

Nozzle diffuser LD-19

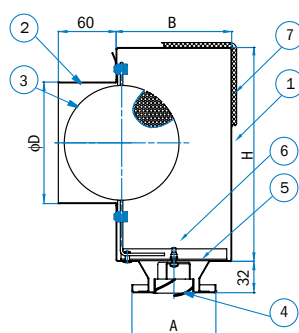
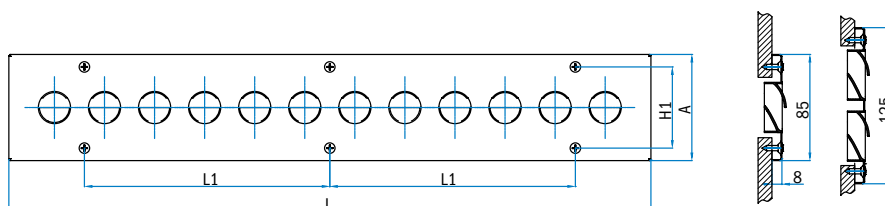
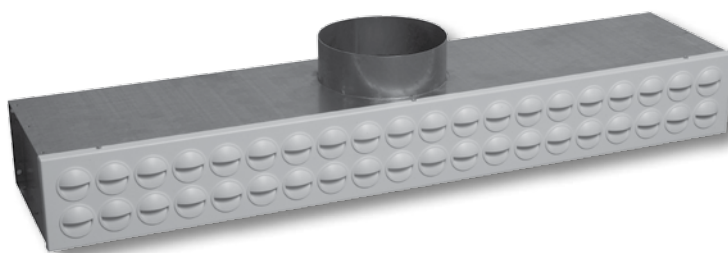
Application

Nozzle diffuser LD-19 is 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.

Description

Front plate is made of sheet steel and powder painted in white (RAL 9010) or any other RAL colour (on customer's request). Individually adjustable nozzles are made of plastics in white (RAL 9010) or black (RAL 9005) colour.

Plenum box is made of sheet steel. Nozzle diffusers are made in standard lengths (one section) from 600 up to 2000 mm with 100 mm step.



1. Plenum box
2. Spigot
3. Volume control damper (M)
4. Nozzle
5. Cross bar
6. Fixing screw
7. Insulation (entire outside surface of the plenum box)

Dimensions

L	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
L1	552	652	752	852	476	526	576	626	676	726	776	826	876	926	976
No. of nozzles*	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40

*Up to length L=900mm: fixing with 4 screws. Other sizes: fixing with 6 screws.

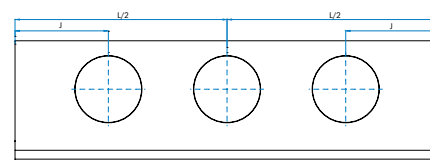
No. of rows	A	H1	B	H
1	85	65	117	216.5
2	125	105	162	236.5

Number and dimensions of spigots

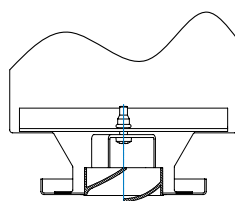
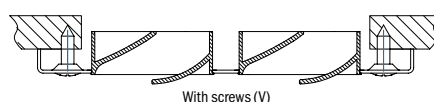
L	600 - 1000	1100 - 1500	1600 - 2000
No. of rows	Number and dimensions of spigots ϕD		
1	1x123	2x123	2x138
2	1x158	2x138	2x158

Position of inlet spigots

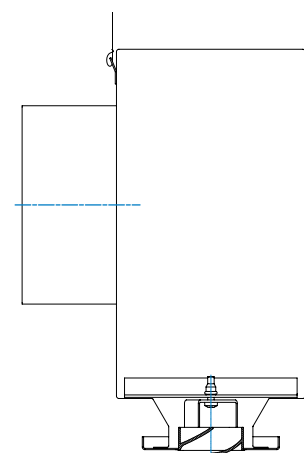
No. of inlet spigots	Standard length	Position of inlet spigots
1	600-1000	$L/2$
2	1100-1500	$J=300$
2	1600-2000	$J=400$



Front plate installation

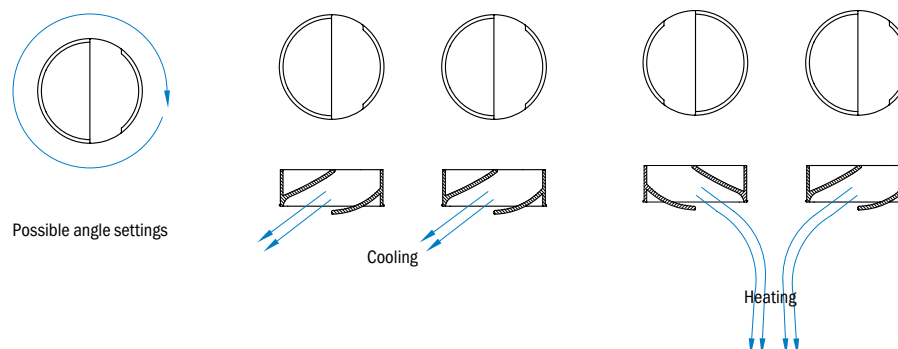


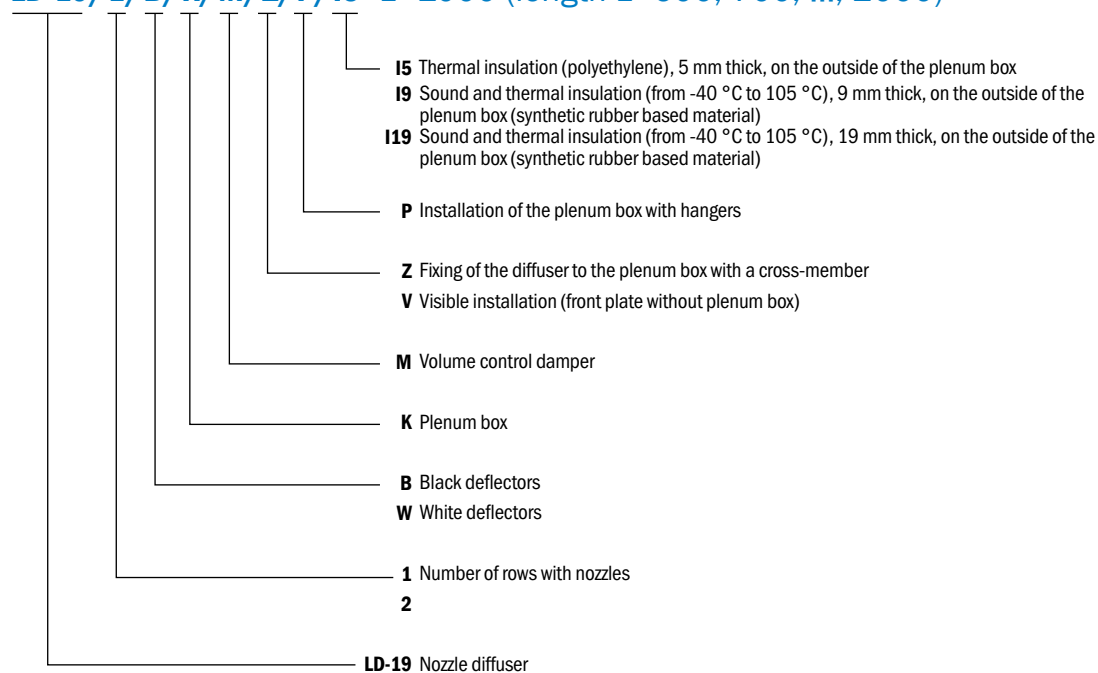
Installation with a cross-member (Z)
Installation on a cross bar can be made through the hole, in which is mounted a nozzle.



Installation of a plenum box with suspension bracket (P)

Types of air discharge



Ordering key**LD-19/1/B/K/M/Z/P/I5** L=1000 (length L=600, 700, ..., 2000)**Note:**

Standard colour is RAL 9010. Other colours on customer's request.

Quick selection

Sound power level, pressure drop and throw distances

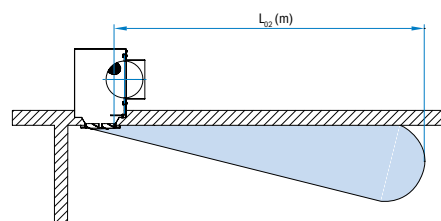
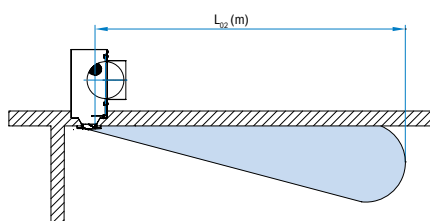
Horizontal discharge $\Delta T = 0K$									
Type	Q	(l/s)	13.9	27.8	41.7	55.6	69.4	83.3	111.1
		(m³/h)	50	100	150	200	250	300	400
LD-19/1 L=600 mm	L_{WA}	(dB(A))	27	40	46.8	/	/	/	/
	Δp_t	(Pa)	12.8	47	101.2	/	/	/	/
	$L_{0.2}$	(m)	2.7	3.5	4.1	/	/	/	/
	L_{min}	(m)	4.3	5.9	7.1	/	/	/	/
LD-19/1 L=1000 mm	L_{WA}	(dB(A))	21.4	33.7	40.8	44.8	/	/	/
	Δp_t	(Pa)	5	17.7	37.7	64.6	/	/	/
	$L_{0.2}$	(m)	2.2	2.8	3.6	4.4	/	/	/
	L_{min}	(m)	3.2	4.4	6.0	7.6	/	/	/
LD-19/1 L=1500 mm	L_{WA}	(dB(A))	16.4	27.4	34.8	39.7	43.1	/	/
	Δp_t	(Pa)	2.3	7.9	16.9	28.9	43.8	/	/
	$L_{0.2}$	(m)	2	2.5	2.8	3.3	3.9	/	/
	L_{min}	(m)	2.7	3.7	4.4	5.4	6.6	/	/
LD-19/1 L=2000 mm	L_{WA}	(dB(A))	13.1	22.8	30	35.2	39.1	41.9	45.5
	Δp_t	(Pa)	1.4	4.6	9.7	16.5	25	35.2	60.4
	$L_{0.2}$	(m)	1.9	2.2	2.6	2.9	3.2	3.6	3.9
	L_{min}	(m)	2.5	3.1	3.9	4.5	5.1	5.9	6.6
LD-19/2 L=600 mm	L_{WA}	(dB(A))	19.1	30.9	38.2	/	/	/	/
	Δp_t	(Pa)	3.4	12.2	26	/	/	/	/
	$L_{0.2}$	(m)	3.2	4.6	6.8	/	/	/	/
	L_{min}	(m)	5.4	8.2	12.6	/	/	/	/
LD-19/2 L=1000 mm	L_{WA}	(dB(A))	13.1	22.8	30	35.2	/	/	/
	Δp_t	(Pa)	1.5	4.9	10.1	17.1	/	/	/
	$L_{0.2}$	(m)	2.7	3.5	4.3	5.4	/	/	/
	L_{min}	(m)	4.3	5.9	7.6	9.8	/	/	/
LD-19/2 L=1500 mm	L_{WA}	(dB(A))	10.3	18.4	24.9	30.1	34.2	/	/
	Δp_t	(Pa)	0.7	2.4	4.8	7.9	11.9	/	/
	$L_{0.2}$	(m)	2.4	3	3.4	4.2	4.8	/	/
	L_{min}	(m)	3.7	4.9	5.7	7.3	8.5	/	/
LD-19/2 L=2000 mm	L_{WA}	(dB(A))	9.1	16.6	22.8	27.8	31.9	35.3	40.3
	Δp_t	(Pa)	0.5	1.4	2.8	4.7	6.9	9.6	16.2
	$L_{0.2}$	(m)	2.4	2.8	3.1	3.6	4	4.4	5.6
	L_{min}	(m)	3.6	4.4	5.1	6.1	6.9	7.7	10.1

Definition of symbols

L_{WA} (dB(A))	Sound power level
Δp_t (Pa)	Total pressure drop
$L_{0.2}$ (m)	Isothermal throw length of supply air jet, when its speed drops down to 0.2 m/s
L_{min} (m)	Minimum distance between diffusers, that the jet velocity is less than or equal to 0.2 m/s

Conditions for L_{min} :

Room height:	H=2.8 m
Occupied zone height:	1.8 m
Room temperature:	24 °C
Supply temperature by cooling:	$\Delta T = -6 K$



Sound power level, pressure drop and throw distances

Vertical discharge $\Delta T = 0K$

Type	Q	(l/s)	13.9	27.8	41.7	55.6	69.4	83.3	111.1
		(m³/h)	50	100	150	200	250	300	400
LD-19/2 L=600 mm	L_{WA}	(dB(A))	19.1	30.9	38.2	/	/	/	/
	Δp_t	(Pa)	3.4	12.2	26	/	/	/	/
	$L_{0.2}$	(m)	1.8	2.6	3.9	/	/	/	/
LD-19/2 L=1000 mm	L_{WA}	(dB(A))	13.1	22.8	30	35.2	/	/	/
	Δp_t	(Pa)	1.5	4.9	10.1	17.1	/	/	/
	$L_{0.2}$	(m)	1.6	2.0	2.3	2.8	/	/	/
LD-19/2 L=1500 mm	L_{WA}	(dB(A))	10.3	18.4	24.9	30.1	34.2	/	/
	Δp_t	(Pa)	0.7	2.4	4.8	7.9	11.9	/	/
	$L_{0.2}$	(m)	1.4	1.7	1.9	2.4	2.7	/	/
LD-19/2 L=2000 mm	L_{WA}	(dB(A))	9.1	16.6	22.8	27.8	31.9	35.3	40.3
	Δp_t	(Pa)	0.5	1.4	2.8	4.7	6.9	9.6	16.2
	$L_{0.2}$	(m)	1.3	1.6	1.8	2.1	2.3	2.5	3.2

Vertical discharge $\Delta T = +5K$

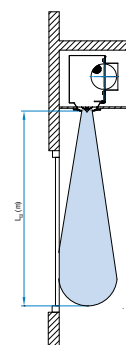
Type	Q	(l/s)	13.89	27.78	41.67	55.56	69.44	83.33	111.11
		(m³/h)	50.00	100.00	150.00	200.00	250.00	300.00	400.00
LD-19/2 L=600 mm	L_{WA}	(dB(A))	19.1	30.9	38.2	/	/	/	/
	Δp_t	(Pa)	3.4	12.2	26	/	/	/	/
	$L_{0.2}$	(m)	1.20	1.72	2.55	/	/	/	/
LD-19/2 L=1000 mm	L_{WA}	(dB(A))	13.1	22.8	30	35.2	/	/	/
	Δp_t	(Pa)	1.5	4.9	10.1	17.1	/	/	/
	$L_{0.2}$	(m)	1.16	1.45	1.64	2.03	/	/	/
LD-19/2 L=1500 mm	L_{WA}	(dB(A))	10.3	18.4	24.9	30.1	34.2	/	/
	Δp_t	(Pa)	0.7	2.4	4.8	7.9	11.9	/	/
	$L_{0.2}$	(m)	1.07	1.33	1.51	1.87	2.14	/	/
LD-19/2 L=2000 mm	L_{WA}	(dB(A))	9.1	16.6	22.8	27.8	31.9	35.3	40.3
	Δp_t	(Pa)	0.5	1.4	2.8	4.7	6.9	9.6	16.2
	$L_{0.2}$	(m)	1.03	1.26	1.40	1.62	1.80	1.98	2.52

Vertical discharge $\Delta T = +10K$

Type	Q	(l/s)	13.89	27.78	41.67	55.56	69.44	83.33	111.11
		(m³/h)	50.00	100.00	150.00	200.00	250.00	300.00	400.00
LD-19/2 L=600 mm	L_{WA}	(dB(A))	19.1	30.9	38.2	/	/	/	/
	Δp_t	(Pa)	3.4	12.2	26	/	/	/	/
	$L_{0.2}$	(m)	0.85	1.22	1.81	/	/	/	/
LD-19/2 L=1000 mm	L_{WA}	(dB(A))	13.1	22.8	30	35.2	/	/	/
	Δp_t	(Pa)	1.5	4.9	10.1	17.1	/	/	/
	$L_{0.2}$	(m)	0.86	1.07	1.22	1.50	/	/	/
LD-19/2 L=1500 mm	L_{WA}	(dB(A))	10.3	18.4	24.9	30.1	34.2	/	/
	Δp_t	(Pa)	0.7	2.4	4.8	7.9	11.9	/	/
	$L_{0.2}$	(m)	0.74	0.92	1.04	1.29	1.47	/	/
LD-19/2 L=2000 mm	L_{WA}	(dB(A))	9.1	16.6	22.8	27.8	31.9	35.3	40.3
	Δp_t	(Pa)	0.5	1.4	2.8	4.7	6.9	9.6	16.2
	$L_{0.2}$	(m)	0.69	0.85	0.94	1.09	1.21	1.33	1.69

Definitions of symbols

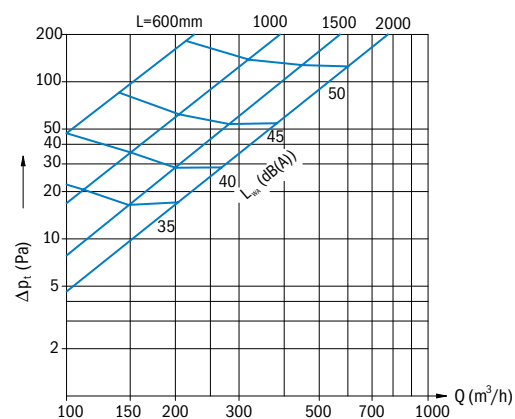
- L_{WA} (dB(A)) Sound power level
 Δp_t (Pa) Total pressure drop
 $L_{0.2}$ (m) Isothermal throw length of supply air jet, when its speed drops down to 0.2 m/s



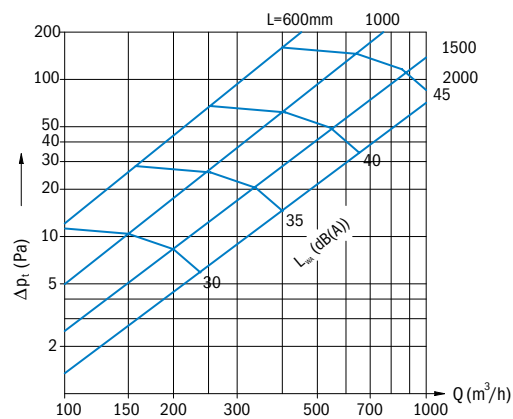
Sound power level and pressure drop

Pressure drop by horizontal discharge and 100 % opened volume control damper.

LD 19/1



LD 19/2



Correction factors applicable to LD-19

Length	LD-19/1		LD-19/2	
	Volume control damper		Volume control damper	
	open	closed	open	closed
L=600	X 1	X 1.3	X 1	X 1.8
L=1000	X 1	X 1.4	X 1	X 2
L=1500	X 1	X 1.5	X 1	X 2.2
L=2000	X 1	X 2	X 1	X 2.5