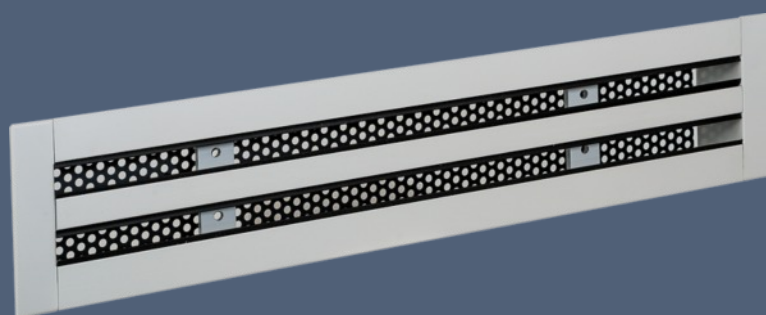


# MANDÍK®

Linear slot diffuser

SDL



These technical specifications will set all the produced sizes and types of "Linear slot diffusers." They shall apply for manufacturing, design, orders, supplies, mounting, operation and maintenance.

**I. CONTENTS**

<b>II. GENERAL</b>	<b>3</b>
1. Description.....	3
2. Design.....	3
3. Sizes and weights.....	3
4. Embedding and placement.....	5
<b>III. TECHNICAL DATA</b>	<b>6</b>
5. Basic parameters.....	6
6. Pressure losses.....	7
7. Acoustic data.....	7
<b>IV. MATERIAL AND SURFACE ADJUSTMENT</b>	<b>7</b>
8. Material.....	7
<b>V. INSPECTION AND TESTING</b>	<b>8</b>
9. Inspection.....	8
10. Testing.....	8
<b>VI. PACKING, TRANSPORT, TAKEOVER, STORAGE, WARRANTY</b>	<b>8</b>
11. Logistics data.....	8
12. Warranty.....	8
<b>VII. MOUNTING, MANIPULATION, MAINTENANCE AND INSPECTION OF OPERATIONABILITY</b>	<b>8</b>
13. Mounting and assembly.....	8
<b>VIII. ORDER DATA</b>	<b>9</b>
14. Order code system.....	9

**II. GENERAL**

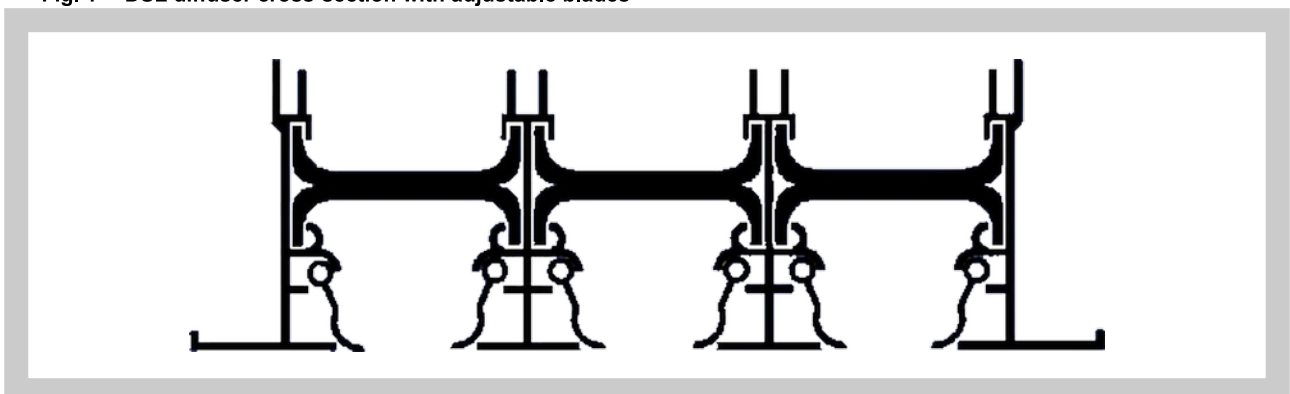
**1. Description**

- 1.1. The SDL Linear slot diffusers are used in ventilation systems for the purpose of air inlets and outlets.
- 1.2. Supply of linear diffusers provides the option of various sizes ranging from 500mm (increasing gradually in sizes by 100mm) to 2000mm. Diffusers consist of a front panel with adjustable blades, a plenum box with nozzles, control flaps and clips for curtains. The advantage of this type of diffuser is a narrow, flat and equalized air flow over the entire size of the machine.
- 1.3. Diffusers are designed for a specific environment, protected against weather conditions, with no condensation in an air temperature range from -15°C to +45°C, and in a range of relative air humidity up to a maximum of 95%. The air, conveyed by the diffuser, shall be free of abrasive, chemical and sticky additives.
- 1.4. Unless stated otherwise, all the sizes and weight are stated in mm and kg.

**2. Design**

- 2.1. The diffuser design varies according to the order code system, in chapter VIII.
- 2.2. The plenum box design varies according to the number of connection flanges and the control flap in the nozzle. The plenum box is equipped with a dispersion plate, placed behind the diffuser for a better air flow distribution within the diffuser.
- 2.3. The design of the front plates varies according to their surface adjustment.
- 2.4. The DSL diffuser cross-section with adjustable blades is on the picture 1.

Fig. 1 DSL diffuser cross-section with adjustable blades



**3. Sizes and weights**

Fig. 2 Size of the SDL diffuser (the “D” design)

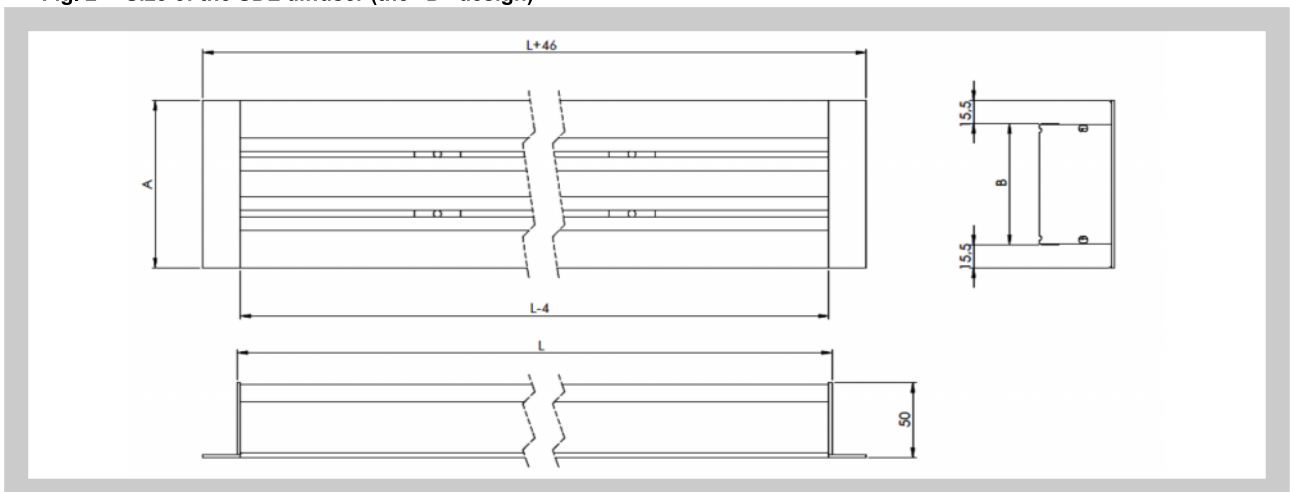


Fig. 3 Diffuser sizes with plenum box (the "B" design)

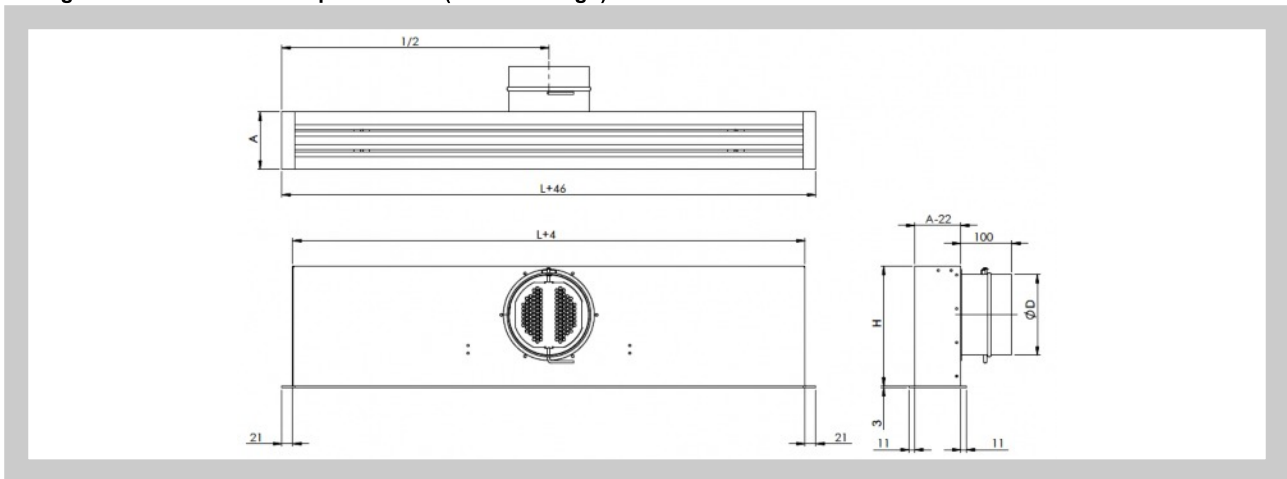
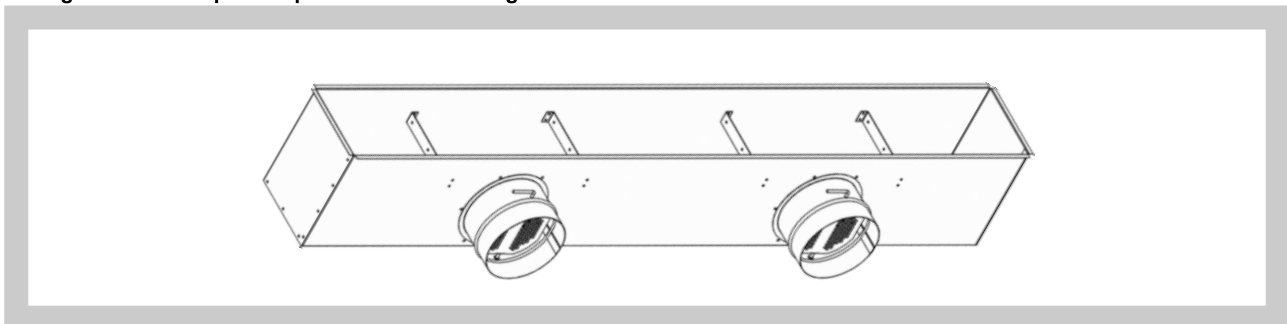


Fig. 4 An example of a plenum box with a higher number of nozzles



Tab. 1 Dimensions of slot diffusers (without connection box)

Diffuser type	Number of slots	$S_{ef}$ (m <sup>2</sup> /m)*	A (mm)	B (mm)	L (mm)**
SDL 1	1	0,012	73	44	500 ... 2000
SDL 2	2	0,024	113	83	
SDL 3	3	0,036	152	122	
SDL 4	4	0,048	192	162	

\* Diffuser efficiency surface per diffuser length of L=1m and with fully opened control blades.

\*\* Available lengths (L) of diffuser sizes: 500, 600, 700, 800, 900, 1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800, 1900, 2000mm.

Tab. 2 Dimensions of slot diffusers with connection box

Diffuser type	H (mm)	D (mm)	Number of nozzles L=500-900	Number of nozzles L=1000-1500	Number of nozzles L=1600-2000
SDL 1	235	160	1	2	2
SDL 2	235	160	1	2	2
SDL 3	275	200	1	2	2
SDL 4	275	200	1	2	3

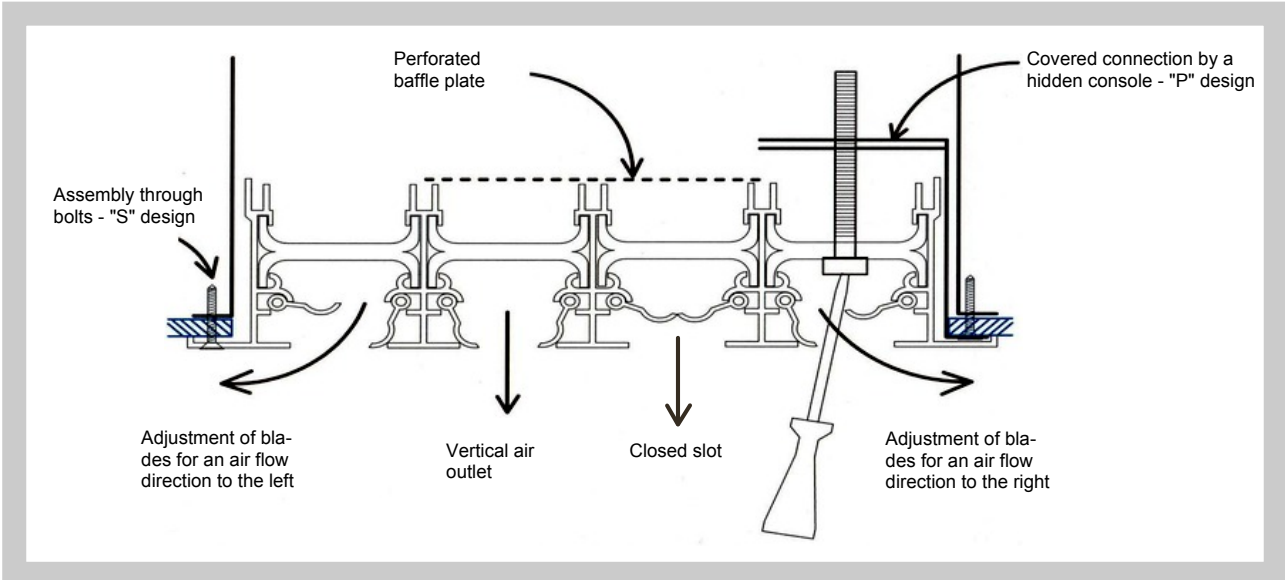
Tab. 3 Weights

Diffuser type	Weight of sole front plate (kg/m)	Front plate weight with plenum box (kg/m)
SDL 1	1	3,9
SDL 2	1,6	4,8
SDL 3	2,3	5,9
SDL 4	3,1	7,1

**4. Embedding and placement**

- 4.1. Primarily, diffusers are designed for embedment into the ceiling. All the technical data and parameters below correspond to this manner of embedment.
- 4.2. Embedment into a vertical wall, as well as the technical parameters, shall be consulted with the manufacturer - MANDIK, a.s..

**Fig. 5 Installation example and adjustment of the blades**

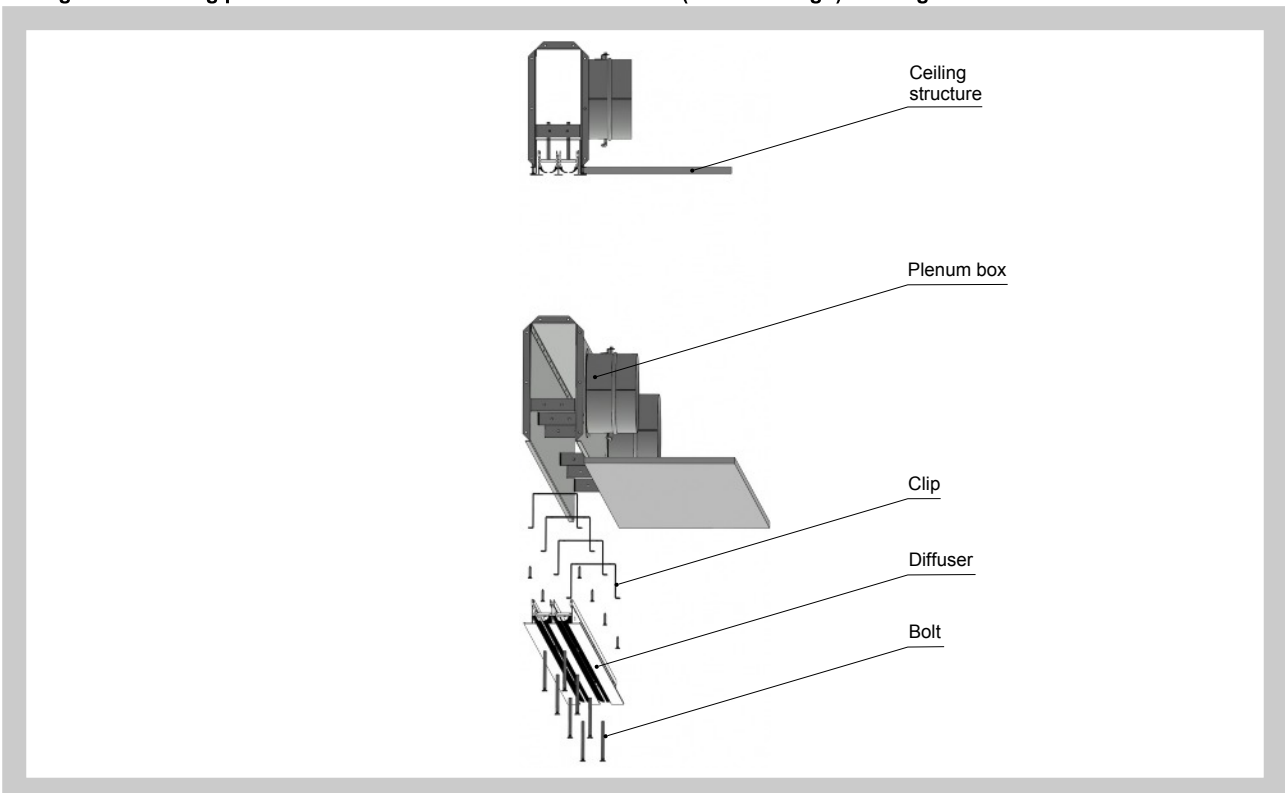


- 4.3. Slot size within construction structure designed for a front plate connection (the "D" design):  

$$L1 \times B1 = (L+3) \times (B+3) \dots\dots v \text{ mm}$$
- 4.4. Slot size within construction structure designed for a front plate connection with a box (the "B" design):  

$$L1 \times B1 = (L+7) \times (A-18) \dots\dots v \text{ mm}$$
- 4.5. Construction slot size tolerance:  $L1 \rightarrow -0\text{mm}/+2\text{mm}$ ;  $B1 \rightarrow -0\text{mm}/+2\text{mm}$ .

**Fig. 6 Mounting procedure for diffuser connection to the box (the "P" design) - ceiling structure**



III. TECHNICAL DATA

5. Basic parameters

Tab. 4 Maximal air flow

Diffuser type	$V_{max}$ ((m <sup>3</sup> /h)/m)
SDL 1	250
SDL 2	430
SDL 3	610
SDL 4	780

5.1. Vertical air flow range (HEATING mode,  $\Delta t_p = 15K$ ):

- for  $X < 0,3m \rightarrow YH = 0,6 \times B$
- for  $0,3 \leq X \leq 1,5m \rightarrow YH = 0,5 \times B$
- for  $X > 1,5m \rightarrow YH = 0,4 \times B$

Horizontal air flow range (isothermal flow) – B distance

Fig. 7 Vertical air flow range

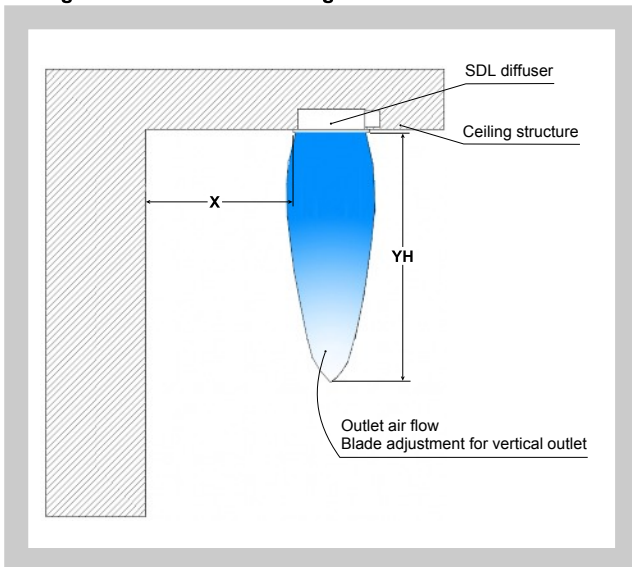


Fig. 8 Horizontal air flow range

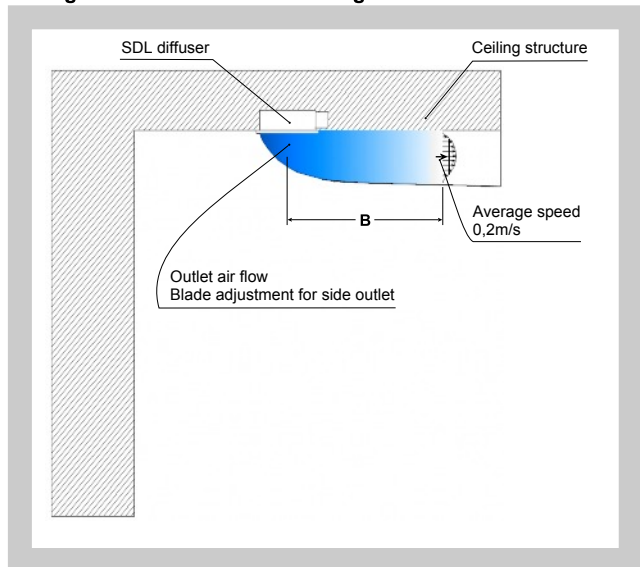
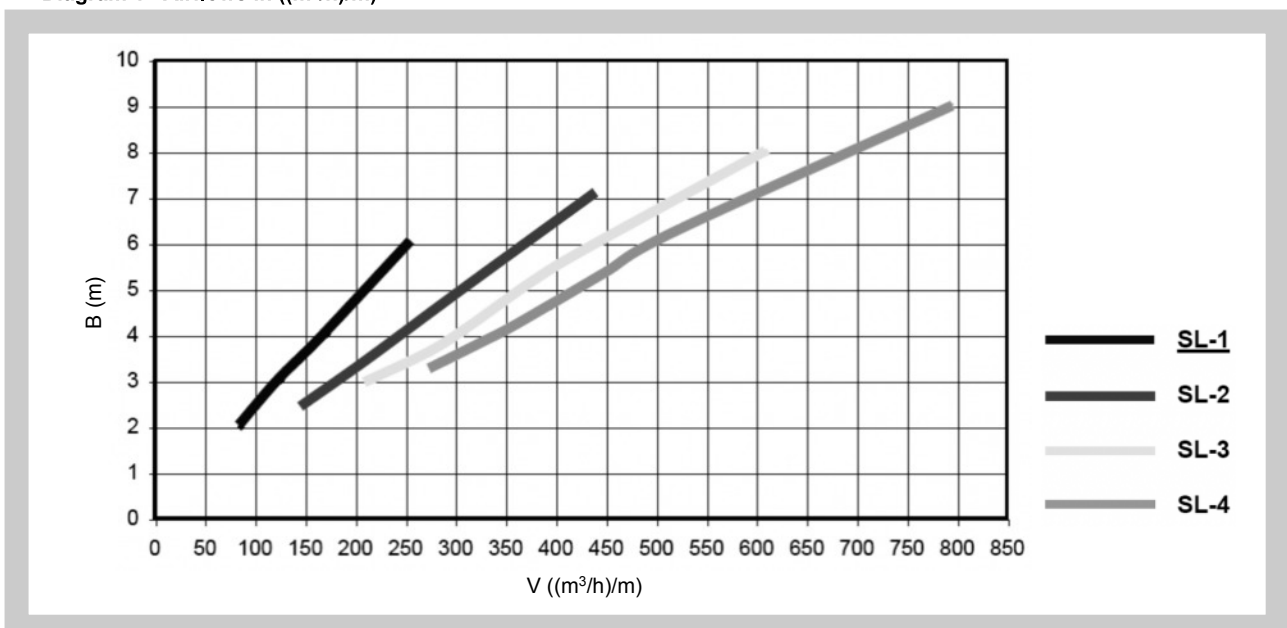
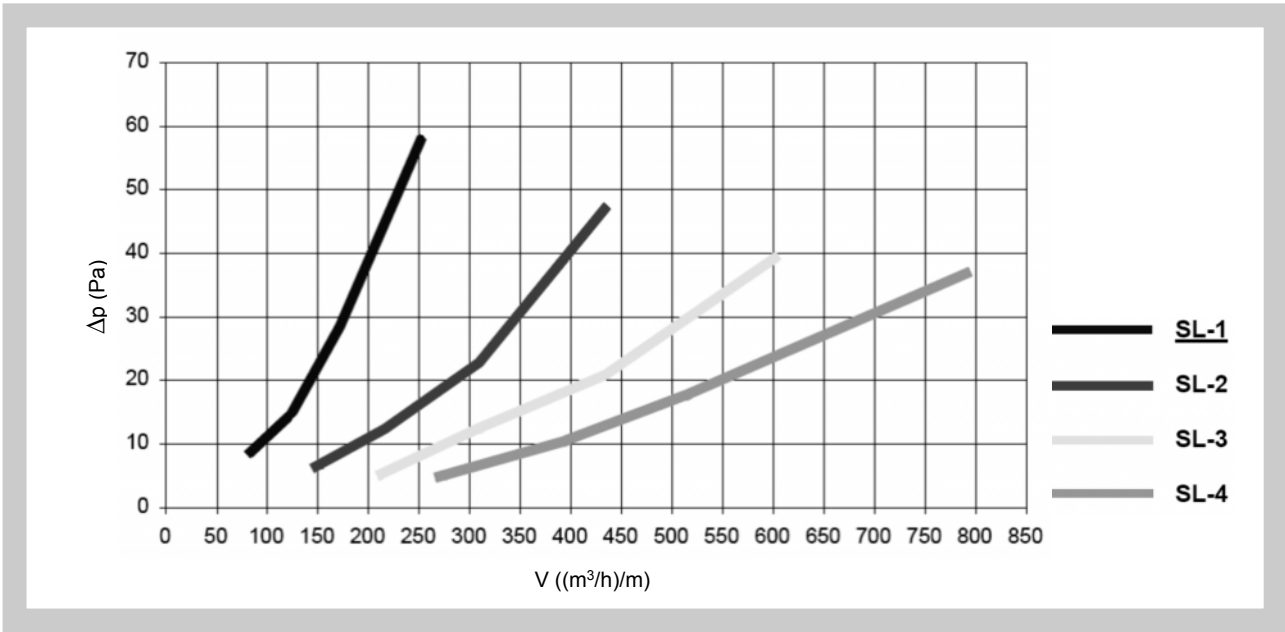


Diagram 1 Airflows in ((m<sup>3</sup>/h)/m)



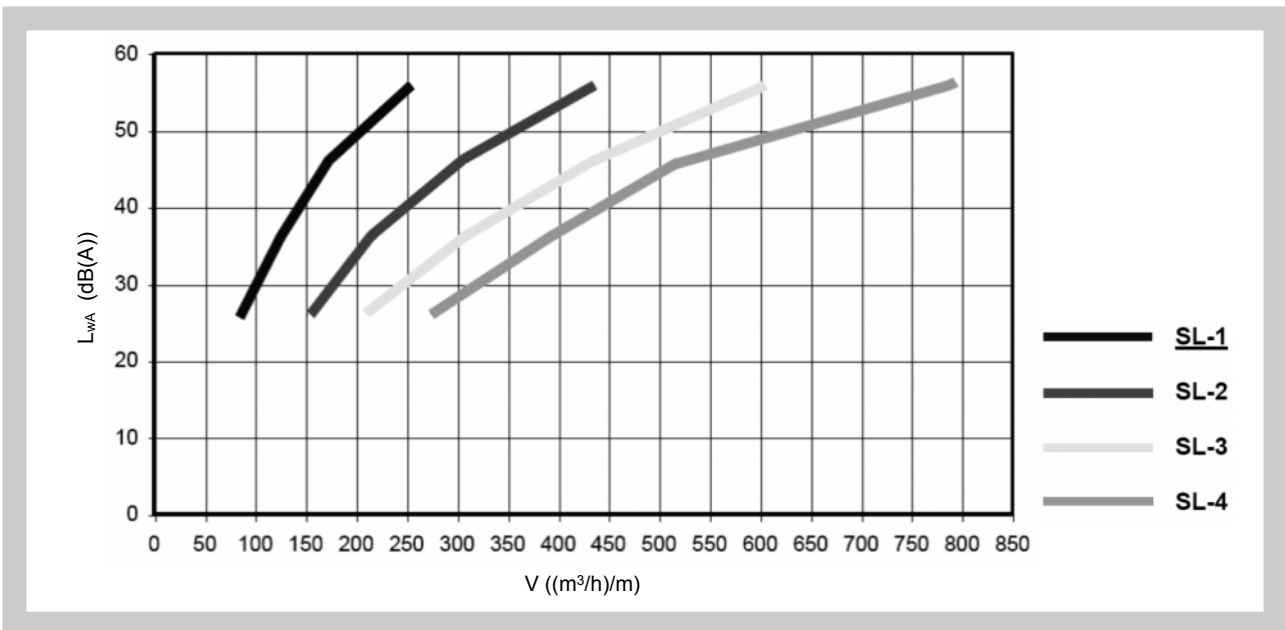
**6. Pressure losses**

**Diagram 2 Pressure losses in SDL diffusers**



**7. Acoustic data**

**Diagram 3 Acoustic performance level L<sub>wA</sub> (dB(A)) of the SDL diffusers**



**IV. MATERIAL AND SURFACE ADJUSTMENT**

**8. Material**

- 8.1. A plenum box with a baffle is made with a galvanized steel plate.
- 8.2. The front plate frame of the SDL diffuser is made of an aluminium profile with an anodized surface adjustment.
- 8.3. The adjustable blades are made of a black plastic material.
- 8.4. In the event of a special order, the plenum box and the front plate may be lacquered with any RAL shade. This design shall be consulted with the manufacturer - MANDIK, a.s..

## V. INSPECTION AND TESTING

### 9. Inspection

- 9.1. After final assembly the diffuser with a plenum box undertakes the final quality control, when the final design conformity is checked with the order requirements.

### 10. Testing

- 10.1. No functional tests are performed on the diffuser with a plenum box during the final inspection.

## VI. PACKING, TRANSPORT, TAKEOVER, STORAGE, WARRANTY

### 11. Logistics data

- 11.1. Diffusers are packed individually in paperboards, packed in shrink-wraps. Transport is secured with covered transportation when they are freely lying. In the event of an agreement with the customer, diffusers may be transported on pallets. In the event of manipulation during transport and storage, diffusers shall be protected against any mechanical damage.
- 11.2. In the event that the takeover manner is not specified in the order, the handover shall mean handing the diffuser over to the transporter.
- 11.3. Diffusers shall be stored in covered structures, free of aggressive vapors, gases and dust. Within the structure, a temperature range from -15°C to +45°C and a maximum relative moisture up to 85% shall be maintained.

### 12. Warranty

- 12.1. The manufacturer provides a 24-month warranty for the diffusers, starting from the expedition date.
- 12.2. This warranty shall be regarded as void in the event of using the diffuser for any other purpose, with any other equipment or in any working conditions than specified, or after any mechanical damage during manipulation.
- 12.3. In the event of damage caused to the diffuser during transport, it is necessary to make a report during the takeover with the transporter for the purpose of any complaint later.

## VII. MOUNTING, MANIPULATION, MAINTENANCE AND INSPECTION OF OPERATIONABILITY

### 13. Mounting and assembly

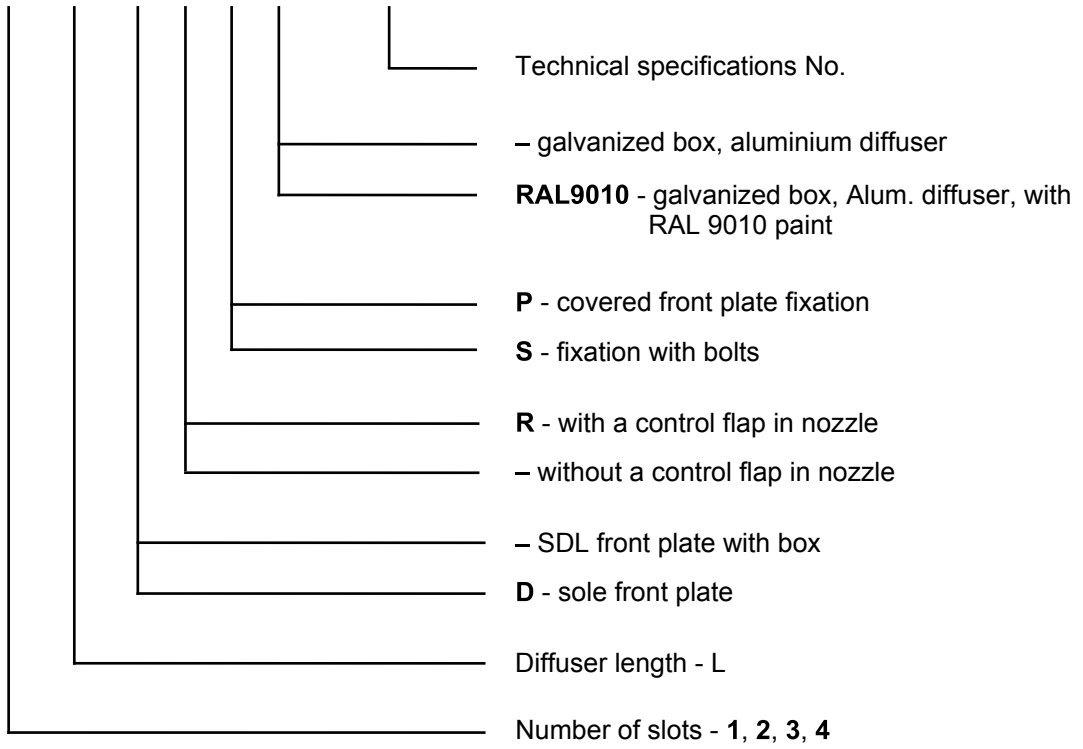
- 13.1. When mounting the SDL diffuser into the wall structure, it is necessary to make sure that the front plate do not form a crossover or are bent after its mounting into the ceiling structure.
- 13.2. After the diffuser is mounted and construction works in the place where the diffuser is placed are finished, it is necessary to clean the diffuser and plenum box from any impurities that have settled there during construction works.
- 13.3. Before the ventilation device is commissioned, it is necessary to adjust the plastic blades of the SDL diffuser into the right position for the required direction of the air flow outlet.
- 13.4. In the event that the plenum box is equipped with a control flap in the connecting nozzle, it is possible to control the required diffuser air flow by turning the flap and fixing its final position.



**VIII. ORDER DATA**

**14. Ordering key**

**SDL 3 1200 - / R / P / - TPM 110/15**



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