm (for baffles GR = 200 mm)

The following pages of the specification sheet include standard silencer dimensions.

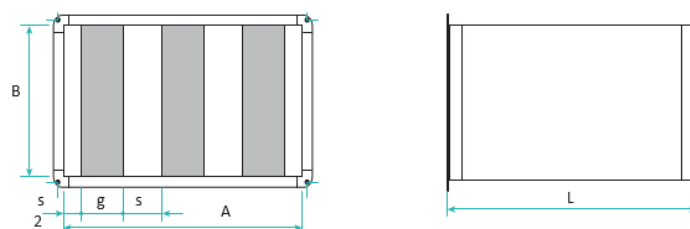


Figure 1. TAP silencer dimensions

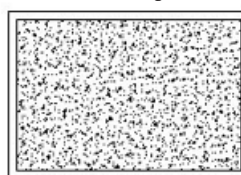


Figure 2. Absorptive baffles

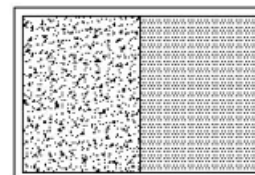


Figure 3. Absorption-resonator baffles



TAH selection

Attenuation values in dB for individual frequency bands with absorptive baffles AA, D_e [dB]:

Table 1. TAH11-AA silencer attenuation

L [mm]	Frequency f _m [Hz]							
	63	125	250	500	1k	2k	4k	8k
500	3	4	5	12	24	22	13	10
1000	4	4	9	19	33	33	23	15
1500	5	5	14	25	42	44	31	20
2000	6	7	20	34	48	50	40	27

Table 2. TAH15-AA silencer attenuation

L [mm]	Frequency f _m [Hz]							
	63	125	250	500	1k	2k	4k	8k
500	3	5	9	16	33	38	25	20
1000	4	8	17	26	42	44	33	26
1500	6	10	23	36	48	48	41	34
2000	7	13	30	45	52	50	48	42

Table 3. TAH21-AA silencer attenuation

L [mm]	Frequency f _m [Hz]							
	63	125	250	500	1k	2k	4k	8k
500	3	4	9	20	26	23	16	11
1000	3	8	15	30	43	38	25	16
1500	5	12	21	47	51	50	32	19
2000	6	15	28	50	52	51	38	24

Table 4. TAH215-AA silencer attenuation

L [mm]	Frequency f _m [Hz]							
	63	125	250	500	1k	2k	4k	8k
500	2	3	8	14	17	15	10	7
1000	3	6	12	24	30	26	15	10
1500	4	9	18	36	43	36	22	12
2000	5	11	23	46	50	44	25	15

Table 5. TAH22-AA silencer attenuation

L [mm]	Frequency f _m [Hz]							
	63	125	250	500	1k	2k	4k	8k
500	2	2	4	12	13	11	7	6
1000	2	5	10	21	24	19	12	8
1500	3	7	16	30	33	25	14	10
2000	4	10	20	30	43	30	17	12

Attenuation values in dB for individual frequency bands with absorption-resonator baffles AR, D_e [dB]:

Table 6. TAH11-AR silencer attenuation

L [mm]	Frequency f _m [Hz]							
	63	125	250	500	1k	2k	4k	8k
500	3	4	5	8	12	15	11	8
1000	4	8	10	13	21	21	15	10
1500	5	10	15	19	29	29	19	12
2000	7	12	19	25	36	34	22	15

Table 7. TAH15-AR silencer attenuation

L [mm]	Frequency f _m [Hz]							
	63	125	250	500	1k	2k	4k	8k
500	3	10	10	12	19	24	21	16
1000	5	11	18	21	29	34	28	22
1500	7	15	27	28	37	42	35	29
2000	9	18	34	38	48	49	44	36

Table 8. TAH21-AR silencer attenuation

L [mm]	Frequency f _m [Hz]							
	63	125	250	500	1k	2k	4k	8k
500	2	5	12	13	15	12	10	8
1000	5	9	22	21	27	21	13	10
1500	6	12	31	30	36	27	17	15
2000	7	16	41	40	47	31	20	17

Table 9. TAH215-AR silencer attenuation

L [mm]	Frequency f _m [Hz]							
	63	125	250	500	1k	2k	4k	8k
500	2	5	12	13	15	12	10	8
1000	3	4	16	16	16	13	9	8
1500	4	10	22	22	21	17	11	8
2000	5	13	29	29	28	21	14	11

Table 10. TAH22-AR silencer attenuation

L [mm]	Frequency f _m [Hz]							
	63	125	250	500	1k	2k	4k	8k
500	1	3	7	7	7	6	5	3
1000	1	7	12	12	12	9	8	6
1500	3	10	18	17	15	12	9	7
2000	5	13	23	22	18	15	12	9

TAH silencer flow areas and weight

Table 11. Free clearance area between baffles

Silencer type	Free clearance area
TAH-11	50%
TAH-15	33%
TAH-21	33%
TAH-215	43%
TAH-22	50%

Absorptive baffle disassembly

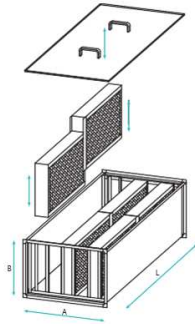


Figure 4. Silencer with access panel on side A perpendicular to baffles

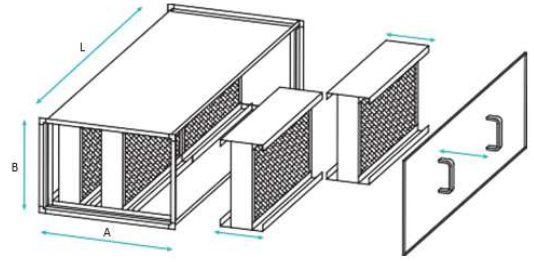


Figure 5. Silencer with access panel on side B parallel to baffles

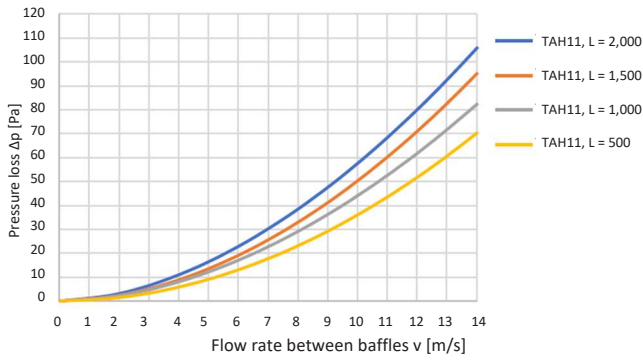


Chart 1. Pressure loss for a TAH-11 silencer

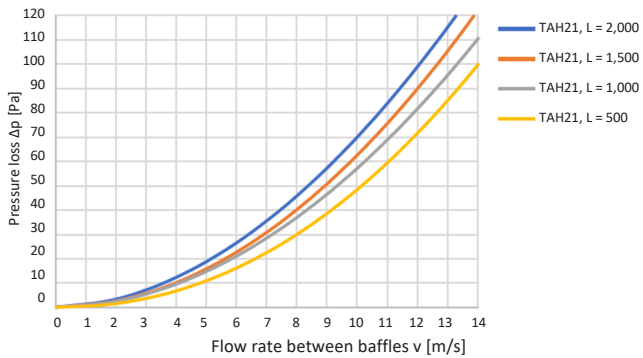


Chart 2. Pressure loss for a TAH-15 silencer

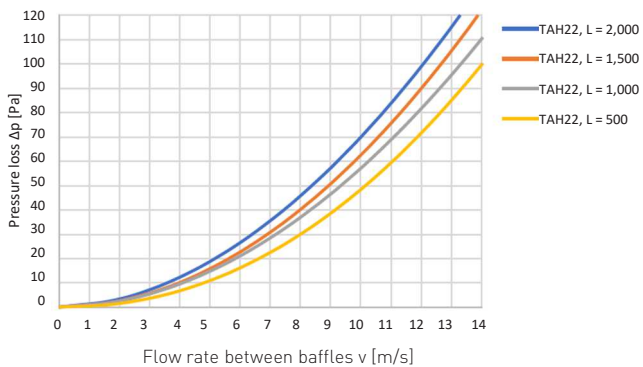


Chart 3. Pressure loss for a TAH-21 silencer

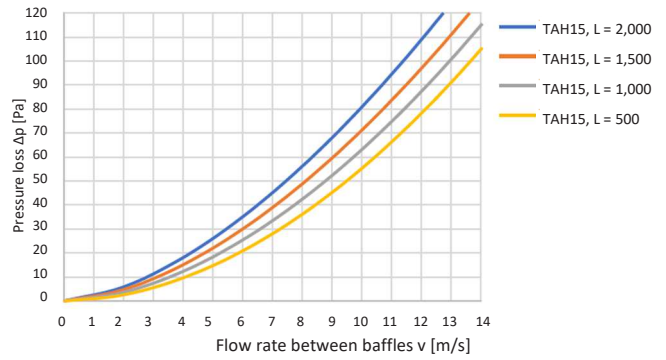


Chart 4. Pressure loss for a TAH-215 silencer

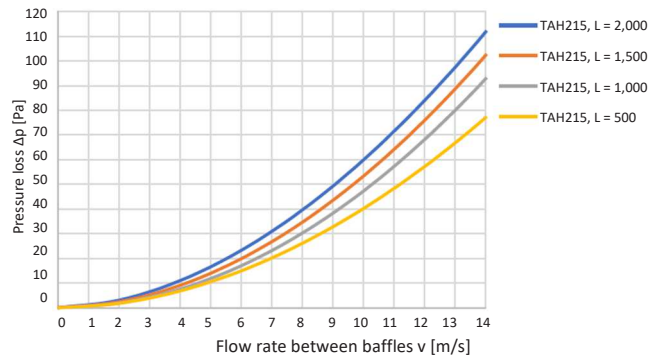


Chart 5. Pressure loss for a TAH-22 silencer

TAH silencer flow noise

Table 12. TAH silencer internal noise, L_{WA} [dB(A)]

Free cross-section area between baffles m^2	Flow rate between baffles v [m/s]					
	4	6	8	10	12	14
0.2	17	27	34	40	44	48
0.4	20	30	37	43	47	51
0.6	22	32	39	45	49	53
0.8	23	33	40	46	50	54
1.0	24	34	41	47	51	55
1.2	25	35	42	48	52	56

Depending on the distance between baffles and their width, the internal noise of a silencer can vary by up to ± 1 dB

Approximate weight of the TAH silencers, length 1 m, with absorptive baffles, m [kg]

Table 13. TAH11-AA silencer weight

Height H [mm]	Silencer width A [mm]					
	200	400	600	800	1,000	1,200
200	15	28	37	50	64	82
400	20	34	42	56	73	93
600	24	39	48	63	82	104
800	29	45	53	69	91	114
1000	33	50	59	76	100	125
1200	38	62	81	100	118	136

Table 14. TAH15-AA silencer weight

Height H [mm]	Silencer width A [mm]							
	150	300	450	600	750	900	1,050	1,200
200	13	22	32	41	51	61	76	80
400	17	27	38	49	60	70	87	91
600	21	33	45	56	68	80	99	103
800	25	38	51	64	77	89	110	114
1000	29	43	57	71	85	99	122	126
1200	33	54	70	86	102	117	133	137

Table 15. TAH21-AA silencer weight

Height H [mm]	Silencer width A [mm]			
	300	600	900	1,200
200	20	36	52	74
400	25	43	62	86
600	31	51	71	99
800	36	58	81	111
1000	41	66	90	123
1200	53	81	108	136

Table 16. TAH215-AA silencer weight

Height H [mm]	Silencer width A [mm]		
	350	700	1,050
200	20	36	52
400	25	43	62
600	31	51	71
800	36	58	81
1000	41	66	90
1200	53	81	108

Table 17. TAH22-AA silencer weight

Height H [mm]	Silencer width A [mm]		
	400	800	1,200
200	27	50	72
400	33	58	83
600	40	66	93
800	46	75	103
1000	52	83	113
1200	58	91	124

Approximate weight of the TAH silencers, length 1 m, absorption-resonator baffles, m [kg]

Table 18. TAH11-AR silencer weight

Height H [mm]	Silencer width A [mm]					
	200	400	600	800	1,000	1,200
200	16	30	40	54	69	88
400	22	38	48	64	83	104
600	27	45	57	74	97	121
800	33	52	65	85	110	137
1000	38	60	73	95	124	154
1200	43	74	98	123	147	171

Table 19. TAH15-AR silencer weight

Height H [mm]	Silencer width A [mm]							
	150	300	450	600	750	900	1,050	1,200
200	14	24	35	45	56	67	83	87
400	19	31	44	53	69	82	101	104
600	24	38	53	68	83	97	119	123
800	29	45	62	79	96	112	137	141
1000	34	52	72	90	109	128	155	159
1200	39	66	88	109	131	152	174	178

Table 20. TAH21-AR silencer weight

Height H [mm]	Silencer width A [mm]			
	300	600	900	1,200
200	21	38	55	78
400	27	47	67	94
600	33	57	80	110
800	40	66	92	126
1000	46	75	104	143
1200	59	92	126	159

Table 21. TAH215-AR silencer weight

Height H [mm]	Silencer width A [mm]		
	350	700	1,050
200	21	38	55
400	27	47	67
600	33	57	90
800	40	66	92
1000	46	75	104
1200	59	92	126

Table 22. TAH22-AR silencer weight

Height H [mm]	Silencer width A [mm]		
	400	800	1,200
200	28	52	75
400	35	62	88
600	43	72	102
800	50	82	115
1000	57	92	128
1200	64	103	141

TAH – Hygienic Rectangular Silencer

When ordering, please provide information according to the following pattern:

(standard silencer)

TAH <X> – <TK> – <A> x x <L> – <PP> – <P>

(custom silencer)

TAHS – <TK> – <A> x x <L> – (<GR> x <SZ>) x <IK> – <PP> – <P>

Where:

X	silencer type*
	11 – baffle thickness 100 mm, 100 mm distance between baffles 15 – baffle thickness 100 mm, 50 mm distance between baffles 21 – baffle thickness 200 mm, 100 mm distance between baffles 215 – baffle thickness 200 mm, 150 mm distance between baffles 22 – baffle thickness 200 mm, 200 mm distance between baffles
TK	baffle type*
	AA – absorptive baffles without a deflector AR – absorption-resonator baffles without a deflector
A	silencer inner clearance width in mm
B	silencer inner clearance height in mm
L	silencer length in mm
GR	baffle thickness in mm
SZ	distance between baffles in mm*
IK	number of baffles
PP	cover position*
	X – cover on the side parallel to baffles Y – cover on the side perpendicular to baffles
P	material*
	S0 – galvanised steel SN – stainless steel

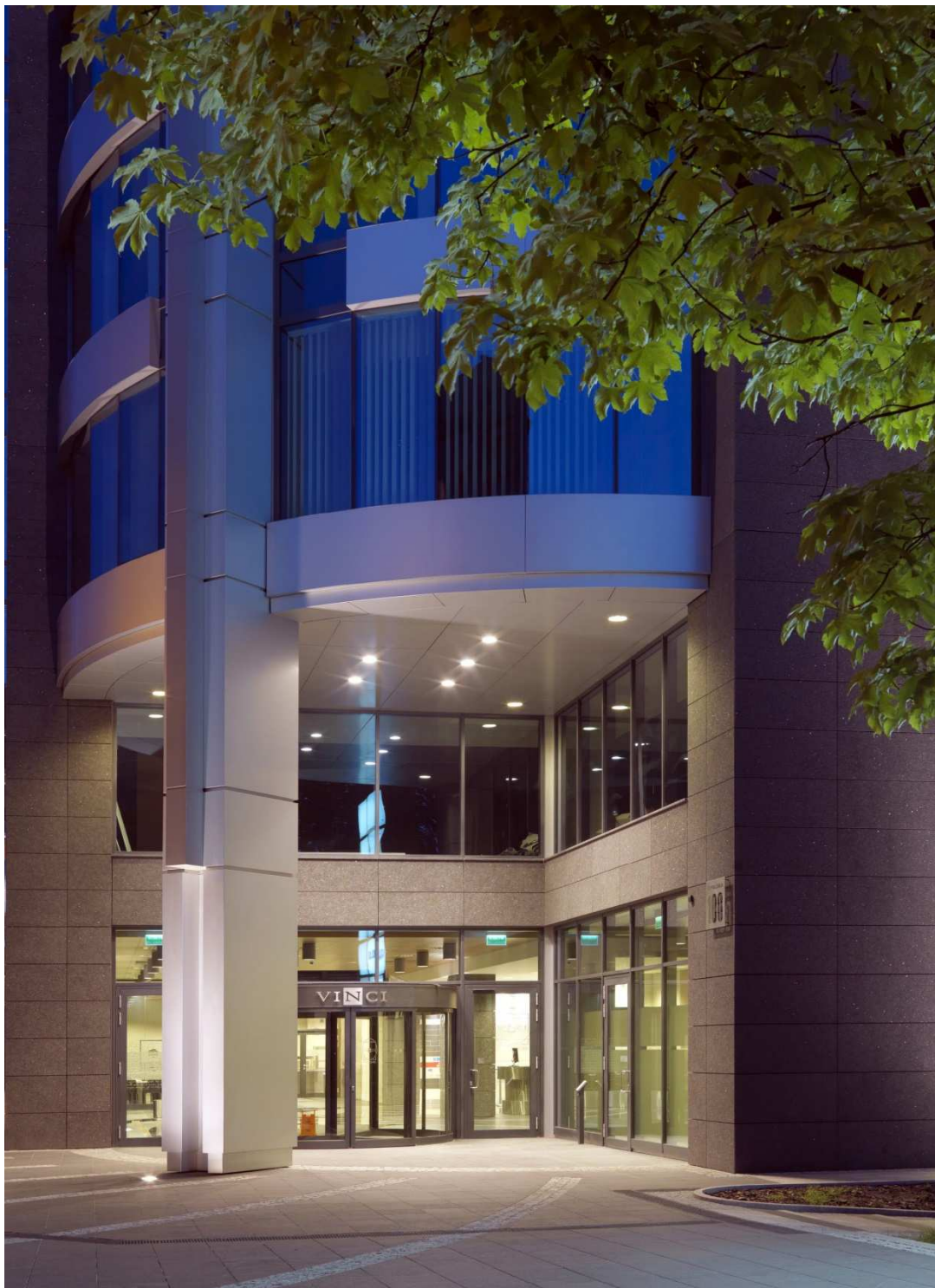
* optional values – if not specified, default values will be used

Order example:

TAH22 – AA – 1,200x1,000x1,000 – X (standard silencer)

TAHS – AR – 1,150x1,000x1,000 – (200x87)x4 – Y (custom silencer)

VINCI OFFICE CENTER KRAKÓW



SMAY

PROJECTS

