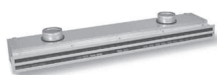


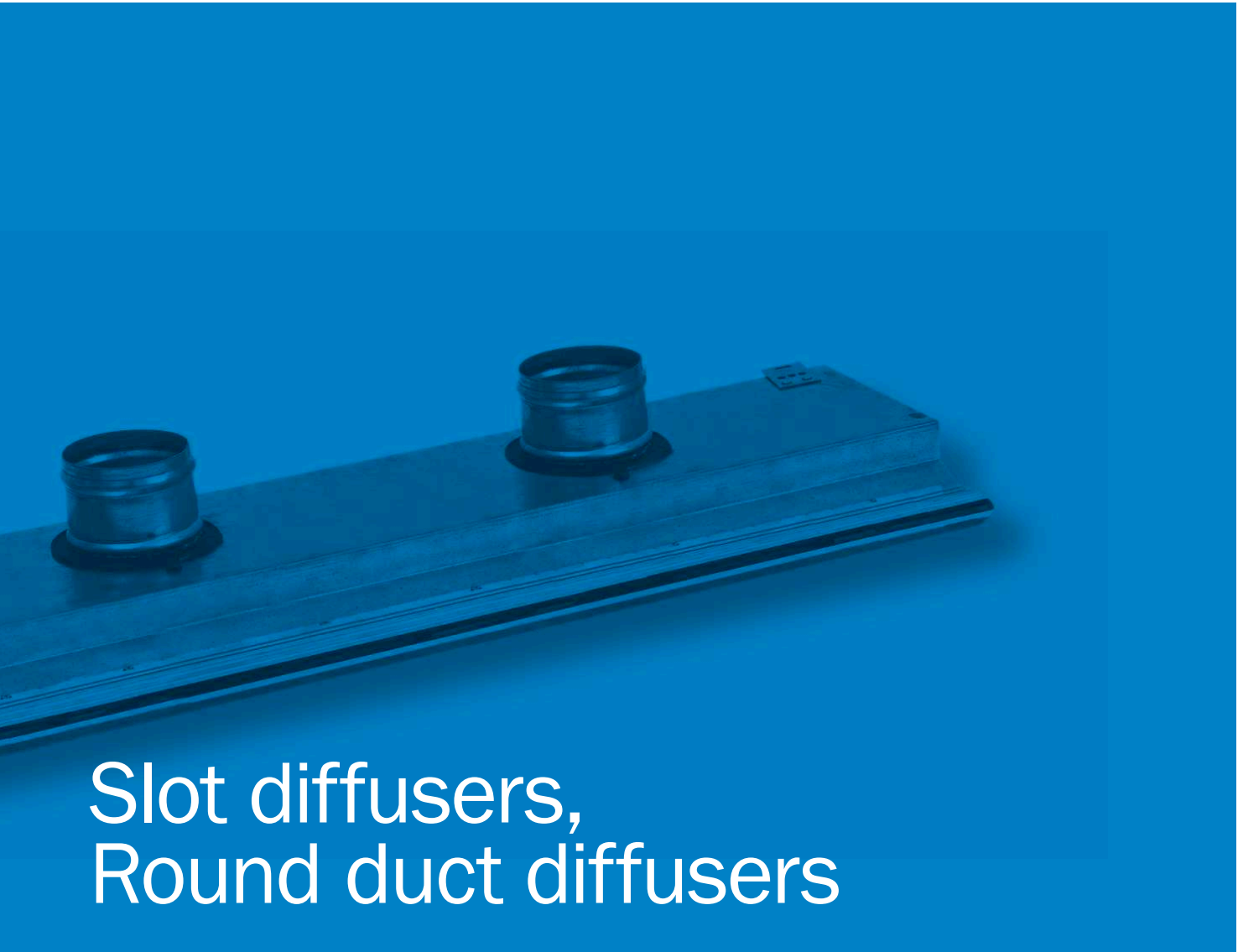
# 04



Slot diffusers



Round duct diffusers



# Slot diffusers, Round duct diffusers

Slot diffusers are designed for air supply in rooms with floor to ceiling heights of 2.5 to 4 m. They are suitable for supplying either cold or warm air, in particular in applications where air conditioning comfort demands are stringent. Due to their high induction rate and rapid decrease of temperature difference, these diffusers are also suitable for variable systems.

Round duct diffusers can be installed at various locations within the duct network. They are suitable for supplying either cold or warm air.

VENTILATING GRILLES,  
VENTILATING VALVES

CIRCULAR DIFFUSERS,  
SQUARE DIFFUSERS

SWIRL DIFFUSERS,  
VARIABLE SWIRL  
DIFFUSERS

SLOT DIFFUSERS,  
ROUND DUCT DIFFUSERS

AIR DISPLACEMENT  
UNITS

SUPPLY AIR NOZZLES

EXTERNAL ELEMENTS

AIR FLOW  
CONTROL UNITS

SOUND ATTENUATORS,  
SOUND ATTENUATING  
LOUVRES

## Overview

### Slot diffusers

Slot diffusers are designed for air supply in rooms with floor to ceiling heights of 2.5 to 4 m. They are suitable for supplying either cold or warm air, in particular in applications where air conditioning comfort demands are stringent. Due to their high induction rate and rapid decrease of temperature difference, these diffusers are also suitable for variable systems.

### Nozzle diffusers

Nozzle diffusers LD-19 are designed for supply of warm or cold air and can be mounted in the wall or in the ceiling. Adjustable deflectors allow us to set different directions of air discharge.

Nozzle diffusers LD-20 are designed to supply low quantities of air on big window surfaces to prevent condensation (ceiling installation near windows) or for big throws for cooling when wall installation (Coanda effect).

### Panel design slot diffusers

A panel design slot diffuser consists of a face plate and a plenum box. Cylindrical air deflectors, equal to those in LD-13 and LD-14 diffusers, are installed in the slots, to allow continuous adjustment of discharged air direction within the 360° range. On order, diverse plate designs and slot patterns are available.

### Floor slot diffusers

LD-16N floor slot diffusers are a suitable solution for swimming pools and similar rooms with large glass surfaces and windows. They are designed for installation in the floor. Warm air is supplied in the upwards direction, towards the window.

### Round duct diffusers

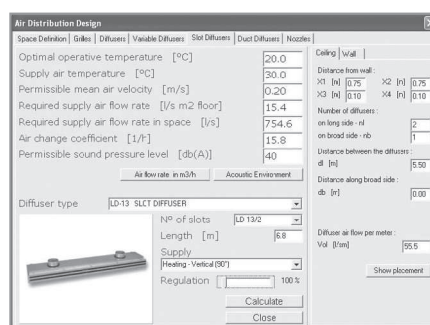
Round duct diffusers can be installed at various locations within the duct network. They are suitable for supplying either cold or warm air.

### Software: KLIMA ADE

LD and SKD Software:

- available calculation and graphical display of air supply for slot diffusers LD-13, LD-14 and LD-15
- available calculation of technical specifications for the application of wall- or ceiling-mounted slot diffusers
- available calculation of ceiling-mounted multiple-diffuser configuration air supply
- application of vertical or horizontal slot diffuser air supply into the room, depending on the mode of operation – heating or cooling
- the package supports basic air supply mode models for the SKD-13 round duct diffuser
- available calculation of SKD-13 round duct diffusers cooling mode: single-side and two-side horizontal supply and alternating horizontal supply heating mode: vertical air supply

### Software: Klima ADE



### Slot diffusers



LD-13

LD-14



LD-15

LD-18

### Nozzle diffusers



LD-19

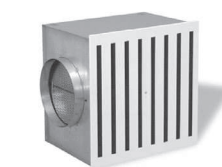
LD-20

### Floor slot diffusers



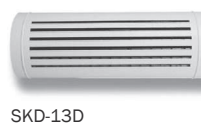
LD-16N

### Panel design slot diffusers



LDP-14

### Round duct diffusers












SKD-13D

# Content

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<b>ROUND DUCT DIFFUSERS</b>	<b>234</b>
Round duct diffusers SKD-13	234

## Legend of symbols

- |  |   |   |
|--|---|---|
| <b>Al</b> Element is made of aluminium profiles, aluminium sheet or aluminium casting.   |  Element is intended to be built in the wall.  |  Element is suitable for the supply of cool air (cooling).   |
| <b>St</b> Element is made of steel sheet.  |  Element is intended to be built in the ceiling or in the wall.                      | <b>M</b> Element allows regulation by electric motor (Belimo electric motors).  |
|  Element is powder painted in standard RAL 9010 colour. Other desired colour is to be specified in the order. |  Element for air conditioning of rooms with floor to ceiling heights room up to 4 m. | <b>F</b> Element is intended for air filtration. The filter of class ... is built in.   |
|  Shady symbol means possibility of optional material, surface protection, motor version, ...                  |  Element for air conditioning of rooms with floor to ceiling heights from 6 to 15 m. | <b>CD</b> The possibility of the automatic selection and calculation of the technical characteristics of grilles and difusers in regard to the given conditions with the assistance of the Klima ADE program. |
|  Element is intended to be built in the floor.  |  Element is suitable for the supply of warm air (heating).                           | <b>INOX</b> The element is made of stainless sheet steel AISI 304.  |

## Slot diffusers LD-17, LD-18

### Application

Slot diffusers LD-17 and LD-18 are designed for supply of cold or warm air in rooms with a height between 2.5 m and 4 m. They allow easy setting of air deflectors for different modes of operation and can be mounted to ceiling or wall.

### Description

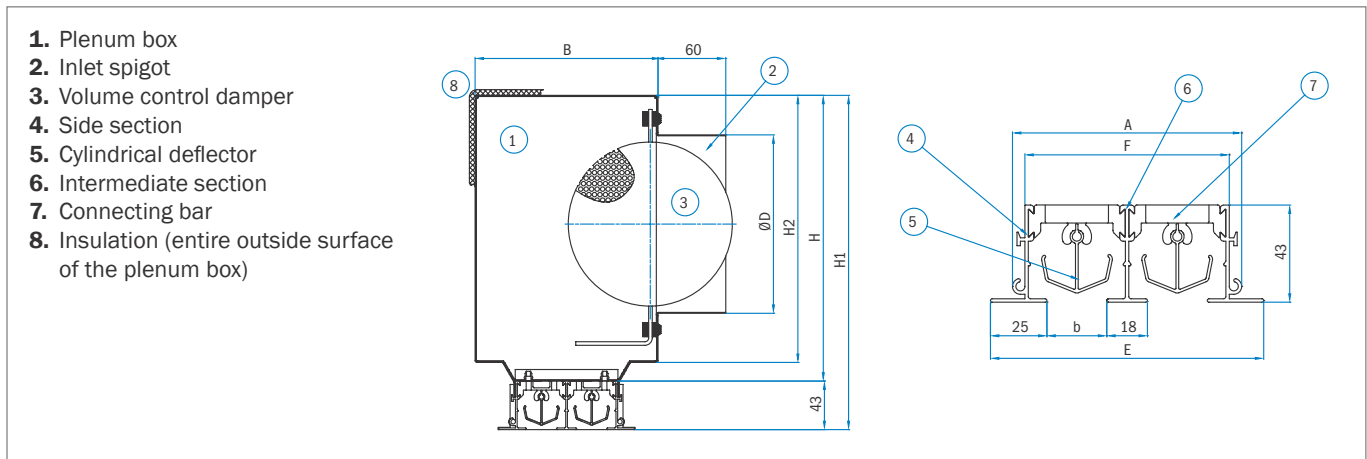
LD-17 and LD-18 slot diffusers are designed in 1, 2, 3 and 4-slot versions. The unit's front consists of anodised aluminium profiles (on customer's request, these can be powder painted in RAL 9010 or another colour). The individually adjustable air deflectors are made of plastic in white (RAL 9010) or black (RAL 9005) colour). Plenum box is made of galvanized sheet steel. Slot diffusers LD-17 and LD-18 are made in standard lengths: from 200 up to 2000 mm with a 100 mm step (any length available upon request).

Nominal air volume per 1 m of slot:

LD-17 – 150 m<sup>3</sup>/h

LD-18 – 200 m<sup>3</sup>/h

( $\Delta p_t = 30 \text{ Pa}$ , NR = 35 dB)



#### LD-17 b=15

No. of slots	A	F	E	B	H	H1	H2
1	45.5	34.5	65	107	220	263	203.5
2	78.5	67.5	98	139	230	273	213.5
3	111.5	100.5	131	172	250	293	233.5
4	144.5	133.5	164	205	290	333	273.5

#### LD-18 b=26.5

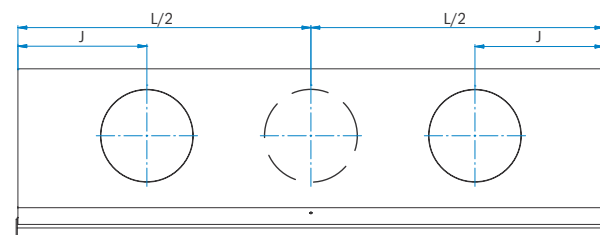
No. of slots	A	F	E	B	H	H1	H2
1	57.0	46.0	76.5	118	233	276	216.5
2	101.0	90.5	121.0	162	253	296	236.5
3	146.0	135.0	165.5	207	293	336	276.5
4	190.5	179.5	210.0	251	318	361	301.5

### Number and diameter of inlet spigots

L	300 to 1000		1100 to 1500		1600 to 2000	
Number of slots	Number and diameter of inlet spigots					
	LD-17	LD-18	LD-17	LD-18	LD-17	LD-18
1	1x98	1x123	2x98	2x123	2x123	2x138
2	1x138	1x158	2x123	2x138	2x138	2x158
3	1x158	1x198	2x138	2x158	2x158	2x198
4	1x198	1x223	2x158	2x198	2x198	2x223

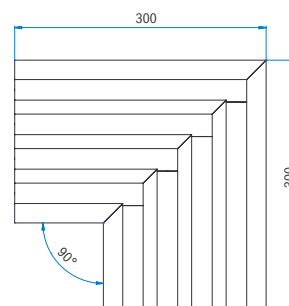
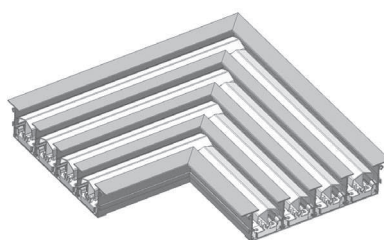
### Position of inlet spigots

Number of spigots	Standard length	Position of inlet spigots
1	300-1000	L/2
2	1100-1500	J=300
2	1600-2000	J=400



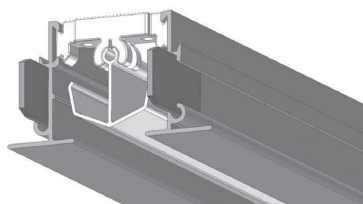
### Slot diffuser face plate designs

Slot diffuser face plates are made of linear or angular ended sections, which allow the diffusers to be joined at different angles.



### Joining diffusers together in length

Joining in length requires connecting plates (the total length of combined diffusers is not limited).

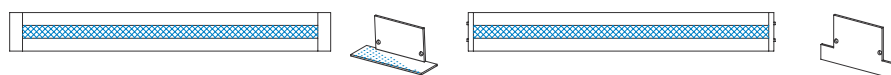


### End seals

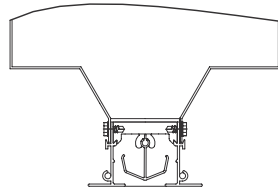
End seals are components of the diffuser face plate. They are available in two designs:

- as an angle piece (**E** – on both ends, **ET** – on one end only) or
- plates (**F** – on both ends, **FT** – on one end only).

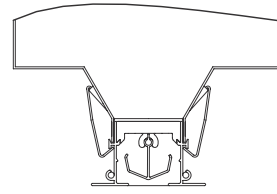
The connecting strip-section has no end anglepieces or plates seals (designation T).



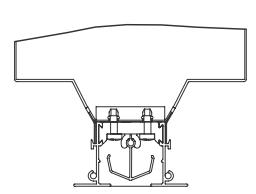
**Fixing of the plenum box onto LD-17, LD-18 diffusers**



Fixing with self-tapping screws (U)

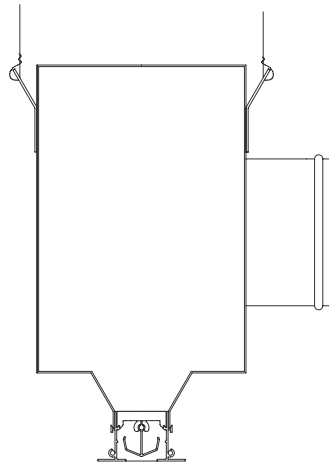


Fixing with spring clamps (S)

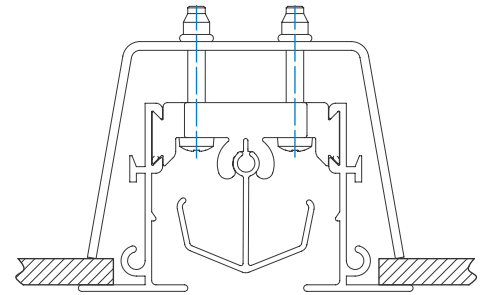


Fixing with a cross-member (Z)

**Installation methods**

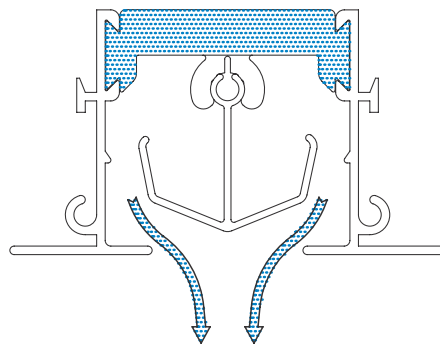


Installation with hangers (P)

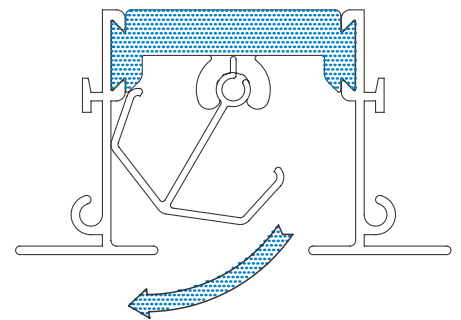


Installation with a cross member without plenum box (N)

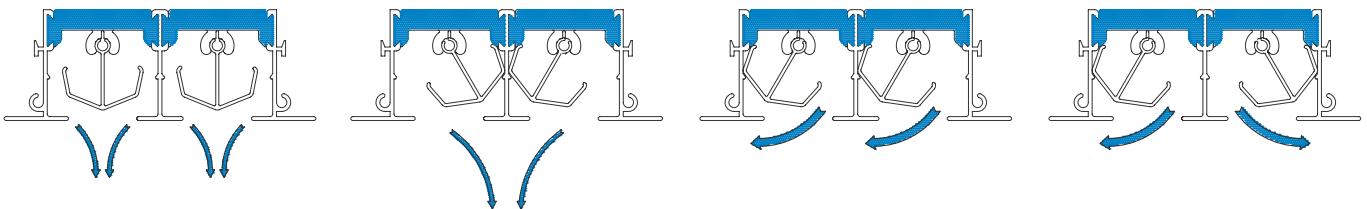
**Types of air discharges**



Vertical - heating



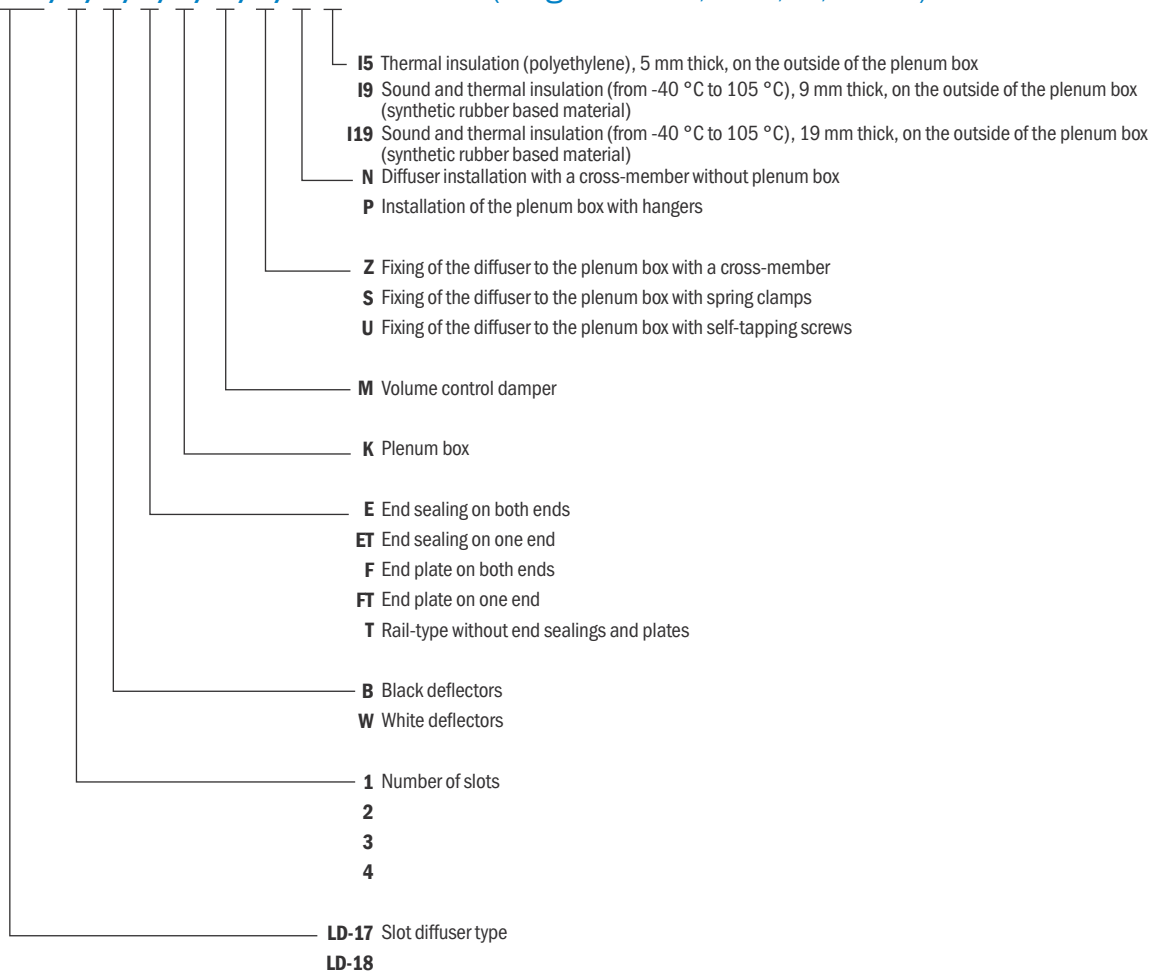
Horizontal - cooling



Different settings of the two slot model (similar combinations are possible also for diffusers with more slots).

**Ordering key**

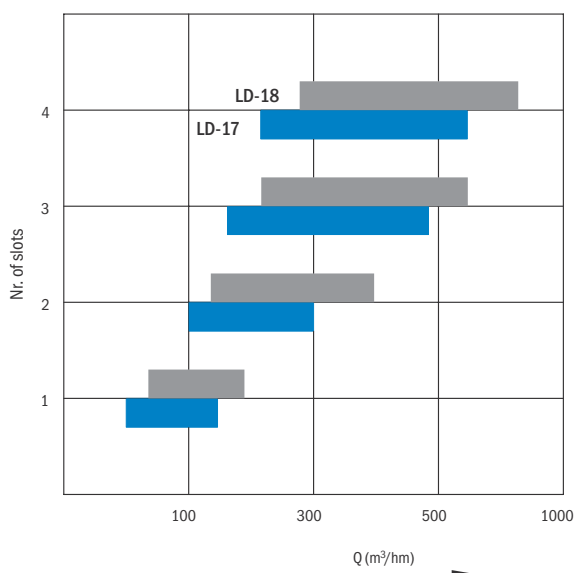
**LD-17/1/B/E/K/M/S/P I5** L=1000 (length L=200, 300, ..., 2000)



**Note:**

- Please specify the deflector colour in your order.
- Standard eloxal colour of the aluminium section is the original aluminium colour. Other colours shall be specified in the order.
- When installing in cooling ceilings, consult the manufacturer.
- Versions with insulation on the inside of the plenum box are also available.

**Quick selection diagram:  $L_{WA} < 35 \text{ dB(A)}$**





**Sound power level, pressure drop and throw distances**

**LD-17 horizontal discharge**

Type	Q	[l/s]	13.9	27.8	41.7	55.6	83.3	111.1	138.9	166.7	194.4	222.2	250.0	277.8	333.3
		[m³/h]	50	100	150	200	300	400	500	600	700	800	900	1000	1200
LD-17/1 L=500 mm	L <sub>WA</sub>	[dB (A)]	32	47											
	Δp <sub>t</sub>	[Pa]	13	42											
	L <sub>0.2</sub>	[m]	5.6	6.6											
	L <sub>min</sub>	[m]	12.5	>15											
LD-17/1 L=1000 mm	L <sub>WA</sub>	[dB (A)]	27	35	43	50									
	Δp <sub>t</sub>	[Pa]	8	27	56	95									
	L <sub>0.2</sub>	[m]	6	6.5	6.7	6.8									
	L <sub>min</sub>	[m]	12	>15	>15	>15									
LD-17/1 L=1500 mm	L <sub>WA</sub>	[dB (A)]	<25	29	34	40	50								
	Δp <sub>t</sub>	[Pa]	5	16	32	52	99								
	L <sub>0.2</sub>	[m]	5.5	6.1	6.5	6.6	6.8								
	L <sub>min</sub>	[m]	4	12.5	>15	>15	>15								
LD-17/1 L=2000 mm	L <sub>WA</sub>	[dB (A)]		<25	32	36	43	49							
	Δp <sub>t</sub>	[Pa]		2	3	6	11	19							
	L <sub>0.2</sub>	[m]		5.8	6.1	6.5	6.7	6.8							
	L <sub>min</sub>	[m]		6.5	12.5	13	>15	>15							
LD-17/2 L=500 mm	L <sub>WA</sub>	[dB (A)]	<25	34	42	50									
	Δp <sub>t</sub>	[Pa]	3	11	22	36									
	L <sub>0.2</sub>	[m]	5	5.4	5.7	5.8									
	L <sub>min</sub>	[m]	11.5	14	>15	>15									
LD-17/2 L=1000 mm	L <sub>WA</sub>	[dB (A)]		27	30	36	45	50							
	Δp <sub>t</sub>	[Pa]		7	14	22	48	80							
	L <sub>0.2</sub>	[m]		5.3	5.4	5.5	5.7	5.8							
	L <sub>min</sub>	[m]		8	13.2	13.4	>15	>15							
LD-17/2 L=1500 mm	L <sub>WA</sub>	[dB (A)]			26	30	36	42	46	52					
	Δp <sub>t</sub>	[Pa]			8	13	28	44	65	84					
	L <sub>0.2</sub>	[m]			5.1	5.4	5.5	5.6	5.8	5.8					
	L <sub>min</sub>	[m]			5.7	13.3	13.5	>15	>15	>15					
LD-17/2 L=2000 mm	L <sub>WA</sub>	[dB (A)]				26	32	36	41	44	48	51			
	Δp <sub>t</sub>	[Pa]				2	4	7	10	13	18	22			
	L <sub>0.2</sub>	[m]				5.2	5.4	5.5	5.6	5.7	5.7	5.8			
	L <sub>min</sub>	[m]				7.5	13.2	13.4	>15	>15	>15	>15			
LD-17/3 L=500 mm	L <sub>WA</sub>	[dB (A)]		30	37	45	54								
	Δp <sub>t</sub>	[Pa]		5	12	20	50								
	L <sub>0.2</sub>	[m]		8	8.5	8.7	9								
	L <sub>min</sub>	[m]		9	10.5	11.2	13.5								
LD-17/3 L=1000 mm	L <sub>WA</sub>	[dB (A)]		<25	29	34	42	50							
	Δp <sub>t</sub>	[Pa]		3	8	14	32	54							
	L <sub>0.2</sub>	[m]		7.7	7.9	8	8.5	8.8							
	L <sub>min</sub>	[m]		6.4	6.9	9	11	12							
LD-17/3 L=1500 mm	L <sub>WA</sub>	[dB (A)]				28	35	42	48	53					
	Δp <sub>t</sub>	[Pa]				8	19	34	52	79					
	L <sub>0.2</sub>	[m]				7.8	8.2	8.5	8.7	8.7					
	L <sub>min</sub>	[m]				7.5	9.5	10.8	11.7	12.3					
LD-17/3 L=2000 mm	L <sub>WA</sub>	[dB (A)]					31	36	41	46	50	54			
	Δp <sub>t</sub>	[Pa]					2	4	6	8	12	17			
	L <sub>0.2</sub>	[m]					7.9	8.1	8.4	8.5	8.6	9			
	L <sub>min</sub>	[m]					7.7	9.6	10.5	11	11.9	12			

VENTILATING GRILLES,  
VENTILATING VALVES  
  
 CIRCULAR DIFFUSERS,  
SQUARE DIFFUSERS  
  
 SWIRL DIFFUSERS,  
VARIABLE SWIRL  
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 SLOT DIFFUSERS,  
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 SUPPLY AIR NOZZLES  
  
 EXTERNAL ELEMENTS  
  
 AIR FLOW  
CONTROL UNITS  
  
 SOUND ATTENUATORS,  
SOUND ATTENUATING  
LOUVRES

Type	Q	[l/s]	13.9	27.8	41.7	55.6	83.3	111.1	138.9	166.7	194.4	222.2	250.0	277.8	333.3
		[m³/h]	50	100	150	200	300	400	500	600	700	800	900	1000	1200
LD-17/4 L=500 mm	L <sub>WA</sub>	[dB (A)]		25	32	40	51	55							
	Δp <sub>t</sub>	[Pa]		3	7	12	29	50							
	L <sub>0.2</sub>	[m]		7.2	7.5	7.6	8	8.1							
	L <sub>min</sub>	[m]		8.2	9	9.5	10.5	11.2							
LD-17/4 L=1000 mm	L <sub>WA</sub>	[dB (A)]				35	38	46	53	60					
	Δp <sub>t</sub>	[Pa]				9	21	38	56	90					
	L <sub>0.2</sub>	[m]				7.5	7.6	7.7	7.9	8					
	L <sub>min</sub>	[m]				8.3	9	9.5	10.5	10.5					
LD-17/4 L=1500 mm	L <sub>WA</sub>	[dB (A)]					32	38	44	48	52	60			
	Δp <sub>t</sub>	[Pa]					10	19	30	44	60	80			
	L <sub>0.2</sub>	[m]					7.2	7.5	7.6	7.8	7.9	8			
	L <sub>min</sub>	[m]					7.5	8.7	9.5	9.8	10.2	10.4			
LD-17/4 L=2000 mm	L <sub>WA</sub>	[dB (A)]						34	38	42	45	49	52	56	60
	Δp <sub>t</sub>	[Pa]						3	5	7	9	12	17	23	33
	L <sub>0.2</sub>	[m]						7.4	7.5	7.6	7.8	7.8	7.8	7.9	8.3
	L <sub>min</sub>	[m]						8.2	8.6	9.2	9.5	9.7	10.2	10.5	11.3

### Definition of symbols

- L<sub>WA</sub> A-weighted sound power level
- Δp<sub>t</sub> Total pressure drop calculated to normal conditions
- L<sub>0.2</sub> Isothermal throw distance of supply air jet, when its velocity drops down to 0.2 m/s
- L<sub>min</sub> Minimum distance between diffusers, that the jet velocity is less than or equal to 0.2 m/s

### Conditions for L<sub>min</sub>:

- Q=600 m³/h
- L=1000 mm
- Room height: H=2.8 m
- Occupied zone height: 1.8 m
- Room temperature: 24 °C
- Supply temperature: ΔT= -6 K

## Sound power level, pressure drop and throw distances

### LD-17 vertical discharge

Type	Q	[l/s]	13.9	27.8	41.7	55.6	83.3	111.1	138.9	166.7	194.4	222.2	250.0	277.8	333.3
		[m³/h]	50	100	150	200	300	400	500	600	700	800	900	1000	1200
LD-17/1 L=500 mm	L <sub>WA</sub>	[dB (A)]	32	47											
	Δp <sub>t</sub>	[Pa]	17	68											
	L <sub>0.2 (+10K)</sub>	[m]	2.4	4.8											
LD-17/1 L=1000 mm	L <sub>WA</sub>	[dB (A)]	27	35	43	50									
	Δp <sub>t</sub>	[Pa]	4	17	39	68									
	L <sub>0.2 (+10K)</sub>	[m]	1	2.4	3.5	5									
LD-17/1 L=1500 mm	L <sub>WA</sub>	[dB (A)]	<25	29	34	40	50								
	Δp <sub>t</sub>	[Pa]	2	8	17	30	68								
	L <sub>0.2 (+10K)</sub>	[m]	0.9	1.5	2.3	3.3	4.7								
LD-17/1 L=2000 mm	L <sub>WA</sub>	[dB (A)]		<25	32	36	43	49							
	Δp <sub>t</sub>	[Pa]		4	10	17	39	68							
	L <sub>0.2 (+10K)</sub>	[m]		0.8	1.8	2.4	3.8	4.8							
LD-17/2 L=500 mm	L <sub>WA</sub>	[dB (A)]	25	35	43	51									
	Δp <sub>t</sub>	[Pa]	4	17	39	68									
	L <sub>0.2 (+10K)</sub>	[m]	1.6	3	4	4.5									
LD-17/2 L=1000 mm	L <sub>WA</sub>	[dB (A)]		28	31	37	46	51							
	Δp <sub>t</sub>	[Pa]		4	10	17	39	68							
	L <sub>0.2 (+10K)</sub>	[m]		1.6	2.6	3	4.2	4.5							

Type	Q	[l/s]	13.9	27.8	41.7	55.6	83.3	111.1	138.9	166.7	194.4	222.2	250.0	277.8	333.3
		[m <sup>2</sup> /h]	50	100	150	200	300	400	500	600	700	800	900	1000	1200
LD-17/2 L=1500 mm	L <sub>WA</sub>	[dB (A)]			26	30	36	42	46	52					
	Δp <sub>t</sub>	[Pa]			4	8	17	30	48	68					
	L <sub>0,2</sub> (+10K)	[m]			1.6	2.5	3.2	3.6	4	4.5					
LD-17/2 L=2000 mm	L <sub>WA</sub>	[dB (A)]				26	32	36	41	44	48	51			
	Δp <sub>t</sub>	[Pa]				4	10	17	27	39	52	68			
	L <sub>0,2</sub> (+10K)	[m]				1.8	2.5	3.1	3.5	3.8	4.3	4.5			
LD-17/3 L=500 mm	L <sub>WA</sub>	[dB (A)]		31	38	46	55								
	Δp <sub>t</sub>	[Pa]		8	17	30	68								
	L <sub>0,2</sub> (+10K)	[m]		3.1	4.2	5.5	7.5								
LD-17/3 L=1000 mm	L <sub>WA</sub>	[dB (A)]			31	36	44	52							
	Δp <sub>t</sub>	[Pa]			4	8	17	30							
	L <sub>0,2</sub> (+10K)	[m]			1.9	3.1	4.2	5.5							
LD-17/3 L=1500 mm	L <sub>WA</sub>	[dB (A)]				30	37	44	50	55					
	Δp <sub>t</sub>	[Pa]				3	8	14	21	30					
	L <sub>0,2</sub> (+10K)	[m]				1.5	2.9	3.8	4.8	5.5					
LD-17/3 L=2000 mm	L <sub>WA</sub>	[dB (A)]					32	37	42	47	51	55			
	Δp <sub>t</sub>	[Pa]					4	8	12	17	23	30			
	L <sub>0,2</sub> (+10K)	[m]					1.9	3.1	3.8	4.3	5	5.5			
LD-17/4 L=500 mm	L <sub>WA</sub>	[dB (A)]		27	34	42	53	57							
	Δp <sub>t</sub>	[Pa]		4	10	17	39	68							
	L <sub>0,2</sub> (+10K)	[m]		3.1	4.3	5.2	6.8	7.7							
LD-17/4 L=1000 mm	L <sub>WA</sub>	[dB (A)]				36	39	47	54	61					
	Δp <sub>t</sub>	[Pa]				4	10	17	27	39					
	L <sub>0,2</sub> (+10K)	[m]				3	4.4	5.2	6.1	6.7					
LD-17/4 L=1500 mm	L <sub>WA</sub>	[dB (A)]					33	39	45	49	53	61			
	Δp <sub>t</sub>	[Pa]					4	8	12	17	23	30			
	L <sub>0,2</sub> (+10K)	[m]					2.9	4.1	4.8	5.2	5.8	6.2			
LD-17/4 L=2000 mm	L <sub>WA</sub>	[dB (A)]						35	39	43	46	50	53	57	61
	Δp <sub>t</sub>	[Pa]						4	7	10	13	17	22	27	39
	L <sub>0,2</sub> (+10K)	[m]						3.1	4	4.3	4.8	5.3	5.8	6.1	6.8

### Definition of symbols

L <sub>WA</sub>	A-weighted sound power level
Δp <sub>t</sub>	Total pressure drop calculated to normal conditions
L <sub>0,2</sub> (+10 °C)	Isothermal throw distance of supply air jet with temperature +10K, when its velocity drops down to 0.2 m/s

### Sound power level, pressure drop and throw distances

#### LD-18 horizontal discharge

Type	Q	[l/s]	27.8	41.7	55.6	83.3	111.1	138.9	166.7	194.4	222.2	250.0	277.8	333.3	388.9
		[m³/h]	100	150	200	300	400	500	600	700	800	900	1000	1200	1400
LD-18/1 L=500 mm	L <sub>WA</sub>	[dB (A)]	41	51											
	Δp <sub>t</sub>	[Pa]	24	53											
	L <sub>0.2</sub>	[m]	6.6	6.9											
	L <sub>min</sub>	[m]	>15	>15											
LD-18/1 L=1000 mm	L <sub>WA</sub>	[dB (A)]	29	37	44										
	Δp <sub>t</sub>	[Pa]	16	36	64										
	L <sub>0.2</sub>	[m]	6.2	6.5	6.7										
	L <sub>min</sub>	[m]	12.8	>15	>15										
LD-18/1 L=1500 mm	L <sub>WA</sub>	[dB (A)]	25	31	36	46									
	Δp <sub>t</sub>	[Pa]	9	19	34	77									
	L <sub>0.2</sub>	[m]	5.8	6.2	6.4	6.6									
	L <sub>min</sub>	[m]	4.2	12.8	>15	>15									
LD-18/1 L=2000 mm	L <sub>WA</sub>	[dB (A)]	<25	28	32	40	47	53	58	62					
	Δp <sub>t</sub>	[Pa]	1	2	4	9	15	24	35	47					
	L <sub>0.2</sub>	[m]	5.2	5.9	6.2	6.5	6.7	6.8	6.9	6.9					
	L <sub>min</sub>	[m]	2	6.6	12.8	>15	>15	>15	>15	>15					
LD-18/2 L=500 mm	L <sub>WA</sub>	[dB (A)]	29	37	45	56									
	Δp <sub>t</sub>	[Pa]	6	13	24	53									
	L <sub>0.2</sub>	[m]	5.4	5.6	5.7	5.8									
	L <sub>min</sub>	[m]	14	>15	>15	>15									
LD-18/2 L=1000 mm	L <sub>WA</sub>	[dB (A)]	<25	27	32	40	48								
	Δp <sub>t</sub>	[Pa]	4	9	16	37	65								
	L <sub>0.2</sub>	[m]	5	5.3	5.5	5.6	5.7								
	L <sub>min</sub>	[m]	2	8	13.4	>15	>15								
LD-18/2 L=1500 mm	L <sub>WA</sub>	[dB (A)]		<25	27	34	40	45	50						
	Δp <sub>t</sub>	[Pa]		5	9	20	35	55	80						
	L <sub>0.2</sub>	[m]		5	5.2	5.4	5.6	5.7	5.7						
	L <sub>min</sub>	[m]		2	5.8	13.4	>15	>15	>15						
LD-18/2 L=2000 mm	L <sub>WA</sub>	[dB (A)]			25	30	35	39	44	47	51	54	57	62	67
	Δp <sub>t</sub>	[Pa]			1	3	6	9	13	18	23	29	36	52	71
	L <sub>0.2</sub>	[m]			5	5.3	5.4	5.5	5.6	5.7	5.7	5.7	5.8	5.8	5.8
	L <sub>min</sub>	[m]			2	8	13.4	>15	>15	>15	>15	>15	>15	>15	>15
LD-18/3 L=500 mm	L <sub>WA</sub>	[dB (A)]	<25	31	37	48	56	63							
	Δp <sub>t</sub>	[Pa]	3	6	11	24	42	66							
	L <sub>0.2</sub>	[m]	8	8.3	8.6	8.8	9	9.1							
	L <sub>min</sub>	[m]	8	10	11.2	12.6	13.4	13.8							
LD-18/3 L=1000 mm	L <sub>WA</sub>	[dB (A)]		<25	27	34	40	46	51	55					
	Δp <sub>t</sub>	[Pa]		4	7	16	29	45	65	88					
	L <sub>0.2</sub>	[m]		7.7	8	8.3	8.6	8.7	8.8	8.9					
	L <sub>min</sub>	[m]		6.4	8	10	11.2	12	12.6	13					
LD-18/3 L=1500 mm	L <sub>WA</sub>	[dB (A)]			<25	29	34	38	42	46	50	53	56		
	Δp <sub>t</sub>	[Pa]			4	9	15	24	34	47	61	77	96		
	L <sub>0.2</sub>	[m]			7.6	8	8.2	8.4	8.6	8.7	8.7	8.8	8.9		
	L <sub>min</sub>	[m]			5.8	8.2	9.6	10.6	11.2	11.8	12.2	12.6	12.8		
LD-18/3 L=2000 mm	L <sub>WA</sub>	[dB (A)]				26	30	34	37	40	44	46	49	54	58
	Δp <sub>t</sub>	[Pa]				1	2	3	4	6	8	10	12	17	23
	L <sub>0.2</sub>	[m]				7.7	8	8.2	8.4	8.5	8.6	8.6	8.7	8.8	8.9
	L <sub>min</sub>	[m]				6.4	8	9.2	10	10.8	11.2	11.8	12	12.6	13

Type	Q	[l/s]	27.8	41.7	55.6	83.3	111.1	138.9	166.7	194.4	222.2	250.0	277.8	333.3	388.9
		[m <sup>3</sup> /h]	100	150	200	300	400	500	600	700	800	900	1000	1200	1400
LD-18/4 L=500 mm	L <sub>WA</sub>	[dB (A)]		28	34	44	52	58	64	68					
	Δp <sub>t</sub>	[Pa]		3	6	13	24	37	53	72					
	L <sub>0.2</sub>	[m]		7.4	7.6	7.8	8	8.1	8.2	8.3					
	L <sub>min</sub>	[m]		8.2	9	10.2	10.6	11	11.2	11.4					
LD-18/4 L=1000 mm	L <sub>WA</sub>	[dB (A)]			<25	31	37	42	47	51	55	58			
	Δp <sub>t</sub>	[Pa]			4	9	16	26	37	50	65	83			
	L <sub>0.2</sub>	[m]			7	7.4	7.6	7.7	7.8	7.9	8	8			
	L <sub>min</sub>	[m]			6.2	8.2	9	9.6	10.2	10.4	10.6	10.8			
LD-18/4 L=1500 mm	L <sub>WA</sub>	[dB (A)]				26	31	35	38	42	45	48	51	56	
	Δp <sub>t</sub>	[Pa]				5	9	14	20	28	36	46	57	82	
	L <sub>0.2</sub>	[m]				7	7.3	7.4	7.6	7.7	7.8	7.8	7.9	8	
	L <sub>min</sub>	[m]				6.2	7.6	8.4	9	9.6	9.8	10	10.4	10.6	
LD-18/4 L=2000 mm	L <sub>WA</sub>	[dB (A)]					28	31	34	37	40	42	45	50	54
	Δp <sub>t</sub>	[Pa]					2	3	4	6	7	9	11	16	22
	L <sub>0.2</sub>	[m]					7	7.2	7.4	7.5	7.6	7.7	7.7	7.8	7.9
	L <sub>min</sub>	[m]					6.2	7.4	8.2	8.6	9.2	9.4	9.8	10.2	10.4

### Definition of symbols

L <sub>WA</sub>	A-weighted sound power level
Δp <sub>t</sub>	Total pressure drop calculated to normal conditions
L <sub>0.2</sub>	Isothermal throw distance of supply air jet, when its velocity drops down to 0.2 m/s
L <sub>min</sub>	Minimum distance between diffusers, that the jet velocity is less than or equal to 0.2 m/s

### Conditions for L<sub>min</sub>:

Q=600 m <sup>3</sup> /h	
L=1000 mm	
Room height:	H=2.8 m
Occupied zone height:	1.8 m
Room temperature:	24 °C
Supply temperature:	ΔT= -6 K

## Sound power level, pressure drop and throw distances

### LD-18 vertical discharge

Type	Q	[l/s]	27.8	41.7	55.6	83.3	111.1	138.9	166.7	194.4	222.2	250.0	277.8	333.3	388.9
		[m³/h]	100	150	200	300	400	500	600	700	800	900	1000	1200	1400
LD-18/1 L=500 mm	L <sub>WA</sub>	[dB (A)]	40	51											
	Δp <sub>t</sub>	[Pa]	25	56											
	L <sub>0.2</sub> (+10K)	[m]	3.4	5.1											
LD-18/1 L=1000 mm	L <sub>WA</sub>	[dB (A)]	29	36	43										
	Δp <sub>t</sub>	[Pa]	17	39	69										
	L <sub>0.2</sub> (+10K)	[m]	1.5	2.5	3.4										
LD-18/1 L=1500 mm	L <sub>WA</sub>	[dB (A)]	25	31	36	45									
	Δp <sub>t</sub>	[Pa]	10	21	38	86									
	L <sub>0.2</sub> (+10K)	[m]	0.7	1.5	2.2	3.5									
LD-18/1 L=2000 mm	L <sub>WA</sub>	[dB (A)]		28	32	39	46	52	57						
	Δp <sub>t</sub>	[Pa]		4	7	17	30	47	67						
	L <sub>0.2</sub> (+10K)	[m]		0.9	2	2.5	3.5	4.4	5.2						
LD-18/2 L=500 mm	L <sub>WA</sub>	[dB (A)]	29	37	44	55									
	Δp <sub>t</sub>	[Pa]	6	14	25	56									
	L <sub>0.2</sub> (+10K)	[m]	2.4	3.2	3.8	4.6									
LD-18/2 L=1000 mm	L <sub>WA</sub>	[dB (A)]	<25	27	32	40	47								
	Δp <sub>t</sub>	[Pa]	4	10	17	39	69								
	L <sub>0.2</sub> (+10K)	[m]	1	1.9	2.4	3.2	3.8								
LD-18/2 L=1500 mm	L <sub>WA</sub>	[dB (A)]		<25	27	33	39	44	49						
	Δp <sub>t</sub>	[Pa]		6	10	22	39	61	88						
	L <sub>0.2</sub> (+10K)	[m]		1.1	1.7	2.4	3	3.4	3.8						
LD-18/2 L=2000 mm	L <sub>WA</sub>	[dB (A)]			25	30	35	39	43	47	50	53	56	61	
	Δp <sub>t</sub>	[Pa]			2	5	9	15	21	29	38	48	59	85	
	L <sub>0.2</sub> (+10K)	[m]			1	1.9	2.4	2.9	3.2	3.5	3.8	4	4.3	4.6	
LD-18/3 L=500 mm	L <sub>WA</sub>	[dB (A)]	23	30	36	46	54	60							
	Δp <sub>t</sub>	[Pa]	3	6	11	25	44	69							
	L <sub>0.2</sub> (+10K)	[m]	1.9	3.1	4	5.7	7.1	8.2							
LD-18/3 L=1000 mm	L <sub>WA</sub>	[dB (A)]		<25	26	33	39	44	49	53					
	Δp <sub>t</sub>	[Pa]		4	8	17	31	49	70	95					
	L <sub>0.2</sub> (+10K)	[m]		1.3	1.9	3.1	4	5	5.8	6.5					
LD-18/3 L=1500 mm	L <sub>WA</sub>	[dB (A)]			23	28	33	37	41	45	48	51			
	Δp <sub>t</sub>	[Pa]			5	10	18	28	41	56	73	92			
	L <sub>0.2</sub> (+10K)	[m]			1	1.9	2.7	3.4	4	4.7	5.2	5.8			
LD-18/3 L=2000 mm	L <sub>WA</sub>	[dB (A)]				26	29	33	36	39	42	45	47	52	56
	Δp <sub>t</sub>	[Pa]				3	5	8	12	16	21	27	34	48	66
	L <sub>0.2</sub> (+10K)	[m]				1.3	1.9	2.5	3.1	3.6	4	4.5	5	5.8	6.5
LD-18/4 L=500 mm	L <sub>WA</sub>	[dB (A)]	21	27	33	42	50	56	61						
	Δp <sub>t</sub>	[Pa]	2	3	6	14	25	39	56						
	L <sub>0.2</sub> (+10K)	[m]	2.1	3.3	4.1	5.4	6.4	7.2	7.9						

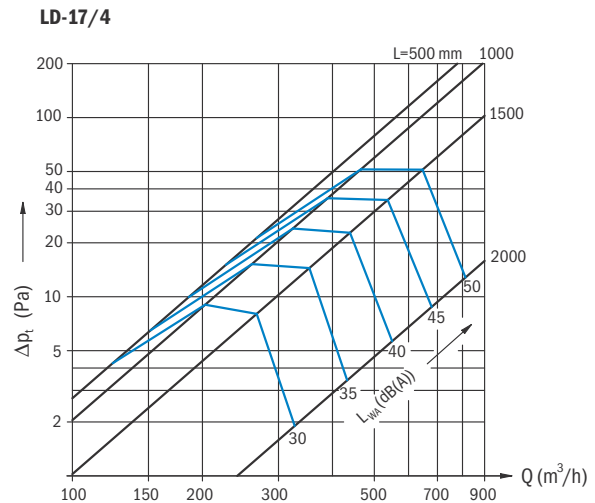
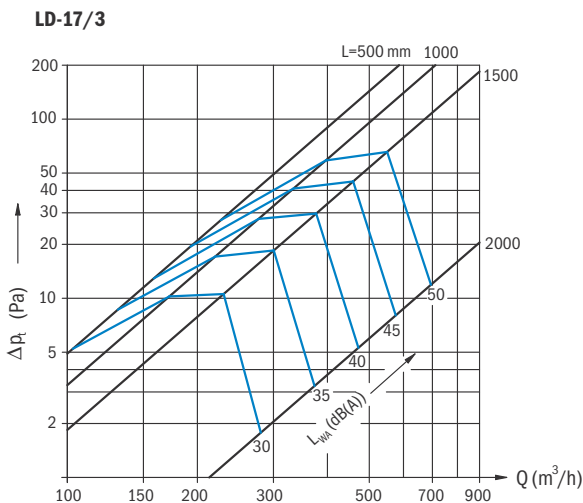
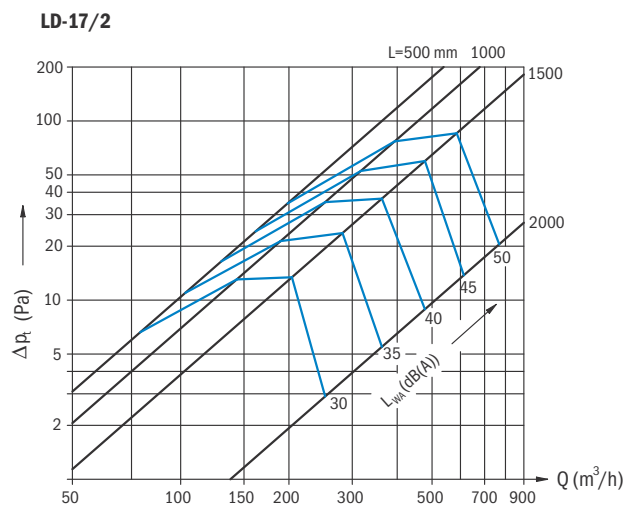
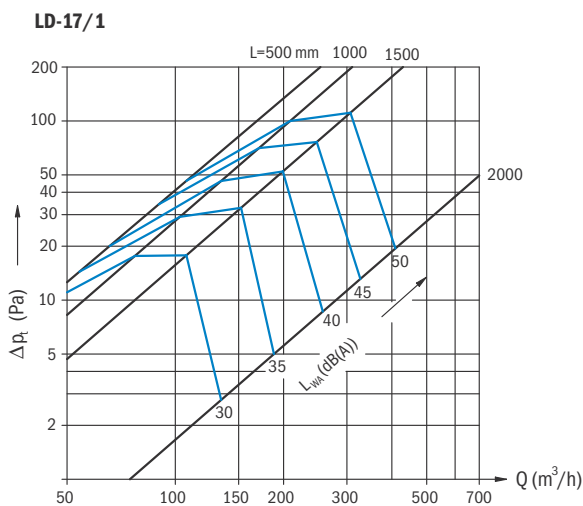
### Definition of symbols

- L<sub>WA</sub> A-weighted sound power level
- Δp<sub>t</sub> Total pressure drop calculated to normal conditions
- L<sub>0.2</sub> (+10 °C) Isothermal throw distance of supply air jet with temperature +10K, when its velocity drops down to 0.2 m/s

Type	Q	[l/s]	27.8	41.7	55.6	83.3	111.1	138.9	166.7	194.4	222.2	250.0	277.8	333.3	388.9
		[m³/h]	100	150	200	300	400	500	600	700	800	900	1000	1200	1400
LD-18/4 L=1000 mm	L <sub>WA</sub>	[dB (A)]			<25	30	36	41	45	49	53	56			
	Δp <sub>t</sub>	[Pa]			4	10	18	27	39	54	70	89			
	L <sub>0.2 (+10K)</sub>	[m]			2.1	3.3	4.1	4.8	5.4	6	6.5	6.9			
LD-18/4 L=1500 mm	L <sub>WA</sub>	[dB (A)]				26	30	34	37	41	44	47	50	54	
	Δp <sub>t</sub>	[Pa]				6	10	16	23	32	41	52	65	93	
	L <sub>0.2 (+10K)</sub>	[m]				2.1	2.9	3.6	4.1	4.6	5	5.5	5.8	6.5	
LD-18/4 L=2000 mm	L <sub>WA</sub>	[dB (A)]					27	30	33	36	39	41	44	48	52
	Δp <sub>t</sub>	[Pa]					3	5	7	10	13	16	20	29	39
	L <sub>0.2 (+10K)</sub>	[m]					2.1	2.8	3.3	3.8	4.2	4.5	4.8	5.5	6

### Pressure drop

(valid for horizontal discharge and plenum box with 100 % opened volume control damper)



VENTILATING GRILLES,  
VENTILATING VALVES

CIRCULAR DIFFUSERS,  
SQUARE DIFFUSERS

SWIRL DIFFUSERS,  
VARIABLE SWIRL  
DIFFUSERS

SLOT DIFFUSERS,  
ROUND DUCT DIFFUSERS

AIR DISPLACEMENT  
UNITS

SUPPLY AIR NOZZLES

EXTERNAL ELEMENTS

AIR FLOW  
CONTROL UNITS

SOUND ATTENUATORS,  
SOUND ATTENUATING  
LOUVERES

**Correction factors**

LD-17/1	Type of discharge	Horizontal		Vertical	
		Open	Closed	Open	Closed
Length	Volume control damper				
L=500	$\Delta p_t$	x 1	x 1.1	x 1.1	x 1.5
	$L_{WA}$	-	+ 1	-	+ 2
L=1000	$\Delta p_t$	x 1	x 1.2	x 1.2	x 1.5
	$L_{WA}$	-	+ 2	-	+ 1
L=1500	$\Delta p_t$	x 1	x 1.3	x 1.2	x 1.6
	$L_{WA}$	-	+ 2	-	+ 1
L=2000	$\Delta p_t$	x 1	x 2.9	x 2.0	x 2.7
	$L_{WA}$	-	+ 2	-	-

LD-17/2	Type of discharge	Horizontal		Vertical	
		Open	Closed	Open	Closed
Length	Volume control damper				
L=500	$\Delta p_t$	x 1	x 2	x 1.0	x 2.2
	$L_{WA}$	-	+ 4	+ 1	+ 2
L=1000	$\Delta p_t$	x 1	x 2.3	x 1.2	x 2.2
	$L_{WA}$	-	+ 4	+ 1	+ 2
L=1500	$\Delta p_t$	x 1	x 2.3	x 1.2	x 2.3
	$L_{WA}$	-	+ 3	-	+ 1
L=2000	$\Delta p_t$	x 1	x 3	x 1.6	x 3.4
	$L_{WA}$	-	+ 3	-	+ 1

LD-17/3	Type of discharge	Horizontal		Vertical	
		Open	Closed	Open	Closed
Length	Volume control damper				
L=500	$\Delta p_t$	x 1	x 2.5	x 1.1	x 2.4
	$L_{WA}$	-	+ 5	+ 1	+ 4
L=1000	$\Delta p_t$	x 1	x 2.6	x 1.2	x 2.5
	$L_{WA}$	-	+ 6	+ 2	+ 4
L=1500	$\Delta p_t$	x 1	x 2.7	x 1.2	x 2.8
	$L_{WA}$	-	+ 6	+ 2	+ 3
L=2000	$\Delta p_t$	x 1	x 3.2	x 2.5	x 6
	$L_{WA}$	-	+ 5	+ 1	+ 2

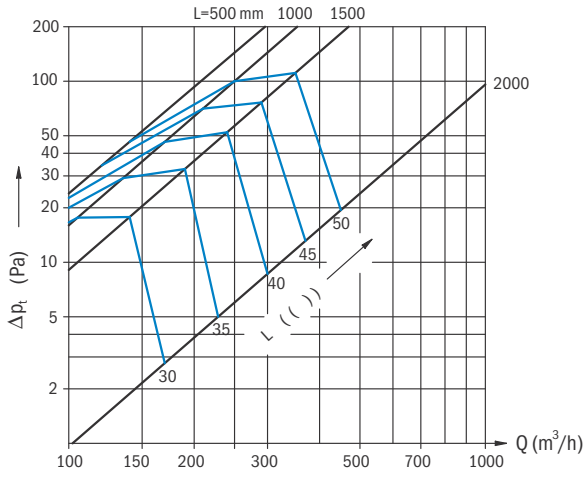
LD-17/4	Type of discharge	Horizontal		Vertical	
		Open	Closed	Open	Closed
Length	Volume control damper				
L=500	$\Delta p_t$	x 1	x 2.2	x 1.2	x 2.4
	$L_{WA}$	-	+ 6	+ 2	+ 3
L=1000	$\Delta p_t$	x 1	x 2.4	x 1.2	x 2.4
	$L_{WA}$	-	+ 5	+ 1	+ 3
L=1500	$\Delta p_t$	x 1	x 2.7	x 1.2	x 2.7
	$L_{WA}$	-	+ 6	+ 1	+ 2
L=2000	$\Delta p_t$	x 1	x 5	x 1.9	x 4.3
	$L_{WA}$	-	+ 6	+ 1	+ 2



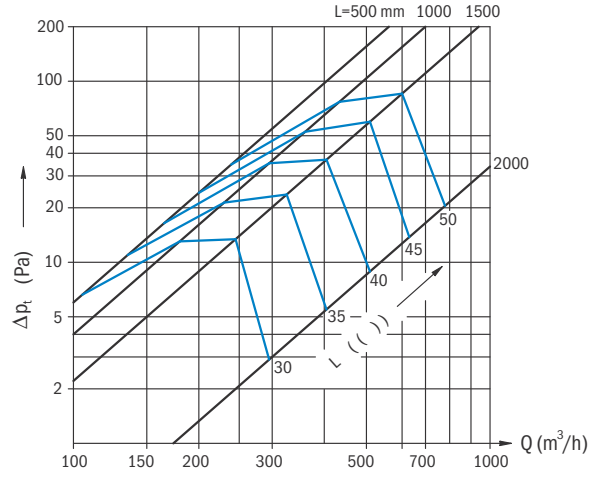
**Pressure drop**

(valid for horizontal discharge and plenum box with 100 % opened volume control damper)

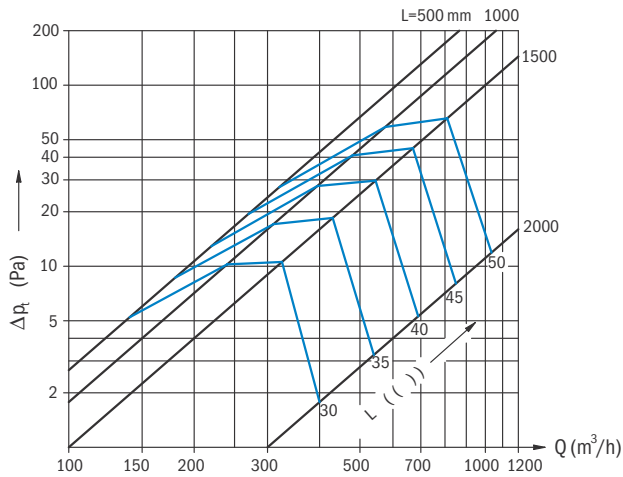
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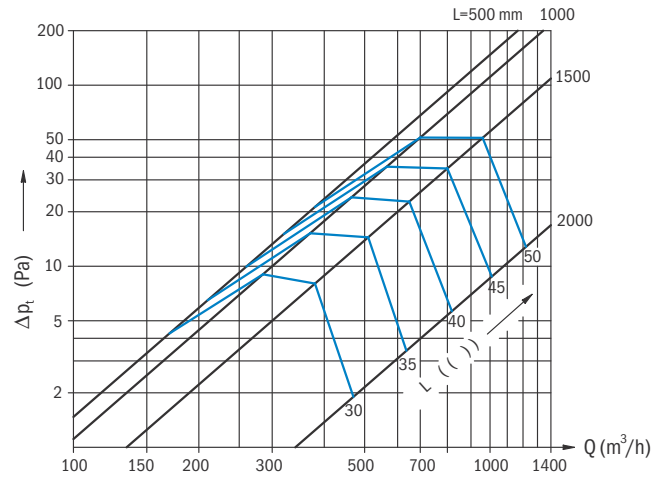
**LD-18/2**



**LD-18/3**



**LD-18/4**



VENTILATING GRILLES,  
VENTILATING VALVES

CIRCULAR DIFFUSERS,  
SQUARE DIFFUSERS

SWIRL DIFFUSERS,  
VARIABLE SWIRL  
DIFFUSERS

SLOT DIFFUSERS,  
ROUND DUCT DIFFUSERS

AIR DISPLACEMENT  
UNITS

SUPPLY AIR NOZZLES

EXTERNAL ELEMENTS

AIR FLOW  
CONTROL UNITS

SOUND ATTENUATORS,  
SOUND ATTENUATING  
LOUVRES

## Correction factors

LD-18/1	Type of discharge	Horizontal		Vertical	
		Open	Closed	Open	Closed
Length	Volume control damper				
L=500	$\Delta p_t$	x 1	x 1	x 1	x 1.4
	$L_{WA}$	-	+ 1	-	-
L=1000	$\Delta p_t$	x 1	x 1.1	x 1.1	x 1.4
	$L_{WA}$	-	+ 1	-	-
L=1500	$\Delta p_t$	x 1	x 1.2	x 1.1	x 1.5
	$L_{WA}$	-	+ 1	-	-
L=2000	$\Delta p_t$	x 1	x 2.8	x 1.9	x 2.6
	$L_{WA}$	-	+ 1	-	-

LD-18/2	Type of discharge	Horizontal		Vertical	
		Open	Closed	Open	Closed
Length	Volume control damper				
L=500	$\Delta p_t$	x 1	x 2.1	x 1	x 2.1
	$L_{WA}$	-	+ 3	-	+ 1
L=1000	$\Delta p_t$	x 1	x 2.2	x 1.1	x 2.1
	$L_{WA}$	-	+ 3	-	+ 1
L=1500	$\Delta p_t$	x 1	x 2.2	x 1.1	x 2.2
	$L_{WA}$	-	+ 3	-	+ 1
L=2000	$\Delta p_t$	x 1	x 3	x 1.6	x 3.3
	$L_{WA}$	-	+ 3	-	+ 1

LD-18/3	Type of discharge	Horizontal		Vertical	
		Open	Closed	Open	Closed
Length	Volume control damper				
L=500	$\Delta p_t$	x 1	x 2.5	x 1.0	x 2.4
	$L_{WA}$	-	+ 6	-	+ 3
L=1000	$\Delta p_t$	x 1	x 2.5	x 1.1	x 2.5
	$L_{WA}$	-	+ 6	-	+ 3
L=1500	$\Delta p_t$	x 1	x 2.5	x 1.2	x 2.7
	$L_{WA}$	-	+ 6	-	+ 2
L=2000	$\Delta p_t$	x 1	x 3.1	x 2.8	x 6.5
	$L_{WA}$	-	+ 6	-	+ 3

LD-18/4	Type of discharge	Horizontal		Vertical	
		Open	Closed	Open	Closed
Length	Volume control damper				
L=500	$\Delta p_t$	x 1	x 2.2	x 1	x 2.4
	$L_{WA}$	-	+ 5	+ 1	+ 2
L=1000	$\Delta p_t$	x 1	x 2.3	x 1.1	x 2.5
	$L_{WA}$	-	+ 5	-	+ 2
L=1500	$\Delta p_t$	x 1	x 2.6	x 1.1	x 2.6
	$L_{WA}$	-	+ 5	-	+ 2
L=2000	$\Delta p_t$	x 1	x 5	x 1.8	x 4.3
	$L_{WA}$	-	+ 4	-	+ 2