Plusz Légcsatorna gyártó Kft.

7300 Komló, 2665/1 Hrsz., Telefon: 72 / 581 - 375, Fax: 72 / 581 - 376, E - mail: fqplusz@fqplusz.hu, Web: www.fqplusz.hu

Product Description

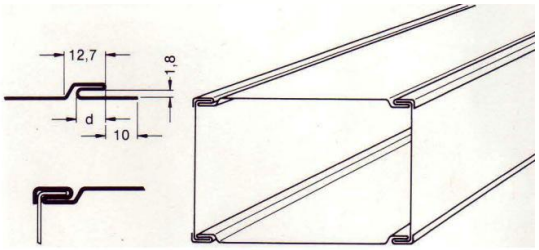
Rectangular Air Duct

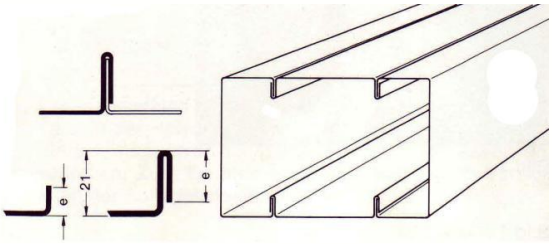
Rectangular air ducts are highly suitable for large cross-sectional areas and adapt well to architectural interior spaces. Their use varies depending on air velocity, air tightness, and sheet thickness..

Our company's rectangular galvanized air ducts are manufactured with a folded seam design. The rectangular duct system with folded seams is intended for transporting air that is free from neutral or aggressive vapors and mechanical abrasive materials..

The air ducts and fittings are made from galvanized sheet metal on both sides, with a minimum zinc coating of 275 g/m² according to the EN 10142 standard. Material quality: DX51D Z275 NAC.

A Our products are manufactured in accordance with the ÖNORM 7615 standard. Unless otherwise specified, the duct elements are designed to withstand low pressure differences (up to 630 Pa). The duct ends are sealed with MEZ frames.



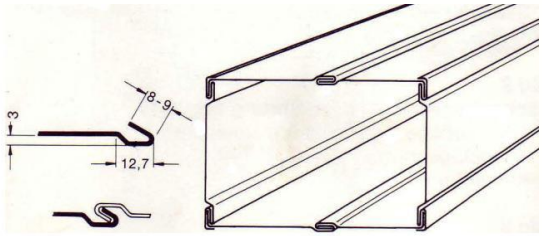


The sheets forming the duct are assembled using various types of seam folds, which ensure the airtightness of the air duct.

For larger cross-sections and straight air ducts, standing seams are also used. The standing seam is always placed on the inner surface of the fitting.

The rigidity of the air ducts and fittings is generally enhanced by trapezoidal beading of the sheets (except for spot-welded elements).

Manufacturing Tolerances



Maximum Side Length	Tolerance
1000 mm-ig	±3 mm
1000 mm felett	±4 mm

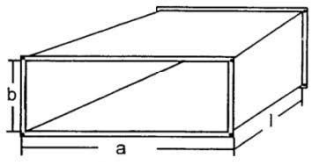
Temperature tolerances

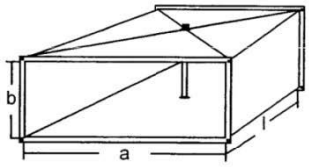
Raw Materials	Continuously	Intermittent
galvanized steel sheet	200 °C	250 °C

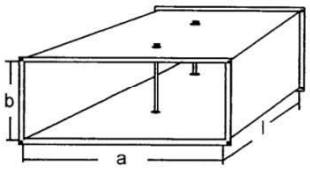
Applied reinforcements

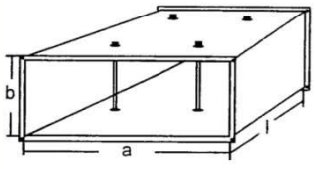
The material thickness and reinforcement requirements of air duct elements strongly depend on the maximum pressure difference and air velocity occurring during operation, or their fluctuations. One possible method of reinforcement is 2-4 hat profiles placed in the corners, or a galvanized steel pipe built into the air duct. The reinforcement requirements for the required pressure difference are illustrated in the table and figures below.

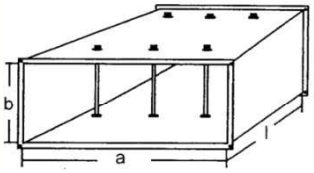
	Low pressure	High pressure	
	630 below Pascal	630-1600 Up to Pascal	1600-2500 Up to pascal
L	1500	1250	1000
a	1500	1000	800
b	1500	1000	800
L	1500/2000	1250/2000	1000/2000
a	1500	1000	800
b	1500	1000	800
L	1500/2000	1250/2000	1000/2000
a	2000	1700	1700
b	1500	1000	800
L	1500/2000	1250/2000	1000/2000
a	3000	2250	2000
b	1500	1000	800
L		1250/2000	1000/2000
a		3100	2500
b		1000	800











Rectangular air ducts are normally made of galvanized steel sheet, but they can also be made of other materials (e.g. carbon steel, aluminum). The material thickness of the air ducts depends on the cross-section of the air duct and the pressure difference. According to the ÖNORM standard, the sheet thicknesses used are shown in the table below:

Névleges méret (mm)	Minimum wall thickness in mm, for the maximum permissible pressure difference		
	Up to 630 Pa	Between 630-1600 Pa	Between 1600-2500 Pa
	ND	HD 1	HD 2
160-400	0,6	0,7	0,7
401-750	0,6	0,9	0,9
751-1000	0,8	0,9	1,1
1001-1250	0,8	1,1	1,25
1250 felett	1,0	1,1	1,25

MEZ frame and corner size:

Size	MEZ frame	Corner
0-750	20	20
751-2000	30	30
2001-	40	40

The connecting frames are fastened by spot welding in the case of "B" and "C" airtightness classes. After welding, the frames are sprayed with Zinc-Alu spray. Acrylic sealant is used at the corners, while a special sealing compound is applied to the folded joints. FQ Plusz Ltd. holds ÉMI certification for the following products:

- rectangular cross-section air duct systems,
- inlets,
- outlet heads,
- sound attenuators,
- fixed rain protection louvers,
- control louvers,
- additional ventilation elements.

Product Characteristics and Units Requirements	Tolerance Limits	Testing/Evaluation Method
Mechanical Resistance and Stability		
Material	Galvanized Steel Sheet (DX51)	MSZ EN 10346:2015 MSZ EN 10143:2006
Fire Safety Can be installed in structures without additional protection where no fire resistance limit requirements apply.		
Fire Protection Class	A1	MSZ EN 13501-1:2019
Hygiene, Health, and Environmental Protection		
For Air Ducts		
Airtightness	MSZ EN 1507:2006	With a measuring instrument
Maintainability	MSZ EN 12097:2006	MSZ EN 12097:2006
Product Characteristics and Units Requirements		
Mechanical Resistance and Stability		
Material	Galvanized Steel Sheet (DX51)	MSZ EN 10346:2015 MSZ EN 10143:2006

The air ducts can be used for general ventilation and air conditioning. The testing/evaluation method was carried out according to the listed standards: MSZ EN 10346:2015, MSZ EN 10143:2006 (material resistance, stability), MSZ EN 13501-1:2019 (A1 fire safety), MSZ EN 1507:2006 (airtightness).

ÉMI ÉPÍTÉSÜGYI MINŐSÉGELLENŐRZŐ INNOVÁCIÓS NONPROFIT KORLÁTOLT FELELŐSSÉGŰ TÁRSASÁG
MÉRNÖKI SZOLGÁLTATÁSOK IGAZGATÓSÁG
MEGFELELŐSÉGÉRTÉKELŐ KÖZPONT
TANÚSÍTÁSI IRODA

NB-CPR 305/2011 EU
Nr. 1415
A NAH által NAH-6-0057/2019/K számon akkreditált terméktanúsító szervezet.

H-2000 Szentendre, Dózsa György út 26. Levélcím: H-2001 Szentendre, Pf.: 180.
Telefon: +36 (26) 502 300 E-mail: tanusitas@emi.hu Honlap: http://www.emi.hu

EK–TELJESÍTMÉNY ÁLLANDÓSÁGI TANÚSÍTVÁNY

1415–CPR–106- (C-47/2020)

Az Építési Termék Rendelet – az Európai Parlament és a Tanács 305/2011/EU Rendelete (2011. március 9.) – alapján ez a tanúsítvány

Füst- és hőszabályozó rendszerek. Füstelvezetők

Horganyzott acéllemez hő- és füstelvezető csatornarendszer

építési termékre vonatkozik, amely az alábbi teljesítménnyel és felhasználási területtel rendelkezik

Füst szabályozás és tűzbiztonság

Tűzállósági határérték	E_{600} 120 (h_o) S 1000 single E_{600} 120 (v_e) S 1000 single*
Maximális méretek	négyszög keresztmetszet: 1250 × 1000 mm (sz x m)

* az EN 1366-9 vizsgálati szabvány kritériumai és az EN 12101-7 termékszabvány 5.2 pontja szerint elvégzett vizsgálat alapján

és amelyet

FQ Plusz Kft.
7300 Komló, belterület 2665/1.

gyártó a

FQ Plusz Kft.
7300 Komló, belterület 2665/1.

*üzem*ében gyártott.

Ez a tanúsítvány igazolja, hogy az **EN 12101-7:2011 szabvány ZA melléklete szerint meghatározott** teljesítmények és a teljesítmény állandóság értékelésére és ellenőrzésére vonatkozó követelmények tekintetében a vonatkozó (1) rendszer szerint

a termék teljesíti a fent meghatározott összes követelményt.

Ez a tanúsítvány, amely először 2021.08.30-án került kiadásra a vonatkozó harmonizált szabványban meghatározott – a termék teljesítményének az értékeléséhez alkalmazott - vizsgálati módszerek és/vagy a gyártásellenőrzésre vonatkozó követelmények, illetve a termék és annak gyártási körülményeinek változatlansága esetén – visszavonásig érvényes.

Szentendre, 2021.08.30.

P.H.

Molnár Ágnes
tanúsítási irodavezető

Bizonylat azonosító: KBIA-IV-1-20190920_EK_TÁT

Our galvanized steel sheet heat and smoke extraction duct systems are certified with a Performance Stability Certificate. This certifies that the ducts remain stable under the effect of 600°C for 120 minutes, in accordance with the MSZ EN 1366-9:2008 standard. The material of the heat and smoke extraction duct is 0.9 mm thick galvanized steel sheet (DX51).

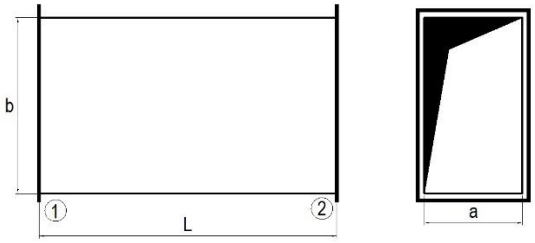
The airtightness performance of our galvanized and stainless steel rectangular air ducts has been tested by ÉMI and classified as Class "C".For technological extraction solutions, we supply stainless steel air duct fittings.

The airtightness performance of our rectangular air duct elements made of black steel sheet has been tested by ÉMI and classified as Class "D".The components suitable for greasy extraction in commercial kitchens are manufactured in welded design, with integral folded frames, and are either painted or powder-coated.

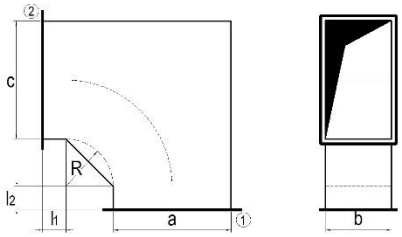
Important Information

It should not be considered a quality problem if, due to design or installation errors, the supply air does not meet the desired comfort parameters in the occupied zone. The products should be stored in a dry place, protected from damage. It is prohibited to store the elements near or in contact with corrosive materials. The products must not come into contact with copper or copper-coated materials. The products must be installed within six months after delivery. During loading and handling operations, individual elements should not be thrown, as they should not be subjected to impact or deformation. The manufacturer is not responsible for damage resulting from such actions.

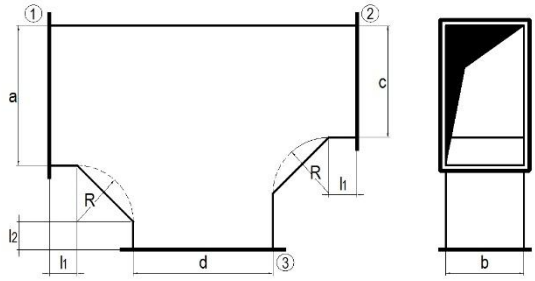
Types of Air Ducts



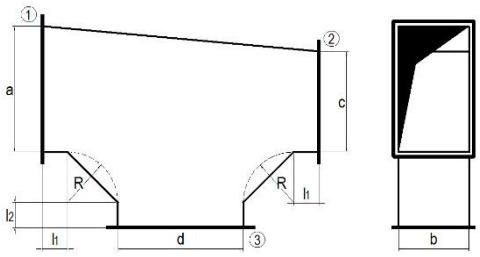
VL-01 Duct
Surface:
If L<900, $2\cdot(a+b)\cdot L\cdot 1{,}5$
If L≥900, $2\cdot(a+b)\cdot L$
L<400 in case of L=400



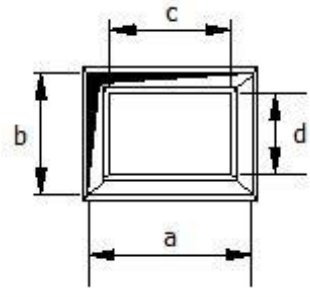
VL-02 Bend *
a > c
Surface:
$2\cdot(a+b)\cdot(a+c+2\cdot R)$



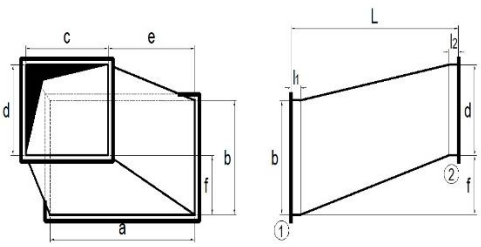
VL-03 T-piece *
a > c
Surface:
$2\cdot(a+b\cdot L+(d+b)\cdot R)$



VL-04 T-piece *
a > c
Surface:
$2\cdot(a+b\cdot(L+e)+(d+b)\cdot R)$



VL-06 Taper concentric
a + b > c + d, L length
Surface
$2\cdot(a+b)\cdot(L+\left|\frac{a-c}{2}\right|+\left|\frac{b-d}{2}\right|)$



VL-05 Taper excentric
a + b > c + d, L length
Surface:
$2\cdot(a+b)\cdot\ (L+|e_1|+|f_1|)$
where e_1=max(|e|;|a+e-c|) f_1=max(|f|;|b+f-d|)

*The 90-degree elbow and T-fitting are manufactured with a neck broken at a 45-degree angle. The inner curves will be angular if the size is 100 or smaller, or if a loose neck is requested, or if the elbow angle is less than 90 degrees.

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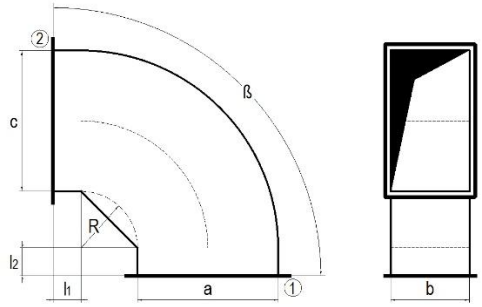
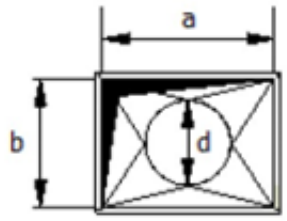


VL-07 Bend *

Surface:

$2\cdot(a+b)\cdot(a\cdot(\frac{\beta\cdot\pi}{180})+2\cdot R)$

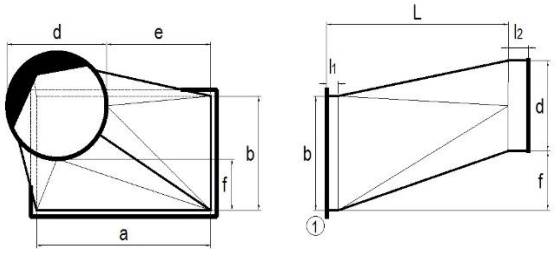


VL-08 Rect-to-round transition concentric

Surface:

If $2\cdot(a+b)\geq d\cdot\pi$ $\quad 2\cdot(a+b)\cdot(L+\left|\frac{a-d}{2}\right|+\left|\frac{b-d}{2}\right|)\cdot 1{,}5$

If $2\cdot(a+b)<d\cdot\pi$ $\quad d\cdot\pi\cdot(L+\left|\frac{a-d}{2}\right|+\left|\frac{b-d}{2}\right|)\cdot 1{,}5$



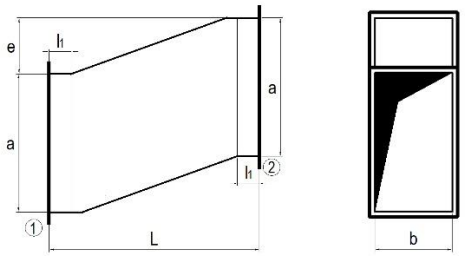
VL-09 Rect-to-round transition excentric

Surface:

If $2\cdot(a+b)\geq d\cdot\pi$ $\quad 2\cdot(a+b)\cdot(L+|e_1|+|f_1|)\cdot 1{,}5$

If $2\cdot(a+b)<d\cdot\pi$ $\quad d\cdot\pi\cdot(L+|e_1|+|f_1|)\cdot 1{,}5$

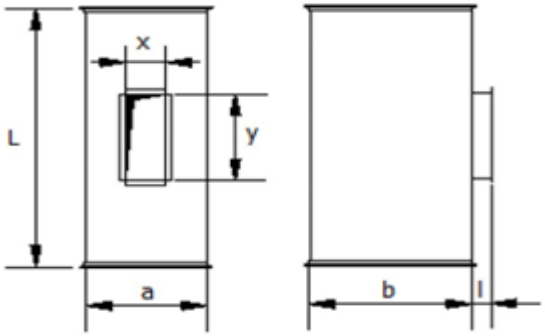
where $e_1=\max(|e|;|a+e-d|)$ $f_1=\max(|f|;|b+f-d|)$



VL-S-bend

Surface:

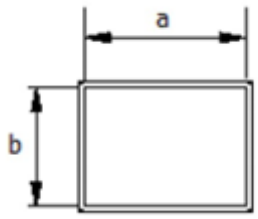
$2\cdot(a+b)\cdot(L+|e|)$



VL-11 Duct fitting suitable for air grille intake

Surface:

$2\cdot((a+b)\cdot L+(x+y)\cdot l)$



FL End cover

L lenght

Surface:

$(a+2L)\cdot(b+2L)$

*The 90-degree elbow and T-fitting are manufactured with a neck broken at a 45-degree angle. The inner curves will be angular if the size is 100 or smaller, or if a loose neck is requested, or if the elbow angle is less than 90 degrees.

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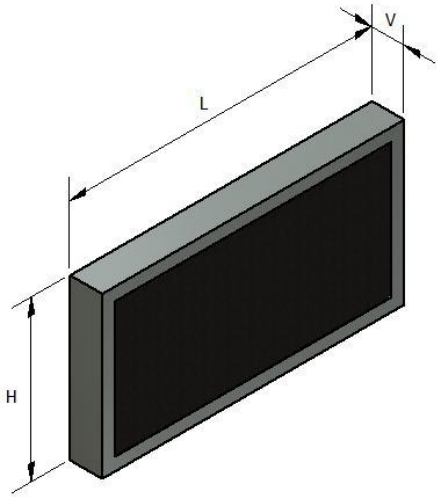
Silencers

The sound attenuator structures that can be integrated into the duct system are available in two designs.
Both types operate purely on the principle of sound absorption.
The difference lies in the configuration: in rectangular ducts, so-called baffles are installed parallel to the airflow, whereas in circular ducts, the attenuating insert is positioned along the perimeter.
The baffles placed in rectangular cross-sections are equipped with metal frames.



Acoustic baffles

The sound attenuating baffles consist of a frame structure and sound-absorbing material placed within the frame.They are designed to securely hold the acoustic material in place.The side of the baffle exposed to the airflow (inlet side) can be manufactured either with a flat sheet or with a streamlined profile to promote favorable airflow characteristics.The baffles are available in thicknesses of 50, 100, 150, or 200 mm, depending on whether they are installed along the duct wall or in the center of the duct.

Standard manufacturing dimensions	
„H" Height	from 100 mm to 2500 mm
„L" Length	from 500 mm to 3000 mm
„V" Baffle thickness	50, 100, 150, 200 mm

The sound-absorbing material is glass wool with a density of 60 kg/m³.To prevent fiber shedding due to airflow, the surface in contact with air is covered with a glass fiber veil. This facing effectively prevents fiber erosion up to an air velocity of 20 m/s, which is therefore the maximum permitted airflow speed in baffle-type sound attenuators using this material.The most important characteristic of sound attenuators is their acoustic insertion loss, which indicates the sound attenuation performance.This value depends on frequency and is determined by measuring the difference in sound pressure levels in the ventilation system before and after the attenuator is installed.Straight and elbow-type sound attenuators can also be manufactured with custom connection dimensions.During planning and sizing, it is essential to note that the dimensions are not interchangeable, as the baffles can only be installed in a vertical position within the system..

Fire resistance and heat resistance depend on the properties of the sound-absorbing material used, as follows:

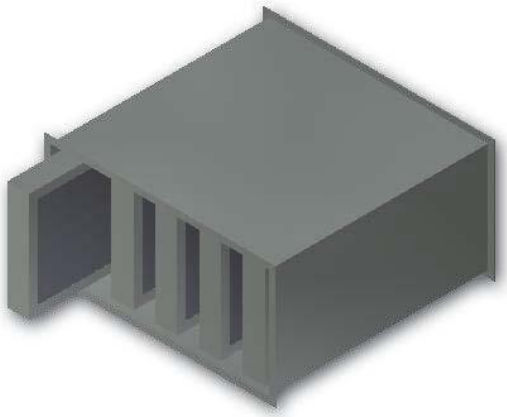
Damping material	Fire resistance	Heat resistance
Mineral wool	A1	250 °C
Glass wool	A1	250 °C

It is recommended to connect sound attenuators to air duct systems without creating sound bridges in order to prevent the spread of body-borne sounds.

Note: During installation, the sound attenuating bodies must be protected from damage and moisture!

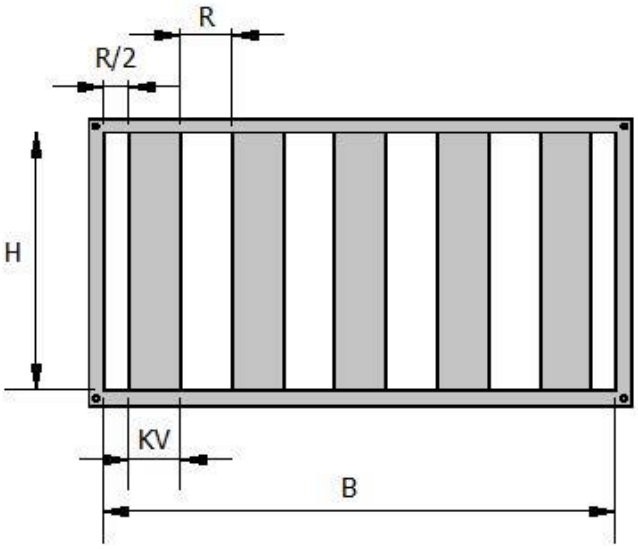
Rectangular silencer

The sound attenuating baffles are placed in a straight air duct with a rectangular cross-section or in a square elbow. The air duct is made of hot-dip galvanized sheet metal with a min. 275 g/m2 zinc coating according to EN 10142 standard on both sides. The material quality is DX51DZ275NAC.



The channel side panels are equipped with trapezoidal rib reinforcement. Depending on the pressure class, the corrugated side panel is also equipped with a separate stiffening profile to ensure sufficient rigidity. The stiffening profile is attached to the outer surface of the side panel.A szerkezetet légcsatorna profilból készült keret zárja le.

Unless otherwise specified, the duct elements are manufactured to withstand low pressure differentials (up to 630 Pa). The baffle frame structure is also made of galvanized steel sheet. The baffles are fixed to the air duct with pop rivets or self-tapping screws.
Several sound-absorbing baffles are placed in the silencers. In the case of a smaller cross-section, this can be 1 piece. The number of baffles depends on the baffle thickness, the width of the silencer (by width we mean the side to which the baffles are located perpendicularly), and the free cross-section of the silencer.



If required, baffles can also be placed on the side of the sound attenuator body for greater attenuation!

Standard manufacturing dimensions	
„B" width	from 200 mm to 2000 mm
„H" height	from 100 mm to 1500 mm
„KV" baffle thickness	100, 150, 200 mm
„L" length	500 - 1500 mm

We can manufacture silencers of any size within the general size limits. We can deviate from the size limits on request and apply individual pricing. The dimensions of width "B" and height "H" are not interchangeable.

Circular silencer

The circular silencers are lightweight and can be installed in SPIKO or WESTERFORM air ducts using a suitable pipe or fitting connector.

The inner tube of the damping tube is made of perforated steel sheet, surrounded by a glass veil to prevent the sound-absorbing cotton from fraying. The outer galvanized steel sheet tube can be spot-welded, spirally or longitudinally crimped. The sound-absorbing material is located in the space between an inner and a larger diameter outer tube. The annular opening at the two ends of the outer and inner tubes is closed with a closing cap fitting.

The thickness of the sound-absorbing material can be 50, 100, 150 or 200 mm.

Note: Can be installed in any position!

In the case of larger diameters, if the sound-absorbing material placed in the shape of a ring does not provide adequate sound attenuation, an additional baffle can be placed in the sound-absorbing device. If a baffle is also placed in a sound-absorbing device with a circular cross-section, the inner tube is always made of perforated galvanized steel sheet. Within the general size limits, the size range is according to the standard spiral-wound pipe diameter used in air technology.

Standard manufacturing dimensions	
Pipe diameter	From 80 mm to 800 mm
Length	From 500 mm to 1000 mm
Thickness of sound-absorbing material	50, 100, 150, 200 mm

Measurements and attenuation curves

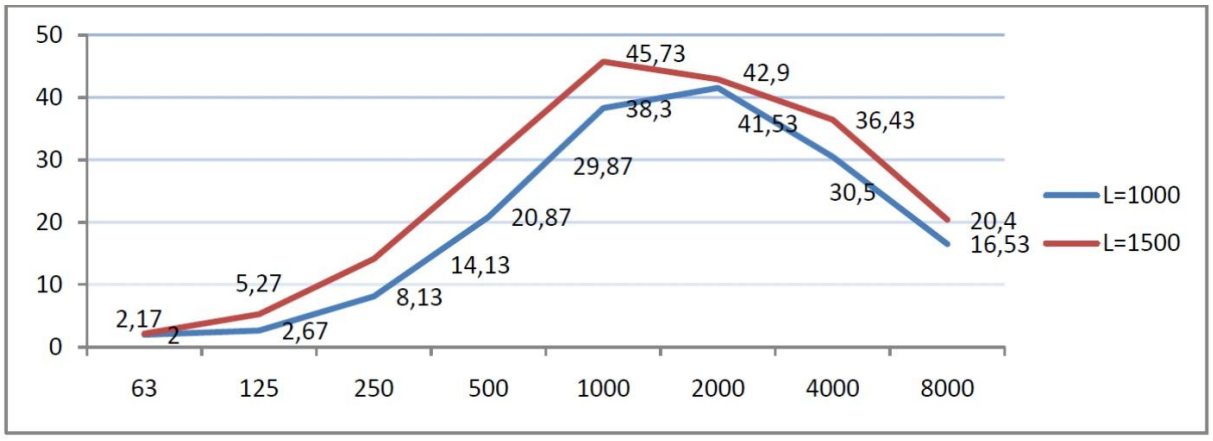
Measurements were performed on the sound attenuators at the Air Conditioning Laboratory of the Budapest University of Technology.

The purpose of the measurement:

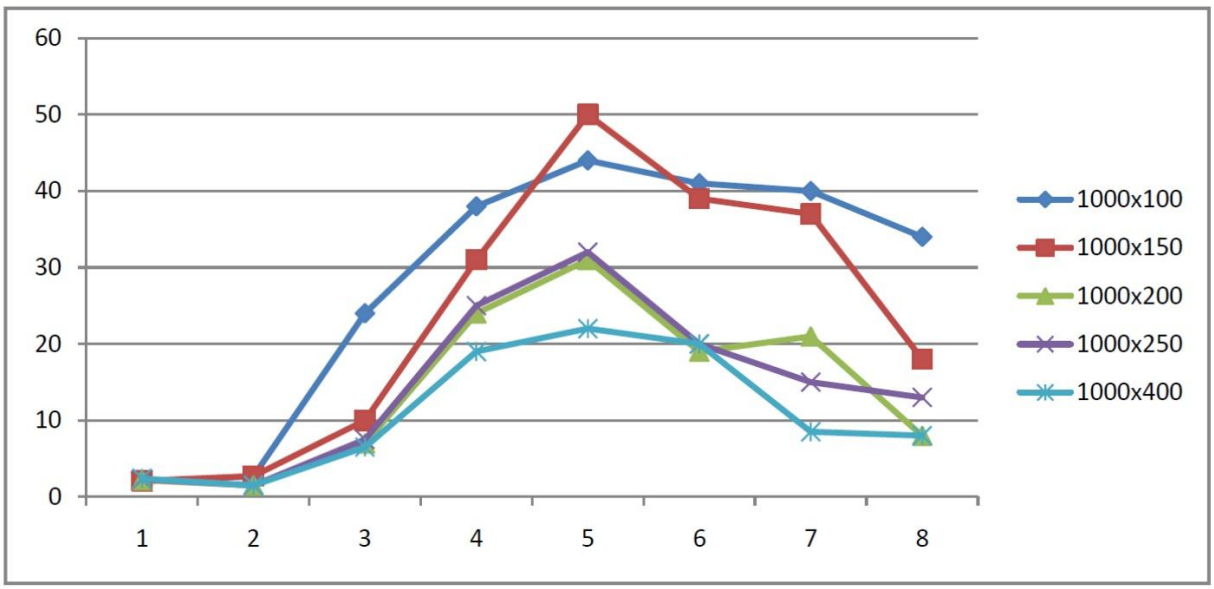
• to determine the third-band distribution of the sound pressure level with the installation of the air duct elements detailed in the measurement subject by direct measurement,
• to determine the insertion loss of the sound attenuator fitting in the octave band distribution according to the relevant standards, in possession of the measured data

The standards used for the measurement: MSZ 18150, EN ISO 7235, ISO 3741, MSZ 3391, MSZ EN 25135, IEC 651, IEC 804, IEC 225, VDI 2081.

In the absence of domestic regulations, the measurement of the noise emission characteristics was performed in accordance with the relevant international standard, the requirements of EN ISO 7235.



Insertion loss in dB as a function of frequency



Insertion loss in various cross sections in dB as a function of frequency