MANDÍK

TPM 091/13
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SMRF

Silencer

Technical Documentation
Installation, Commissioning, Operation, Maintenance and Service Manual



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These technical specification state a row of manufactured sizes and models of "SILENCERS SMRF "(further only SILNECER). It is valid for production, designing, ordering, delivery, assembly and operation.

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II. GENERAL INFORMATION

1. Description

1.1. Silencers SMRF are straight round sound absorber for use in ventilation systems. Silencers reduce noise (sound) transmission by ducts. Silencers are placed between noise source and protected room. Silencers are fire resistant.

1.2. Silencers are tested in accordance with EN 1366-1.

1.3. Silencers are classified as **EI 30 (ho i→ o) a E 60 (ho i→o)** according EN 13501-3 + A1

1.4. The leakage tests according to EN 12237. The silencer achieved the air tightness class D.

1.5. The sound tests according to EN ISO 11691 - Measurement of insertion loss of ducted silencers without flow -- Laboratory survey method (see point 6.)

1.6. Silencer consist of the outer casing and inner perforation tube. Space between them is filled by mineral wool with acoustic and thermal insulation properties. Inner perforated tube is made of galvanized steel sheet and it is coated with nonwoven fabric. Silencer is closed by 2 pieces of reducers made of galvanized sheet.

1.7. Exact silencer function is provided under the following conditions:
a) Maximum air circulation speed is 12 m/s
b) Maximum pressure difference is 1500 Pa.

1.8. Silencers are designed for macroclimatic areas with mild climate according to EN 60 721-3-3.

1.9. Silencers are suitable for systems without abrasive, chemical and adhesive particles.

1.10. Temperature in the place of installation is permitted to range from -20°C do +70°C.

1.11. If is not noticed other way, all dimensions and weight are in millimetres and kilograms.

Fig. 1

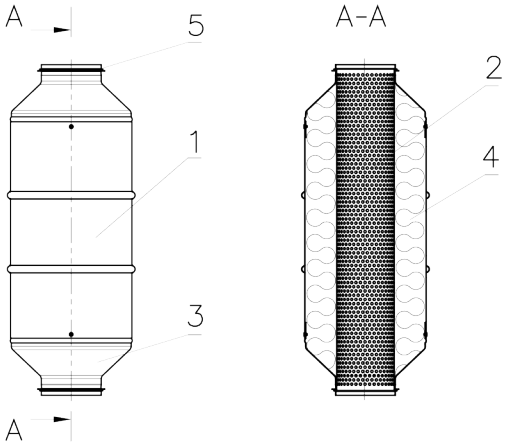


2. Design

2.1. Silencers are produced with insulation thickness 50 mm.

2.2. Connection dimensions correspond to commonly used dimensions in air duct systems.

Fig. 2

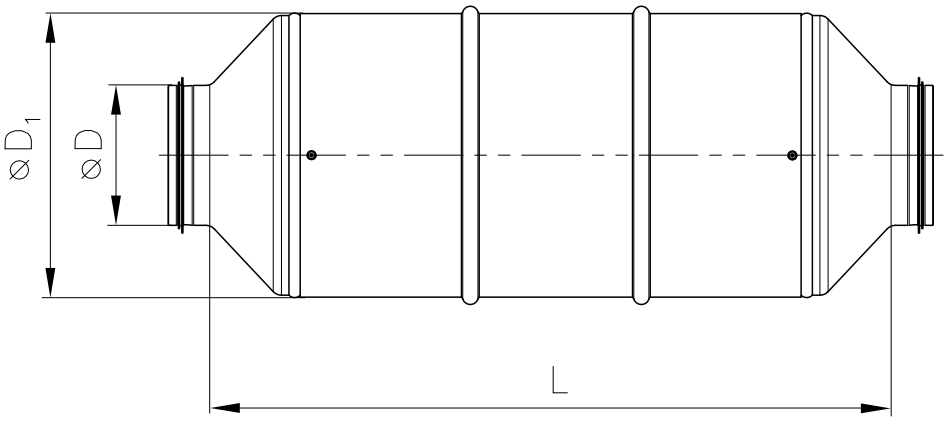


Position:

1	Outer sheet casing
2	Inner sheet casing
3	Reducers
4	Acoustic absorber
5	Lip seal

3. Dimensions and weight

Fig. 3



3.1. Dimensions and weights

Tab. 3.1.1. Dimensions and weight

Jmenovitý rozměr	⌀ D [mm]	⌀ D_1 [mm]	L [mm]	Hmotnost [kg]
SMRF 80/300	80	160	300	1,5
SMRF 80/600	80	160	600	3,4
SMRF 100/300	100	200	300	2,3
SMRF 100/600	100	200	600	4,5
SMRF 100/900	100	200	900	6,6
SMRF 125/300	125	250	300	2,8
SMRF 125/600	125	250	600	5,5
SMRF 125/900	125	250	900	8,0
SMRF 160/300	160	280	300	3,1
SMRF 160/600	160	280	600	6,3
SMRF 160/900	160	280	900	8,8
SMRF 200/600	200	315	600	7,4
SMRF 200/900	200	315	900	10,8
SMRF 200/1200	200	315	1200	14,2
SMRF 250/600	250	355	600	8,6
SMRF 250/900	250	355	900	12,5
SMRF 250/1200	250	355	1200	16,3
SMRF 315/600	315	450	600	11,7
SMRF 315/900	315	450	900	16,6
SMRF 315/1200	315	450	1200	21,5
SMRF 400/900	400	500	900	19,5
SMRF 500/900	500	600	900	23,9

4. Statement of installation

4.1. Silencers are suitable for installation in round air duct.

Fig. 4 Horizontal duct

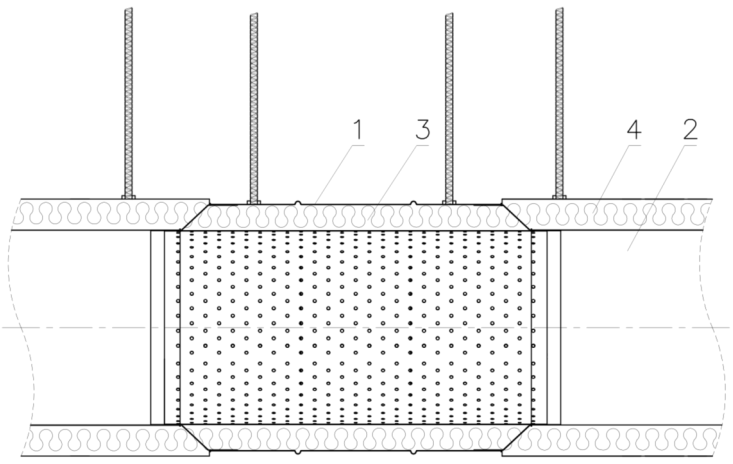
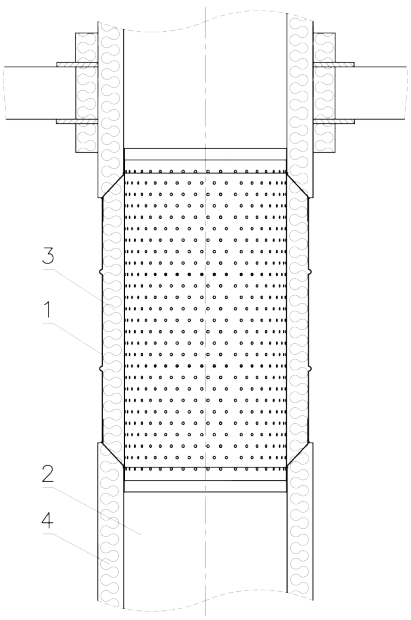


Fig. 5 Vertical duct



Position:

1	Silencer SMRF
2	Air duct
3	Acoustic absorber
4	Mineral wool (density min. 105 kg/m^3 thickness 50 mm)

Notice Reducer must be insulated from outer side by mineral wool (density min. 105 kg/m^3).

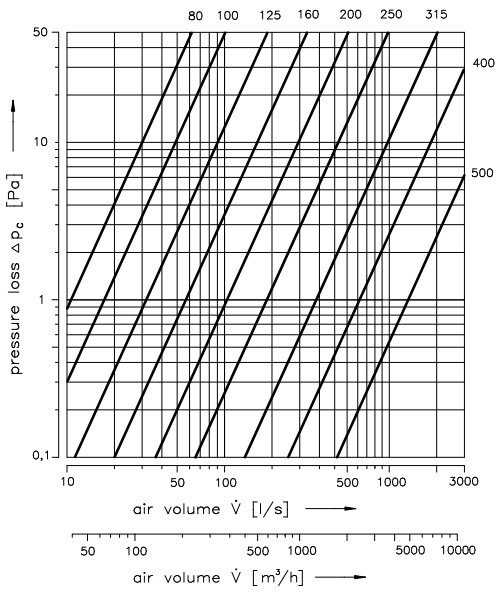
4.2. Silencers are suitable for installation in vertical and horizontal position. Back-to-back air piping must be hung or supported so as all load transfer from the back-to-back piping to the silencer is absolutely excluded.

III. TECHNICAL DATA

5. Pressure loss

5.1. Pressure loss

Diagram 5.1.1. Pressure loss of silencers



6. Sound data

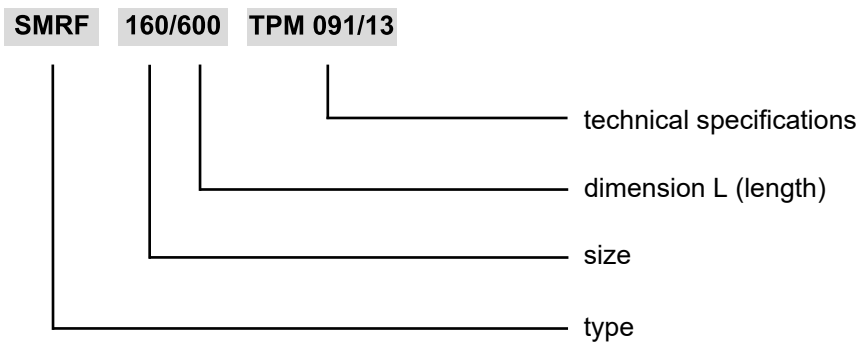
6.1. Sound data

Tab. 6.1.1. Attenuation [dB] for centre frequency [Hz]

D [mm]	L [mm]	Attenuation [dB]							
		63 [Hz]	125 [Hz]	250 [Hz]	500 [Hz]	1000 [Hz]	2000 [Hz]	4000 [Hz]	8000 [Hz]
80	300	1	1	9	16	18	26	29	25
80	600	2	10	18	27	34	39	29	34
100	300	1	4	10	13	17	23	25	14
100	600	1	4	12	24	33	29	27	28
100	900	1	13	20	32	43	31	30	33
125	300	2	4	10	12	15	23	21	14
125	600	1	5	16	22	30	35	27	18
125	900	2	6	17	31	36	38	32	17
160	300	0	4	6	8	11	17	16	13
160	600	1	6	9	15	24	29	21	12
160	900	2	8	12	20	37	36	29	20
200	600	1	6	9	12	20	25	16	10
200	900	2	8	10	21	34	31	21	15
200	1200	3	9	16	30	36	39	25	18
250	600	1	2	9	13	21	23	9	8
250	900	2	2	10	20	27	32	11	10
250	1200	2	8	12	21	34	34	16	12
315	600	0	2	7	9	15	21	8	6
315	900	1	2	7	14	21	25	13	8
315	1200	3	6	11	21	26	29	14	12
400	900	2	3	6	13	20	16	9	7
500	900	3	4	5	12	17	14	9	8

IV. ORDERING INFORMATION

7. Order key

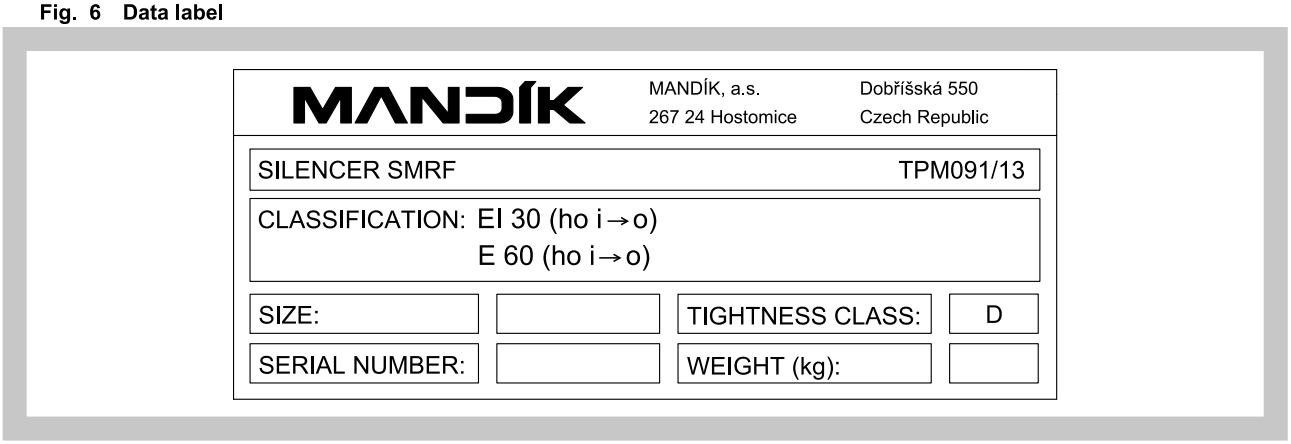


V. DATA LABEL

8. Data label

8.1. Data label is placed on the body of silencers.

Fig. 6 Data label



VI. MATERIAL, FINISHING

9. Material

9.1. Outer sheet casing and inner perforated tube is made of galvanized steel sheet.

9.2. Acoustic absorber is made of mineral wool.

VII. INSPECTION, TESTING

10. Inspection, testing

10.1. The appliance is constructed and preset by the manufacturer, its operation is dependent on proper installation and adjustment.

10.2. All devices are tested terms of safety and operability after production.

VIII. TRANSPORTATION AND STORAGE

11. Logistic terms

11.1. Silencers are transported by box freight vehicles without direct weather impact. Silencers must be protected against mechanic damages when transported and manipulated.

11.2. If not otherwise agreed, the handover is considered when the goods is forwarded to the carrier.

11.2. Silencers must be stored indoor in environment without any aggressive vapours, gases or dust. Indoor temperature must be in the range from -5°C to +40°C and relative humidity max. 80%.

IX. ASSEMBLY

12. Assembly

12.1. All effective safety standards and directives must be observed during silencer assembly.

The producer reserves the right for innovations of the product.
For actual product information see www.mandik.com

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