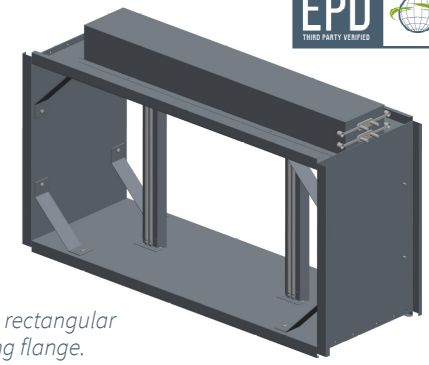


SMRD – A rectangular measuring flange.

INTRODUCTION

SMRD is a measuring flange for rectangular ducts, built with one to four flanges depending on size. All flanges are connected to a double measuring point. SMRD is used in the rectangular design of measuring unit DCV-MF. SMRD is also used with damper JSPM to install a rectangular version of DCV-RCb, DCV-LCb, DCV-BLb, DCV-FLb and DCV-CFb.

ORDER INFORMATION

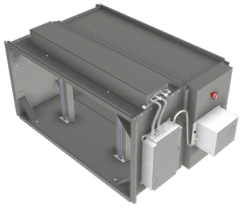
Rectangular damper, Lindinvent AB, type SMRD-[WxH]
Sizes (W x H) in combinations according to Table 1.
Width (W): from 200 to 1600 mm.
Height (H): from 200 to 1000 mm.
Length (L): Not relevant here (Always 220 mm)
Example: SMRD-600x300

W/H	200	300	400	500	600	700	800	1000
200								
300								
400								
500								
600								
700								
800								
1000								
1200								
1400								
1600								

MagiCAD

Table 1: Standard dimensions for W and H, available to order. The length (L) is always 220 mm. Units within the marked area are all available in MagiCAD.

Insert measuring flange:
Where the duct may need to be supplemented afterwards with a measuring flange, a solution with an insert measuring flange (flanges) can be ordered from Lindinvent. The solution requires flow calibration on site.



DCV-RCb rectangular:
The smart damper is mounted on site and here consists of controller RCXb which is mounted directly on the measuring flange SMRD. RCXb is then connected to damper JSPM via connected and mounted damper motor.

TECHNICAL SPECIFICATIONS

Generally

Material: The measuring device consists of a case and measuring flanges of galvanized sheet steel (C3) with measuring tubes of aluminum (C4). Housing and measuring flanges can also be ordered in stainless acid-resistant steel plate (C5) or epoxy-lacquered version (C5).

Weight : By size according to Table 1.

Flow measurement
Recommended measuring range: 0.5 – 6.0 m/s
Maximum range: 0.2 – 7.0 m/s
Measurement accuracy*: ± 5% or minimum ± x l/s
(x = duct area in dm^2)
*Applies together with Lindinvent's controller and damper actuator.

K-factors and air flow calculation
K = 749 x A where A = Width (W) x Height (H) in meters.
Example: K-factor for SMRD 500x200 = 749x0.5x0.2 = 74.9
Air flow calculation (q): $q = K \times \sqrt{\Delta p}$ [l/s]

PLACEMENT IN DUCT

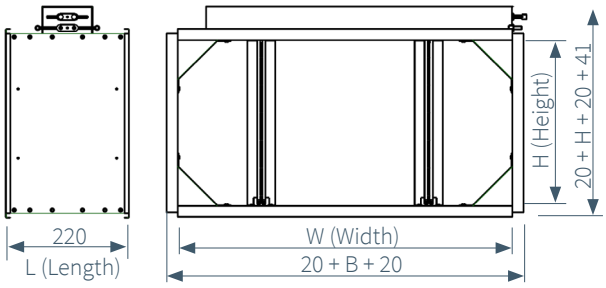
For accurate measurement data: SMRD needs to be positioned in the correct direction and directly after a disturbance-free straight duct section is required of 3.5 x the length of the equivalent channel diameter.

Directly after SMRD no minimum distance to a subsequent bend or other disturbance is required.

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

The equivalent duct diameter (de) is calculated by the following formula:
$de \approx 1.15 \times \sqrt{A}$ (where A = W x H).

DIMENSIONS (MM)



PRESSURE DROP AND SOUND DATA SMRD

Pressure drop

Total pressure drop for various cross section areas of SMRD can be read from the pressure drop diagram below.

Noise generation

$L_W = L_{WA} + K_0$

L_W = Sound power level dB

L_{WA} = Total A-weighted sound power level dB (A), diagram 3.

K_0 = Correction factor for actual frequency band is read from table 2 for different cross section areas.

Ø, mm	A	B	C	Weight (Kg)	k factor (k)
125	38	40	25	0.35	9.5
160	38	40	25	0.4	15.4
200	38	40	25	0.6	23.9
250	60	40	25	0.8	36.9
315	60	40	25	1.4	57.8
400	78	40	25	1.5	91.7
500	78	40	25	1.85	141
630	78	40	25	2.4	236

Table 1: Dimensions, measurement, weight and K factor.
Flow calculation: $q = k \times \sqrt{\Delta p}$ [l/s]

Cross section area	Octave band (Hz)							
	63	125	250	500	1k	2k	4k	8k
0,1 m2	-3	-7	-2	-2	-5	-9	-17	-31
0,5 m2	+5	+1	+1	-3	-5	-10	-17	-30
1 m2	+5	+1	+1	-3	-5	-10	-17	-30
2 m2	+5	+1	+1	-3	-5	-10	-17	-30

Table 2: Correction factor, K0

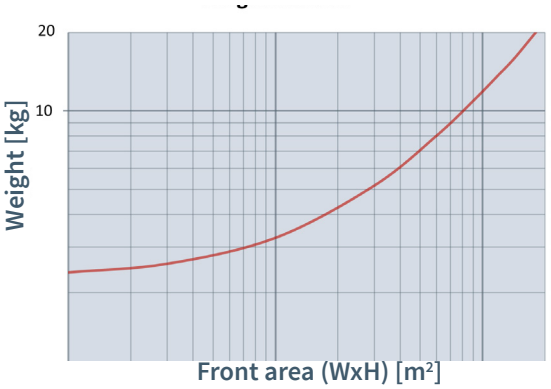


Diagram 1: Weight SMRD

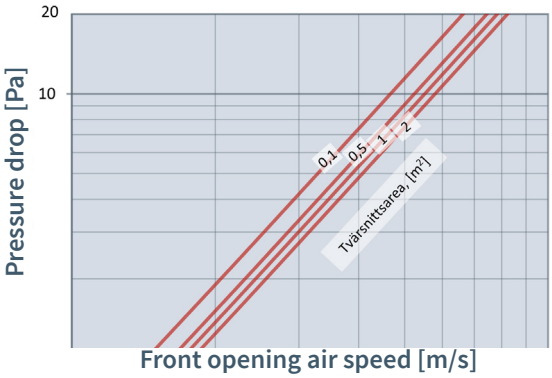


Diagram 2: Static pressure drop [SMRD]

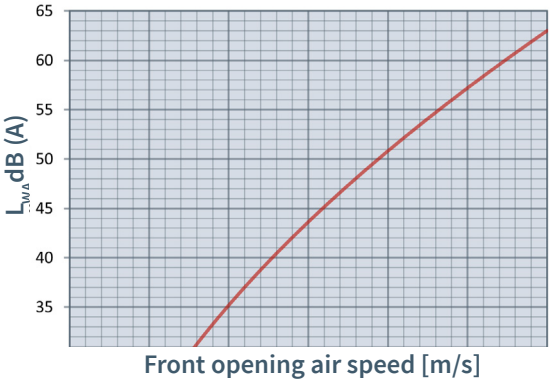


Diagram 3: Sound level [SMRD]

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

Table 3: Tolerance sound data

ADDITIONAL PRODUCT DOCUMENTATION

Documents available at www.lindinvent.se

Document	Comments
Installation instruction	The instruction for DCV-BLb is used as reference for SMRD.
Start-up instruction	Not applicable.
Maintenance instruction	Cleaning and control measurement.
External connection diagram	Not applicable.
Product declaration	Assessed by Byggvarubedömningen and Sundahus. EPD registered in June 2022.
Modbus	Not applicable.
AMA-text	AMA-code QJJ. AMA-text vailable for download at the product homepage.