



SPMF - Circular damper with measuring flange.

INTRODUCTION

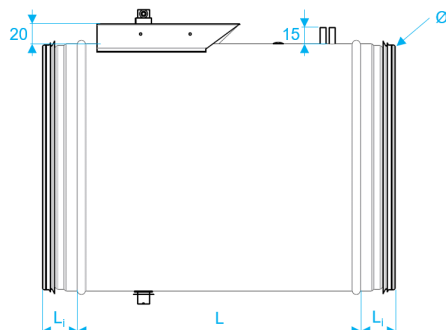
SPMF is a throttle damper with a full damper blade equipped with a measuring flange with double measurement points. SPMF is included in the circular design of control units DCV-RCb, DCV-LCb, DCV-BLb, DCV-FLb, DCV-CFb and DCV-B.

FUNCTION

The damper requires low torque, which enables quick and accurate regulation. The actuator shelf is adapted for Lindinvent's damper actuator. SPMF, in combination with Lindinvent's flow sensor and damper actuator, allows for regulation of air flow at low air speeds. In combination with a separate measuring flange (see SMED or SMID) damper SPM can be used as an alternative to SPMF.

DIMENSION

(See tabel 1 for measures in mm)



Ød	L ₁	L	Weight(kg)	K-factor
100	33	205	0,8	5,2
125	35	201	1	9,5
160	35	228	1,5	15,4
200	35	248	2	23,9
250	35	286	2,5	36,9
315	55	295	4,5	57,8
400	55	355	6	91,7
500	55	413	9,6	141,0

Table 1: Dimensions, weight and K-factor for each damper size.
Airflow calculation formula: $Airflow(q) = K\text{-factor} \times \sqrt{\Delta p}$ [l/s].

TECHNICAL SPECIFICATIONS

General

Material

The damper is manufactured in galvanized sheet steel (C3), but can be ordered in stainless acid-resistant steel sheet (C5). Measuring tubes made of stainless acid-proof steel plate (C5). For surface treatments, see *Order information*. Duct sealing of EPDM rubber and damper blade sealing of silicone rubber.

Size and classification

Sizes: Ø100 – Ø500 mm according to EN 1506:2007
Tightness class 3 according to VVS AMA.
Pressure class A according to VVS AMA.

Flow measurement

Recommended measurement range: 0.5 – 6.0 m/s
Maximum range: 0.2 – 7.0 m/s
Measurement accuracy*: $\pm 5\%$ or at least $\pm x$ l/s
(x = duct area in dm²) *Applies together with Lindinvent's damper actuator and controller.

PLACEMENT

For accurate measurement data: SPMF must be placed in the correct direction and preceded by an interference-free straight channel section corresponding to a length of 3.5 times the channel diameter. After SPMF, no minimum distance to a subsequent bend or other disturbance is required.

When SPMF is placed after a silencer with a different cross-sectional area (smaller inner diameter, center body or center baffle), SPMF shall be placed directly after a straight duct section, corresponding to 2.0 times the duct diameter where the length of the silencer is not included.

FC-SPMF FOR FUME CUPBOARDS

SPMF can be ordered in the version FC-SPMF, which is to be used together with fume cupboard controller FCLb.

NOISE GENERATION

$$L_W = L_{WA} + K_0$$

L_W = Sound power level in dB. See table 2 for tolerances.

L_{WA} = Total A-weighted sound power level, dB(A), is read from the sound level diagram for the respective SPMF.

K_0 = Correction factor for frequency bands are read from table 3.

Measurements of sound pressure and sound power have been carried out according to ISO 374 and ISO 5135.

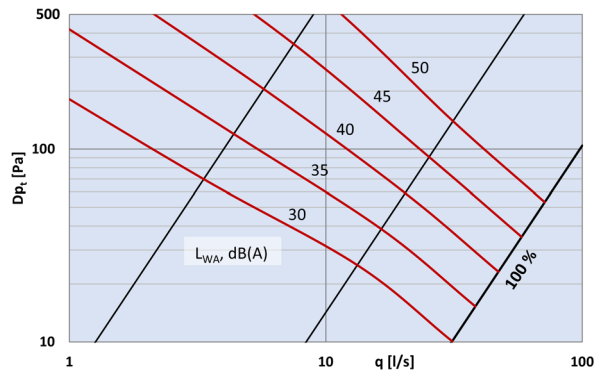


Diagram 1: Total A-weighted sound power level, dB(A) for SPMF-100

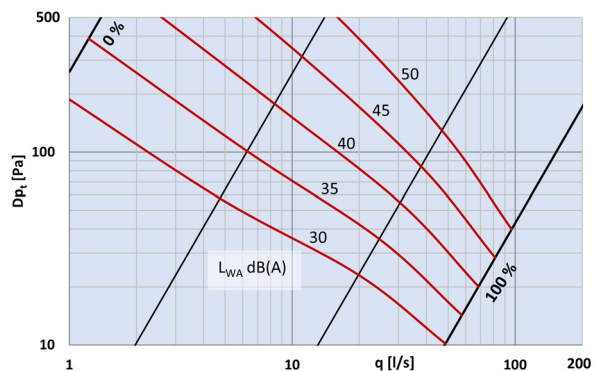


Diagram 2: Total A-weighted sound power level, dB(A) for SPMF-125

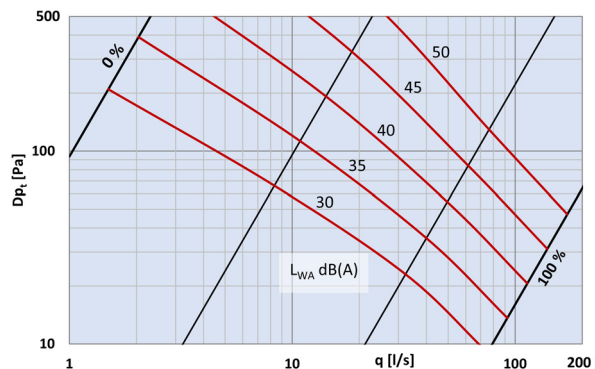


Diagram 3: Total A-weighted sound power level, dB(A) for SPMF-160

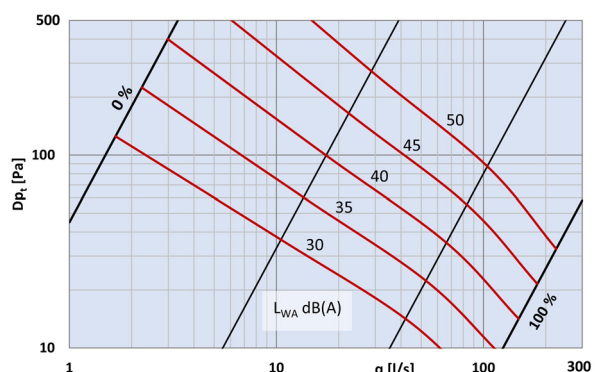


Diagram 4: Total A-weighted sound power level, dB(A) for SPMF-200

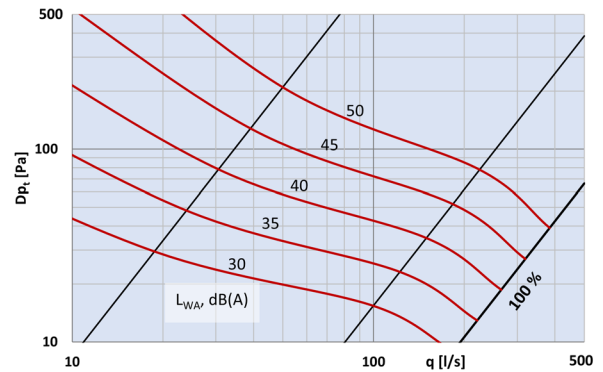


Diagram 5: Total A-weighted sound power level, dB(A) for SPMF-250

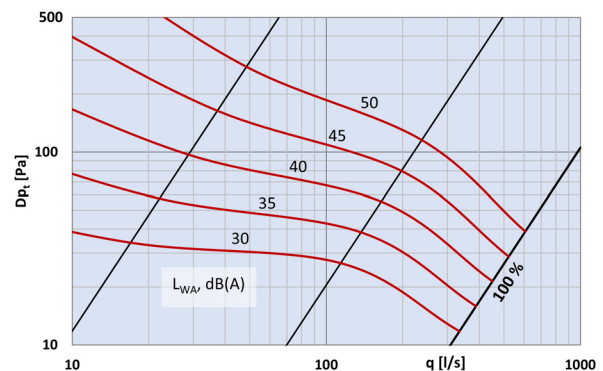


Diagram 6: Total A-weighted sound power level, dB(A) for SPMF-315

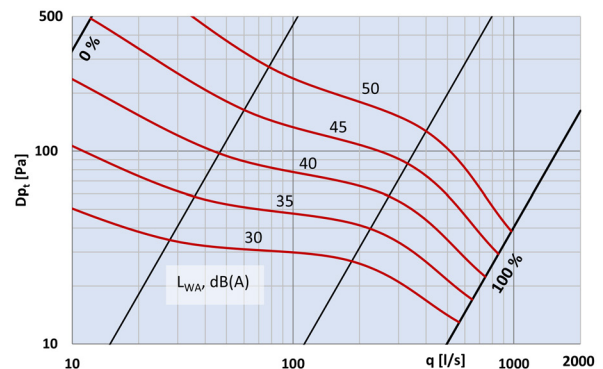


Diagram 7: Total A-weighted sound power level, dB(A) for SPMF-400

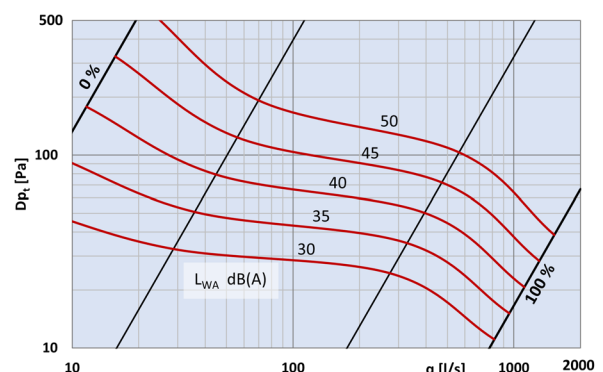


Diagram 8: Total A-weighted sound power level, dB(A) for SPMF-500

NOISE GENERATION

$$L_w = L_{WA} + K_0$$

L_w = Sound power level in dB. See table 2 for tolerances.

L_{WA} = Total A-weighted sound power level, dB(A), is read from the sound level diagram for the respective SPMF.

K_0 = Correction factor for frequency bands are read from table 3.

Measurements of sound pressure and sound power have been carried out according to ISO 3741 and ISO 5135.

Hz	63	125	250	500	1k	2k	4k	8k
± dB	6	4	3	3	3	3	3	3

Table 2: Tolerance sound power level L_w [dB]

Ød \ Hz	63	125	250	500	1k	2k	4k	8k
100	3	2	1	-2	-6	-11	-19	-24
125	4	2	1	-1	-6	-11	-18	-23
160	4	2	1	-2	-5	-9	-16	-22
200	5	4	2	-3	-5	-10	-16	-23
250	7	6	4	-3	-7	-10	-18	-25
315	8	7	3	-2	-6	-11	-16	-24
400	9	5	3	-2	-6	-12	-15	-24
500	10	5	2	-3	-5	-12	-15	-25

Table 3: Correction factor K_0 [SPMF-100 till -500]

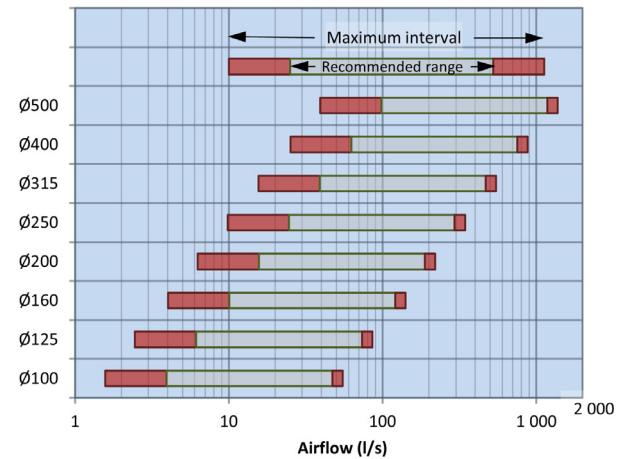


Diagram 9: Flow range [l/s] for each size of SPMF.

ORDER INFORMATION

Circular damper with measuring flange SPMF alternatively FC-SPMF, Lindinvent AB. When ordering, in addition to the product name, size, material/surface treatment, colour and gloss number are also specified.

Size: 100, 125, 160, 200, 250, 315, 400, 500

Material: Galvanized steel sheet, epoxy-coated steel sheet or powder-coated steel sheet. The damper can also be ordered in stainless steel, acid-resistant SS 23 43.

Colour: An epoxy-lacquered damper has RAL9003 as standard with gloss 85, corrosivity class C5. Powder coated has RAL9003 as standard with gloss 30, corrosivity class C4. Other colours and gloss levels can be ordered.



Environmental Product Declaration, EPD, is something many companies are becoming familiar with as they are increasingly required. The application of EPDs has existed for a long time as an EU directive with the aim of tightening the requirements regarding the declaration of various products' environmental impact. You can find our EPDs on EPD Hub, which is one of the international systems for third-party verified EPDs. www.epdhub.com

ADDITIONAL PRODUCT DOCUMENTATION

Download available in the product page for SPMF at lindinvent.com

Document	Comments
Installation instruction	Refers to the installation instruction for the relevant airflow control unit.
Start-up instruction	Not relevant.
Maintenance instruction	Cleaning and control measurement.
External connection diagram	Not relevant.
Building material declaration	Assessed by Byggarubedömningen in Sweden. EPD registered in June 2022.
Modbus list	Not relevant.
AMA text	AMA-code QJB.11; Available for download via the product's website.