

04



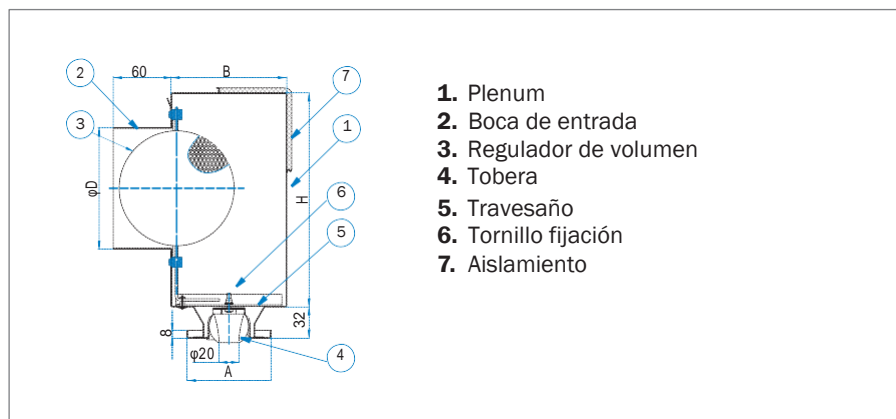
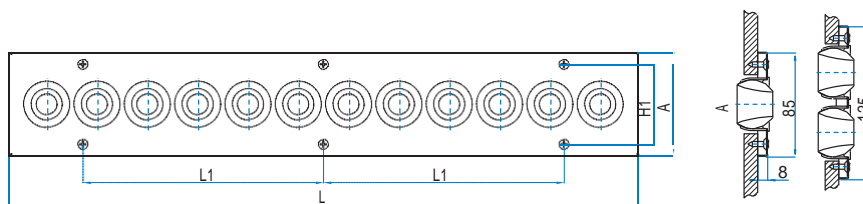
• Nozzle diffuser IND-LD-20

Application

Nozzle diffuser IND-LD-20 is 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).

Description

The front plate is made of sheet steel powder painted in white (RAL 9010) or any other RAL colour (on customer's request). Individually adjustable nozzles are made from plastic in white (RAL 9010) or black (RAL 9005) colour. Plenum box is made of sheet steel. Nozzle diffuser LD-20 can be made in standard lengths (one section) from 600 up to 2000 mm with 100 mm step.



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 de toberas	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40

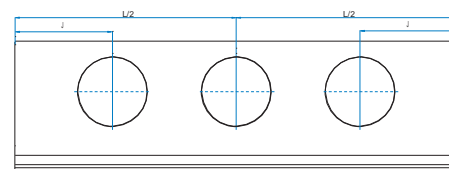
Nº de filas	H1	B	H	A
1	65	117	216.5	85
2	105	162	236.5	125

Number and dimensions of spigots

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

Position of inlet spigots

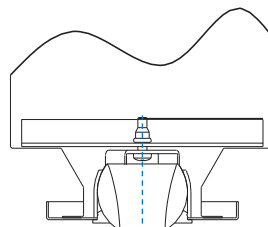
No. of inlet spigots	Standard length	Position of inlet spigots
1	600-1000	L/2
2	1100-1500	J=300
2	1600-2000	J=400



Front plate installation

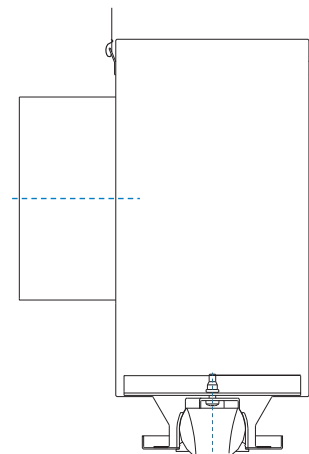


With screws(V)



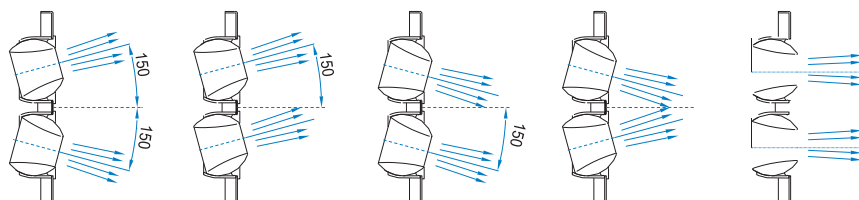
Installation with a cross-member (Z)

Installation on a cross bar can be made through the hole, in which is mounted a nozzle.



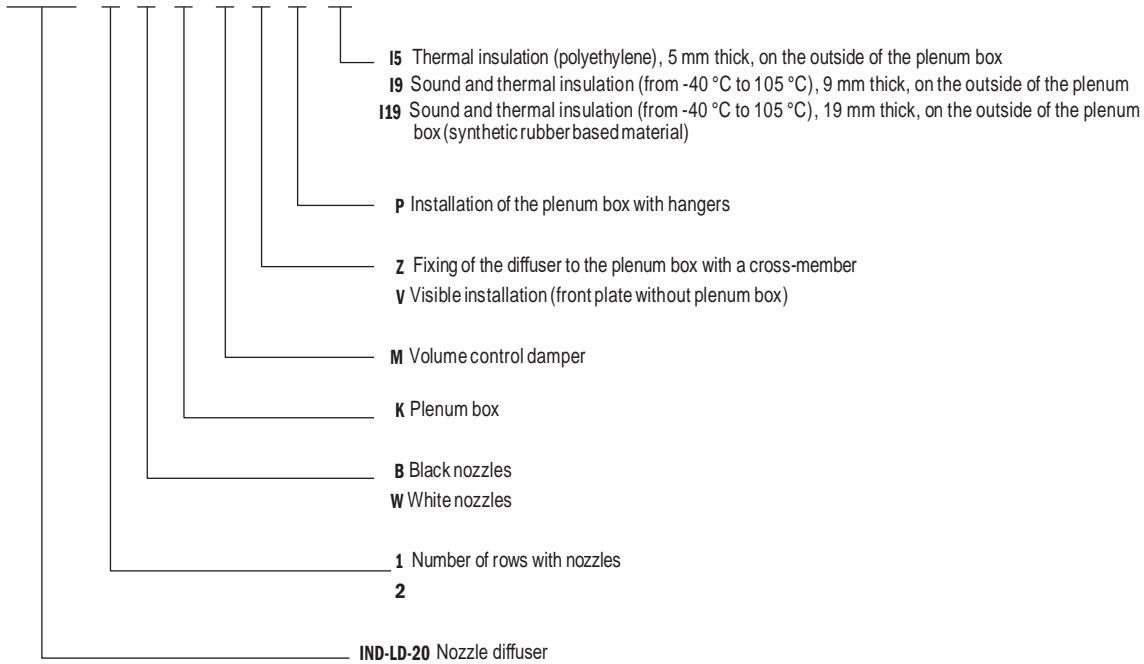
Installation of a plenum box with suspension bracket (P)

Possible angle settings



Ordering key

IND-LD-20/1/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.

- 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

Quick selection
Sound power level, pressure drop and throw distances

Horizontal discharge $\diamond T=0K$									
Type	Q	(l/s)	13.9	27.8	41.7	55.6	69.4	83.3	111.1
		(m ³ /h)	50	100	150	200	250	300	400
IND-LD-20/1 L=600 mm	L _{WA}	(dB(A))	20	33.8	41	/	/	/	/
	Δp_t	(Pa)	13.5	35.6	74.8	/	/	/	/
	L _{0.2}	(m)	6.6	> 10	> 10	/	/	/	/
IND-LD-20/1 L=1000 mm	L _{WA}	(dB(A))	11	23.2	30	36	/	/	/
	Δp_t	(Pa)	12	22	43	76	/	/	/
	L _{0.2}	(m)	3.8	6.6	9.3	> 10	/	/	/
IND-LD-20/1 L=1500 mm	L _{WA}	(dB(A))	8	14.5	25	31	35	37.5	43
	Δp_t	(Pa)	5.5	12.5	25	39.6	55	86.4	136.8
	L _{0.2}	(m)	2.1	3.5	5	6.4	7.9	9.3	> 10
IND-LD-20/1 L=2000 mm	L _{WA}	(dB(A))	/	11	21	26.5	31	34.7	40
	Δp_t	(Pa)	/	7.5	15	23.7	33	45.5	75.2
	L _{0.2}	(m)	/	2.5	3.6	4.6	5.7	6.7	7.5
IND-LD-20/2 L=600 mm	L _{WA}	(dB(A))	14	25	31	/	/	/	/
	Δp_t	(Pa)	2	8.3	18.3	/	/	/	/
	L _{0.2}	(m)	4.2	9.1	> 10	/	/	/	/
IND-LD-20/2 L=1000 mm	L _{WA}	(dB(A))	/	19	24	27.8	31	/	/
	Δp_t	(Pa)	/	4	8	15	22	/	/
	L _{0.2}	(m)	/	7.1	8.9	> 10	> 10	/	/
IND-LD-20/2 L=1500 mm	L _{WA}	(dB(A))	/	14.6	20.4	24	27	28.5	32.5
	Δp_t	(Pa)	/	2.4	4.7	7.6	13	17	28.5
	L _{0.2}	(m)	/	4.3	5.3	6.2	7.3	8.1	8.9
IND-LD-20/2 L=2000 mm	L _{WA}	(dB(A))	/	11	17	21.5	24	26.3	30.3
	Δp_t	(Pa)	/	1.4	2.7	4.2	6.5	8.2	14.4
	L _{0.2}	(m)	/	2.8	3.5	4.0	4.7	5.3	5.8

Sound power level, pressure drop and throw distances

Horizontal discharge $\diamond T=-5K$

Type	Q	(l/s)	13.9	27.8	41.7	55.6	69.4	83.3	111.1
		(m ³ /h)	50	100	150	200	250	300	400
IND-LD-20/1 L=600 mm	L _{WA}	(dB(A))	20	33.8	41	/	/	/	/
	Δp_t	(Pa)	13.5	35.6	74.8	/	/	/	/
	L _{0.2}	(m)	5.1	> 10	> 10	/	/	/	/
IND-LD-20/1 L=1000 mm	L _{WA}	(dB(A))	11	23.2	30	36	/	/	/
	Δp_t	(Pa)	12	22	43	76	/	/	/
	L _{0.2}	(m)	2.9	6.9	8.8	> 10	/	/	/
IND-LD-20/1 L=1500 mm	L _{WA}	(dB(A))	8	14.5	25	31	35	37.5	43
	Δp_t	(Pa)	5.5	12.5	25	39.6	55	86.4	136.8
	L _{0.2}	(m)	1.6	3.8	4.8	6.6	8.2	9.8	> 10
IND-LD-20/1 L=2000 mm	L _{WA}	(dB(A))	/	11	21	26.5	31	34.7	40
	Δp_t	(Pa)	/	7.5	15	23.7	33	45.5	75.2
	L _{0.2}	(m)	/	2.7	3.4	4.7	5.8	7.0	8.1
IND-LD-20/2 L=600 mm	L _{WA}	(dB(A))	14	25	31	/	/	/	/
	Δp_t	(Pa)	2	8.3	18.3	/	/	/	/
	L _{0.2}	(m)	7.3	9.1	> 10	/	/	/	/
IND-LD-20/2 L=1000 mm	L _{WA}	(dB(A))	/	19	24	27.8	31	/	/
	Δp_t	(Pa)	/	4	8	15	22	/	/
	L _{0.2}	(m)	/	4.7	7.1	9.3	> 10	/	/
IND-LD-20/2 L=1500 mm	L _{WA}	(dB(A))	/	14.6	20.4	24	27	28.5	32.5
	Δp_t	(Pa)	/	2.4	4.7	7.6	13	17	28.5
	L _{0.2}	(m)	/	2.8	4.3	5.6	7.0	8.2	9.3
IND-LD-20/2 L=2000 mm	L _{WA}	(dB(A))	/	11	17	21.5	24	26.3	30.3
	Δp_t	(Pa)	/	1.4	2.7	4.2	6.5	8.2	14.4
	L _{0.2}	(m)	/	1.8	2.8	3.6	4.5	5.3	6.0

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AIR DISPLACEMENT
UNITS

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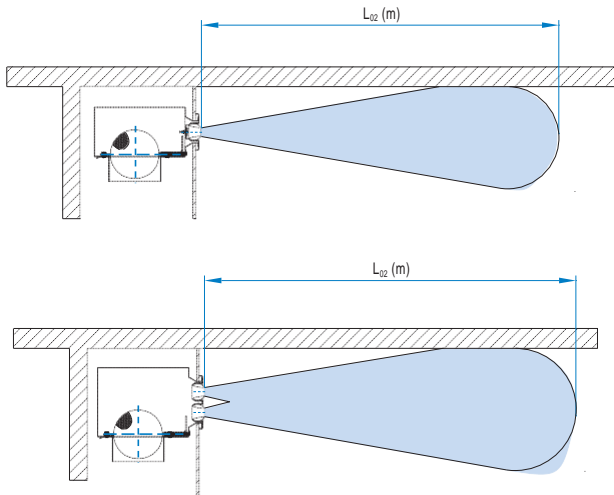
Sound power level, pressure drop and throw distances

Horizontal discharge $\diamond T=-10K$

Type	Q	(l/s)	13.9	27.8	41.7	55.6	69.4	83.3	111.1
		(m ³ /h)	50	100	150	200	250	300	400
IND-LD-20/1 L=600 mm	L_{WA}	(dB(A))	20	33.8	41	/	/	/	/
	Δp_t	(Pa)	13.5	35.6	74.8	/	/	/	/
	$L_{0.2}$	(m)	3.5	8.5	> 10	/	/	/	/
IND-LD-20/1 L=1000 mm	L_{WA}	(dB(A))	11	23.2	30	36	/	/	/
	Δp_t	(Pa)	12	22	43	76	/	/	/
	$L_{0.2}$	(m)	2	4.9	8.1	> 10	/	/	/
IND-LD-20/1 L=1500 mm	L_{WA}	(dB(A))	8	14.5	25	31	35	37.5	43
	Δp_t	(Pa)	5.5	12.5	25	39.6	55	86.4	136.8
	$L_{0.2}$	(m)	1.1	2.6	4.4	5.9	7.3	9.1	> 10
IND-LD-20/1 L=2000 mm	L_{WA}	(dB(A))	/	11	21	26.5	31	34.7	40
	Δp_t	(Pa)	/	7.5	15	23.7	33	45.5	75.2
	$L_{0.2}$	(m)	/	1.9	3.1	4.2	5.3	6.6	7.5
IND-LD-20/2 L=600 mm	L_{WA}	(dB(A))	14	25	31	/	/	/	/
	Δp_t	(Pa)	2	8.3	18.3	/	/	/	/
	$L_{0.2}$	(m)	3.4	4.3	7.74	/	/	/	/
IND-LD-20/2 L=1000 mm	L_{WA}	(dB(A))	/	19	24	27.8	31	/	/
	Δp_t	(Pa)	/	4	8	15	22	/	/
	$L_{0.2}$	(m)	/	2.5	4.5	6.7	9.7	/	/
IND-LD-20/2 L=1500 mm	L_{WA}	(dB(A))	/	14.6	20.4	24	27	28.5	32.5
	Δp_t	(Pa)	/	2.4	4.7	7.6	13	17	28.5
	$L_{0.2}$	(m)	/	1.5	2.7	4.0	5.8	6.9	8.3
IND-LD-20/2 L=2000 mm	L_{WA}	(dB(A))	/	11	17	21.5	24	26.3	30.3
	Δp_t	(Pa)	/	1.4	2.7	4.2	6.5	8.2	14.4
	$L_{0.2}$	(m)	/	1.0	1.8	2.6	3.8	4.5	5.4

Definition of symbols

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



Sound power level, pressure drop and throw distances

Vertical discharge $\diamond T=0K$

Type	Q	(l/s)	13.9	27.8	41.7	55.6	69.4	83.3	111.1
		(m ³ /h)	50	100	150	200	250	300	400
IND-LD-20/1 L=600 mm	L _{WA}	(dB(A))	20	33.8	41	/	/	/	/
	Δp _t	(Pa)	13.5	35.6	74.8	/	/	/	/
	L _{0.2}	(m)	5.2	> 10	> 10	/	/	/	/
IND-LD-20/1 L=1000 mm	L _{WA}	(dB(A))	11	23.2	30	36	/	/	/
	Δp _t	(Pa)	12	22	43	76	/	/	/
	L _{0.2}	(m)	3.2	7.4	9.4	> 10	/	/	/
IND-LD-20/1 L=1500 mm	L _{WA}	(dB(A))	8	14.5	25	31	35	37.5	43
	Δp _t	(Pa)	5.5	12.5	25	39.6	55	86.4	136.8
	L _{0.2}	(m)	1.5	3.9	6.6	9.8	> 10	> 10	> 10
IND-LD-20/1 L=2000 mm	L _{WA}	(dB(A))	/	11	21	26.5	31	34.7	40
	Δp _t	(Pa)	/	7.5	15	23.7	33	45.5	75.2
	L _{0.2}	(m)	/	2.6	4.6	6.6	9	> 10	> 10
IND-LD-20/2 L=600 mm	L _{WA}	(dB(A))	14	25	31	/	/	/	/
	Δp _t	(Pa)	2	8.3	18.3	/	/	/	/
	L _{0.2}	(m)	2.7	5.4	8.8	/	/	/	/
IND-LD-20/2 L=1000 mm	L _{WA}	(dB(A))	/	19	24	27.8	31	/	/
	Δp _t	(Pa)	/	4	8	15	22	/	/
	L _{0.2}	(m)	/	3	5.4	7.2	8.9	/	/
IND-LD-20/2 L=1500 mm	L _{WA}	(dB(A))	/	14.6	20.4	24	27	28.5	32.5
	Δp _t	(Pa)	/	2.4	4.7	7.6	13	17	28.5
	L _{0.2}	(m)	/	3.3	4.6	6.1	7.7	9.4	> 10
IND-LD-20/2 L=2000 mm	L _{WA}	(dB(A))	/	11	17	21.5	24	26.3	30.3
	Δp _t	(Pa)	/	1.4	2.7	4.2	6.5	8.2	14.4
	L _{0.2}	(m)	/	1.9	2.6	3.4	4.2	5.1	7.1

VENTILATING GRILLES, VENTILATING VALVES
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 AIR DISPLACEMENT UNITS
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 AIR FLOW CONTROL UNITS
 SOUND ATTENUATORS, SOUND ATTENUATING LOUVRES

Sound power level, pressure drop and throw distances

Vertical discharge $\diamond T=+5K$

Type	Q	(l/s)	13.9	27.8	41.7	55.6	69.4	83.3	111.1
		(m ³ /h)	50	100	150	200	250	300	400
IND-LD-20/1 L=600 mm	L _{WA}	(dB(A))	20	33.8	41	/	/	/	/
	Δp_t	(Pa)	13.5	35.6	74.8	/	/	/	/
	L _{0.2}	(m)	3.9	> 10	> 10				
IND-LD-20/1 L=1000 mm	L _{WA}	(dB(A))	11	23.2	30	36	/	/	/
	Δp_t	(Pa)	12	22	43	76	/	/	/
	L _{0.2}	(m)	2	5.1	8.6	> 10	/	/	/
IND-LD-20/1 L=1500 mm	L _{WA}	(dB(A))	8	14.5	25	31	35	37.5	43
	Δp_t	(Pa)	5.5	12.5	25	39.6	55	86.4	136.8
	L _{0.2}	(m)	1.2	3	5.1	7.5	> 10		
IND-LD-20/1 L=2000 mm	L _{WA}	(dB(A))	/	11	21	26.5	31	34.7	40
	Δp_t	(Pa)	/	7.5	15	23.7	33	45.5	75.2
	L _{0.2}	(m)	/	2.1	3.6	5.2	7	9.1	> 10
IND-LD-20/2 L=600 mm	L _{WA}	(dB(A))	14	25	31	/	/	/	/
	Δp_t	(Pa)	2	8.3	18.3	/	/	/	/
	L _{0.2}	(m)	2.3	5.9	> 10	/	/	/	/
IND-LD-20/2 L=1000 mm	L _{WA}	(dB(A))	/	19	24	27.8	31	/	/
	Δp_t	(Pa)	/	4	8	15	22	/	/
	L _{0.2}	(m)	/	3	5.4	7.2	8.4	/	/
IND-LD-20/2 L=1500 mm	L _{WA}	(dB(A))	/	14.6	20.4	24	27	28.5	32.5
	Δp_t	(Pa)	/	2.4	4.7	7.6	13	17	28.5
	L _{0.2}	(m)	/	1.85	3.1	4.5	6.2	7.9	> 10
IND-LD-20/2 L=2000 mm	L _{WA}	(dB(A))	/	11	17	21.5	24	26.3	30.3
	Δp_t	(Pa)	/	1.4	2.7	4.2	6.5	8.2	14.4
	L _{0.2}	(m)	/	1.6	2.2	3.2	4.3	5.4	8

Sound power level, pressure drop and throw distances

Vertical discharge $\diamond T=+10K$

Type	Q	(l/s)	13.9	27.8	41.7	55.6	69.4	83.3	111.1
		(m ³ /h)	50	100	150	200	250	300	400
IND-LD-20/1 L=600 mm	L _{WA}	(dB(A))	20	33.8	41	/	/	/	/
	Δp _t	(Pa)	13.5	35.6	74.8	/	/	/	/
	L _{0.2}	(m)	2.6	6.3	> 10	/	/	/	/
IND-LD-20/1 L=1000 mm	L _{WA}	(dB(A))	11	23.2	30	36	/	/	/
	Δp _t	(Pa)	12	22	43	76	/	/	/
	L _{0.2}	(m)	1.5	3.6	6.2	8.8	/	/	/
IND-LD-20/1 L=1500 mm	L _{WA}	(dB(A))	8	14.5	25	31	35	37.5	43
	Δp _t	(Pa)	5.5	12.5	25	39.6	55	86.4	136.8
	L _{0.2}	(m)	1.5	2	3.3	4.8	6.5	8.3	> 10
IND-LD-20/1 L=2000 mm	L _{WA}	(dB(A))	/	11	21	26.5	31	34.7	40
	Δp _t	(Pa)	/	7.5	15	23.7	33	45.5	75.2
	L _{0.2}	(m)	/	1.4	2.4	3.4	4.6	5.8	8.5
IND-LD-20/2 L=600 mm	L _{WA}	(dB(A))	14	25	31	/	/	/	/
	Δp _t	(Pa)	2	8.3	18.3	/	/	/	/
	L _{0.2}	(m)	1.5	4.5	8.2	/	/	/	/
IND-LD-20/2 L=1000 mm	L _{WA}	(dB(A))	/	19	24	27.8	31	/	/
	Δp _t	(Pa)	/	4	8	15	22	/	/
	L _{0.2}	(m)	/	2	3.6	5.3	7.4	/	/
IND-LD-20/2 L=1500 mm	L _{WA}	(dB(A))	/	14.6	20.4	24	27	28.5	32.5
	Δp _t	(Pa)	/	2.4	4.7	7.6	13	17	28.5
	L _{0.2}	(m)	/	1.1	2.1	3.3	4.6	6.1	9.2
IND-LD-20/2 L=2000 mm	L _{WA}	(dB(A))	/	11	17	21.5	24	26.3	30.3
	Δp _t	(Pa)	/	1.4	2.7	4.2	6.5	8.2	14.4
	L _{0.2}	(m)	/	0.7	1.3	2.1	3	3.9	6.1

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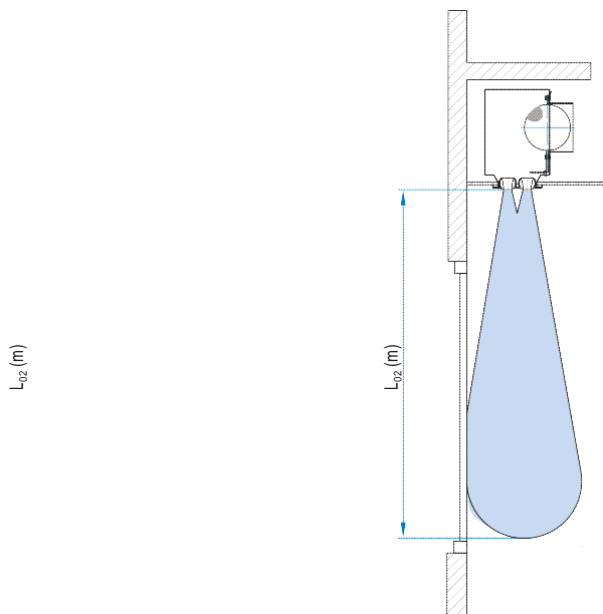
Sound power level, pressure drop and throw distances

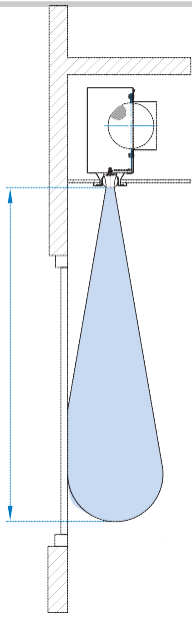
Vertical discharge $\diamond T=+15K$

Type	Q	(l/s)	13.9	27.8	41.7	55.6	69.4	83.3	111.1
		(m ³ /h)	50	100	150	200	250	300	400
IND-LD-20/1 L=600 mm	L_{WA}	(dB(A))	20	33.8	41	/	/	/	/
	Δp_t	(Pa)	13.5	35.6	74.8	/	/	/	/
	$L_{0.2}$	(m)	1.8	4.5	7.9	/	/	/	/
IND-LD-20/1 L=1000 mm	L_{WA}	(dB(A))	11	23.2	30	36	/	/	/
	Δp_t	(Pa)	12	22	43	76	/	/	/
	$L_{0.2}$	(m)	1.1	2.6	4.3	5.1	/	/	/
IND-LD-20/1 L=1500 mm	L_{WA}	(dB(A))	8	14.5	25	31	35	37.5	43
	Δp_t	(Pa)	5.5	12.5	25	39.6	55	86.4	136.8
	$L_{0.2}$	(m)	1.1	1.4	2.4	3.5	4.6	6	8.8
IND-LD-20/1 L=2000 mm	L_{WA}	(dB(A))	/	11	21	26.5	31	34.7	40
	Δp_t	(Pa)	/	7.5	15	23.7	33	45.5	75.2
	$L_{0.2}$	(m)	/	1	1.6	2.4	3.3	4.2	6.1
IND-LD-20/2 L=600 mm	L_{WA}	(dB(A))	14	25	31	/	/	/	/
	Δp_t	(Pa)	2	8.3	18.3	/	/	/	/
	$L_{0.2}$	(m)	1.2	3.1	5.6	/	/	/	/
IND-LD-20/2 L=1000 mm	L_{WA}	(dB(A))	/	19	24	27.8	31	/	/
	Δp_t	(Pa)	/	4	8	15	22	/	/
	$L_{0.2}$	(m)	/	1.6	2.4	3.7	5.3	/	/
IND-LD-20/2 L=1500 mm	L_{WA}	(dB(A))	/	14.6	20.4	24	27	28.5	32.5
	Δp_t	(Pa)	/	2.4	4.7	7.6	13	17	28.5
	$L_{0.2}$	(m)	/	1	1.5	2.3	3.2	4.2	6.3
IND-LD-20/2 L=2000 mm	L_{WA}	(dB(A))	/	11	17	21.5	24	26.3	30.3
	Δp_t	(Pa)	/	1.4	2.7	4.2	6.5	8.2	14.4
	$L_{0.2}$	(m)	/	0.6	0.9	1.5	2.1	2.8	4.2

Definition of symbols

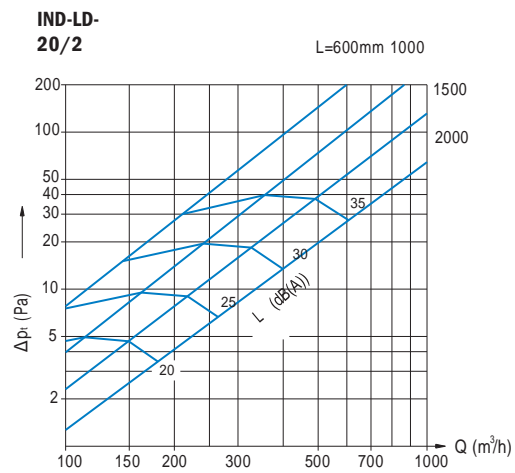
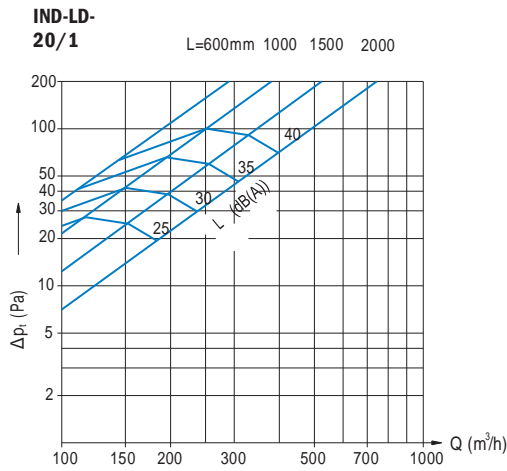
- L_{WA} (dB(A)) Sound power level
- $\diamond p_t$ (Pa) Total pressure drop
- $L_{0.2}$ (m) Isothermal throw length of supply air jet, when its speed drops down to 0.2 m/s





Sound power level and pressure drop

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



Correction factors applicable to IND-LD-20

Length	IND-LD-20/1		IND-LD-20/2	
	Volume control damper		Volume control damper	
	open	closed	open	closed
L=600	X1	X 1.25	X1	X 1.6
L=1000	X1	X 1.3	X1	X 1.8
L=1500	X1	X 1.4	X1	X2
L=2000	X1	X 1.8	X1	X 2.3