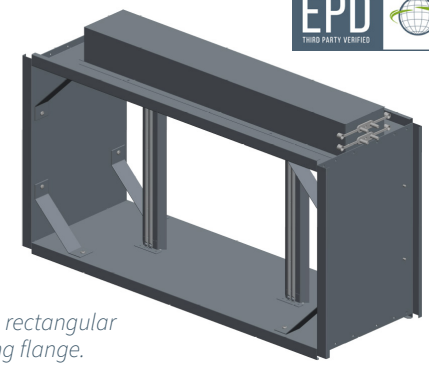
Version B

SMRD RECTANGULAR MEASURING FLANGE

INTRODUCTION

SMRD is a measuring flange with guide for connection to rectangular duct. The unit is, depending on the size, built with one to four flanges where measuring pipes are connected to a double measuring outlet. SMRD is used for DCV-MFb rectangular. SMRD in combination with damper JSPM is used for flow regulation via the rectangular versions of DCV-RCb, DCV-LCb, DCV-BLb, DCV-FLb and DCV-CFb.



SMRD – A rectangular measuring flange.

ORDER INFORMATION

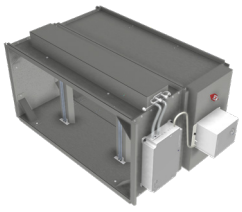
Rectangular measuring flange, Lindinvent AB, SMRD-[WxH]. See Table 1 for [WxH].
Width (W): from 200 to 1600 mm.
Height (H): from 200 to 1000 mm.
Length (L): Not relevant here (always 220 mm)
Example: SMRD-600x300

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

MagiCAD

Table 1: Combinations of standard dimensions for W and H available to order. The length (L) is always 220 mm. Sizes within the marked area are available in MagiCAD.

Pug-in measuring flange: When a duct section needs to be supplemented with a measuring flange unit and SMRD cannot be used, the plug-in measuring flange SMRI can be used. The solution requires assistance from Lindinvent who calculates the number of flanges required. The update requires on-site flow calibration.



DCV-RCb rectangular: This smart damper unit is mounted on site. Room climate controller RCXb is mounted on measuring flange SMRD. RCXb is then connected to the damper actuator mounted on JSPM.

TECHNICAL SPECIFICATIONS

General

Material

The unit 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 diagram 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

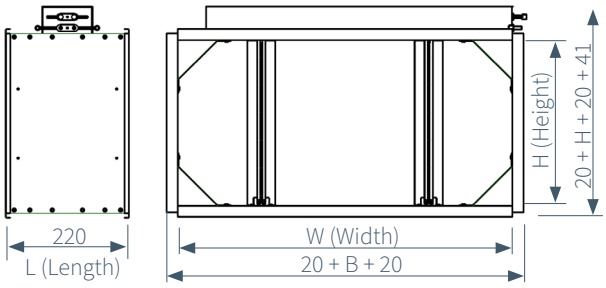
K = 749 x A where A = Width (W) x Height (H) in meters.
Example: K-factor for SMRD 500x200 = 749x0.5x0.2 = 74.9
Air flow calculation (q): $q = K \times \sqrt{\Delta p}$ [l/s]

PLACEMENT IN DUCT

SMRD must be properly oriented and preceded by an undisturbed straight duct section corresponding to >3.5 times the equivalent duct diameter (de). After silencer, with deviating cross-sectional area, a straight section of >2.0 x (de) is required.

The equivalent duct diameter (de) is calculated as: ≈ 1.15 times √ A (where A = W times 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 diagram 2.

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

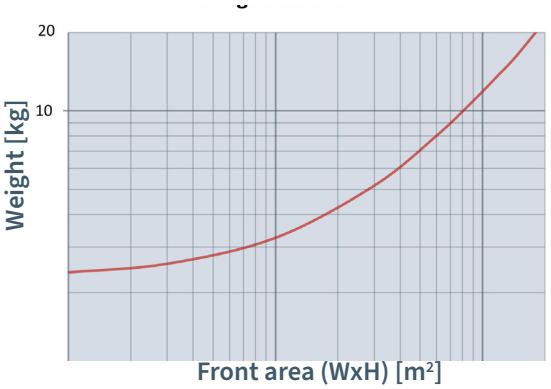


Diagram 1: Weight SMRD

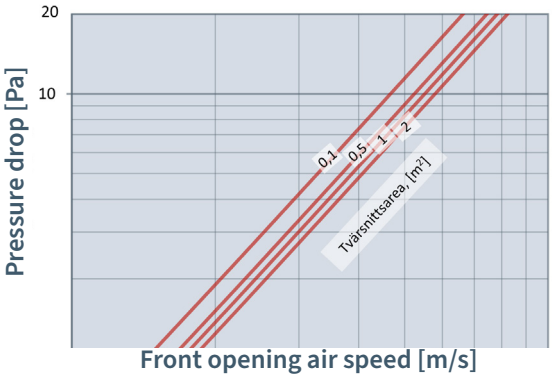


Diagram 2: Static pressure drop [SMRD]

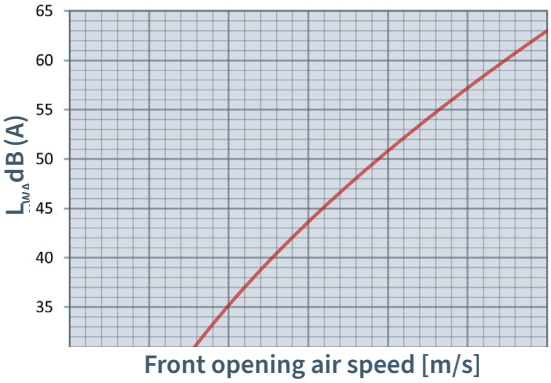


Diagram 3: Sound level [SMRD]

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.