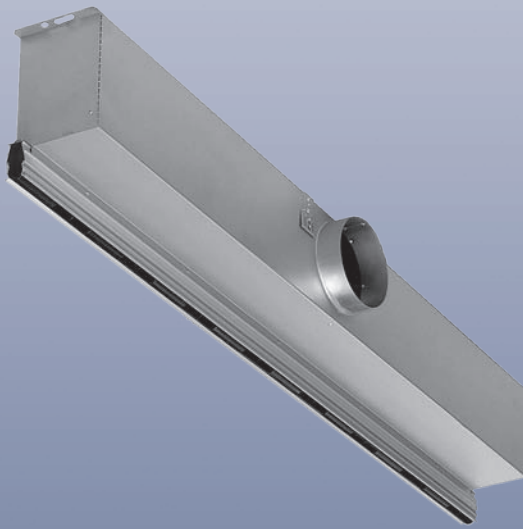




Adjustable induction outlet IN-V....

Adjustable induction outlet

Construction and function

Preliminary remarks

In addition to its induction outlet with preset discharge direction ¹⁾, KRANTZ KOMPONENTEN also provides the **adjustable** induction outlet in two types:

IN-V2:

- Element width 28 mm
- Discharge height 2.7 m to 5 m
- 1-row, 2-row, 3-row and 4-row design

IN-V3:

- Element width 15 mm
- Discharge height 2.5 m to 3.5 m
- 1-row design

Thanks to its small width, type IN-V3 is eminently suited for commercial rooms requiring unobtrusive air distribution systems in the ceiling.

Construction and function

The linear discharge element **2**, which is set inside the air outlet profile **1**, consists of a number of consecutive, rotatable single elements, each with two jet channels **3**. As the air flows through the jet channels, many single high-stability and high-induction jets form; this results in a rapid drop in jet velocity and fast equalization of supply air temperature and room temperature.

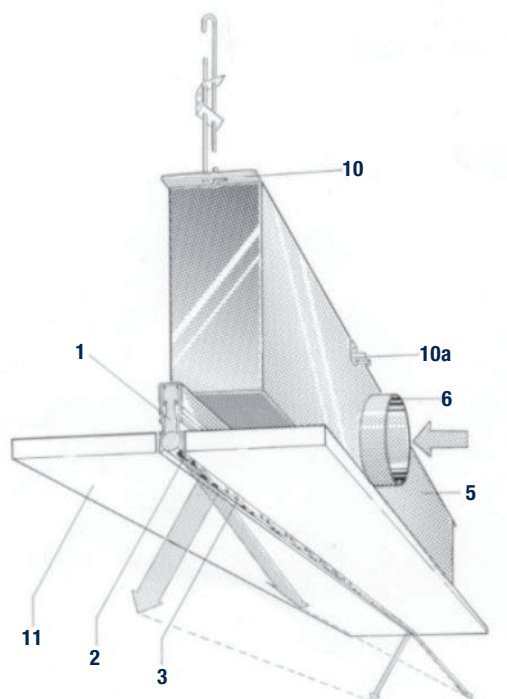


Fig. 1: IN-V2 and IN-V3, 1-row design

Rotating the cylindrical single elements alters the incline of the jet channels and adjusts the jet direction from horizontal to vertical. This enables to spread the total jet as broadly as required.

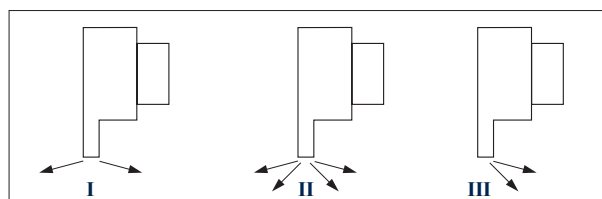


Fig. 2: Variable jet direction for total jet spread as required;

I, II = alternate discharge, III = one-sided discharge

The air outlet volume flow rate can thus be delivered as required to the right or to the left in line with the setting of the single elements. Also, the entire supply air can be discharged on one side only (see Fig. 2-III). The single elements can be closed by turning beyond the horizontal jet direction (see page 3). The adjustable induction outlet is preset as in Fig. 2-II. If another setting (I or III) is required, the client must state it when ordering.

The adjustable induction outlet generates a diffuse indoor air flow with intensive, draught-free flushing of the occupied zone. Allowable indoor air velocities to EN 13779 are easily met (For layout see pages 8 ff).

For both outlet types, blank elements (without connection boxes) are available where continuous lines of outlets are required, and corner pieces where the air outlets are to be arranged at right angles to each other. If required, the diffuser element can be subsequently mounted from the room, e.g. in plasterboard ceilings, using an additional screw connection (IN-V2 only).

Optionally, the adjustable induction outlet can also be used as a return air inlet.

Volume flow rates and max. temperature difference

Induction outlet		IN-V2	IN-V3
Volume flow rate	l/(s·m)	11 – 111	3 – 17
	m³/(h·m)	40 – 400	10 – 60
Max. temperature difference $\Delta\vartheta$ between supply air and indoor air		–10 K when cooling + 6 K when heating	

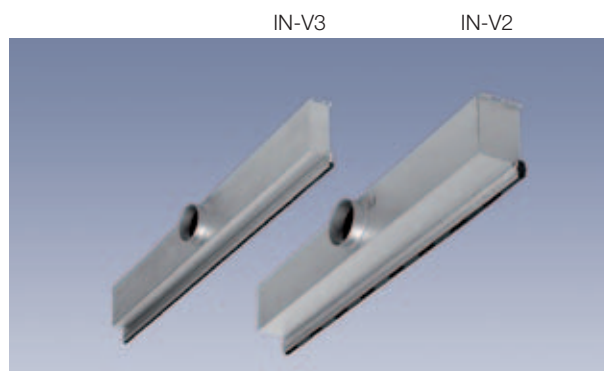


Fig. 3: Adjustable induction outlets with connection boxes

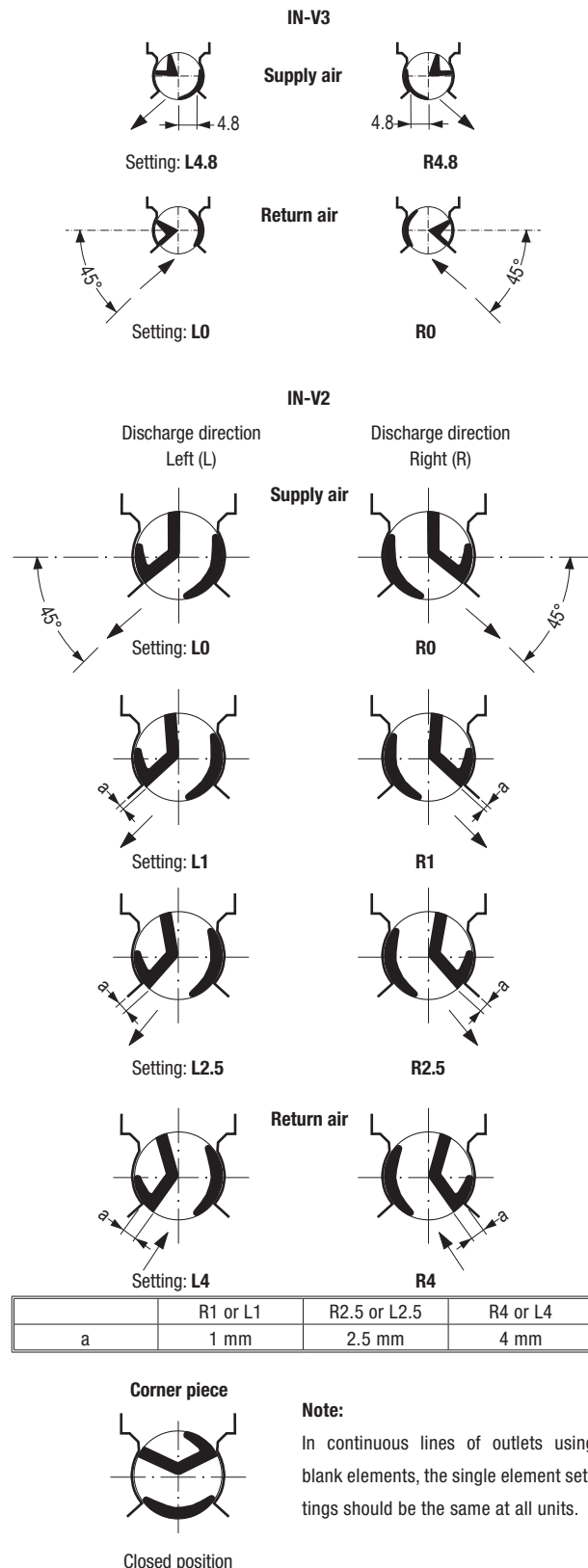
¹⁾ See publication No. DS 1125

Adjustable induction outlet

Construction and function

Setting of air discharge elements

The single elements inside the outlet profile are preset at the factory; those of type IN-V2 are also protected against unintentional alteration of setting. Resetting can be easily done on site using a key, as is shown below.



Standard setting of discharge direction

When used for supply air, the outlet is supplied with a preset discharge angle of 0 – 40°, which ensures a broad spread of the total supply air jet. This angle may vary a little depending on the temperature difference and the structure of the ceiling surface.

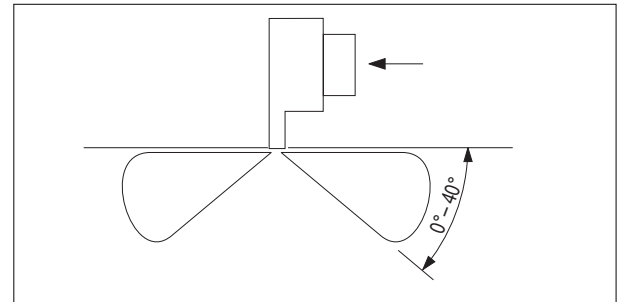


Fig. 5: Standard setting of discharge direction



Discharge angle
I
approx. 0 – 20°



II
approx. 0 – 40°
(standard)

Fig. 6: Air jet pattern made visible with smoke tracer

Connection and suspension

The outlet connection to the air ductwork is done via a connection box **5** which, for higher insertion loss, is optionally available with acoustic lining. At the side of the connection box is a spigot **6** for connection to a circular duct; this spigot can be optionally fitted with a volume flow damper **7** which will be adjustable from the room (see page 6).

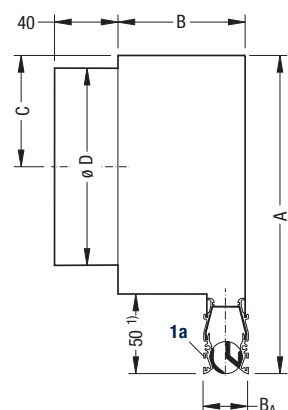
For suspension from the ceiling the induction outlet is fitted with endwise suspension strips **10**. To stabilize the vertical mounting position, it can be additionally fastened to the ceiling via a lateral suspension bracket **10a**.



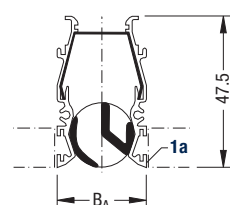
Fig. 4: IN-V2 and IN-V3; examples of settings of jet direction from horizontal to vertical, as well as closed position

Construction design of IN-V2

IN-V2 with flush contact
profile **1a** for false ceiling; con-
nection box **without** acoustic lining

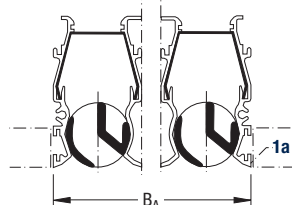
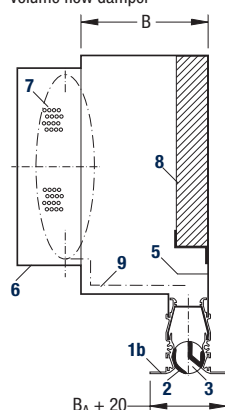


Flush contact profile
(e.g. for metal ceilings)

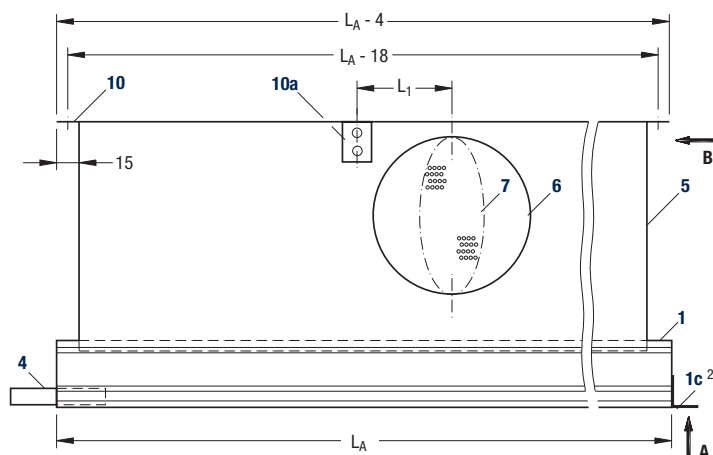


1-row design

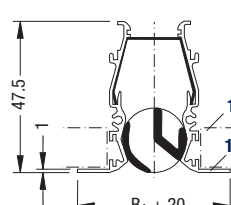
IN-V2 with fixed support profile **1b**; connection box **with** acoustic lining and volume flow damper



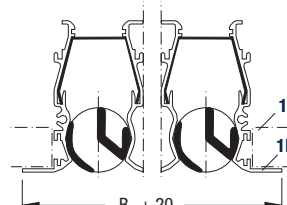
2-row to 4-row design



Ceiling support profile
(e.g. for plasterboard ceilings)



1-row design

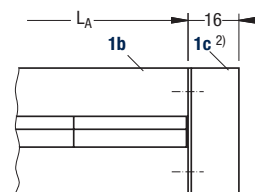


2-row to 4-row design

Key for all pages

- | | | |
|-----------------------------------|--|---------------------------------------|
| 1 Air outlet profile | 5 Connection box | 10a Suspension bracket |
| 1a Flush contact profile | 6 Connection spigot | 11 False ceiling |
| 1b Ceiling support profile | 7 Volume flow damper (optional) | 12 Bore for suspension |
| 1c Endwise angle piece | 8 Acoustic lining (optional) | 13a Quick fastener (by others) |
| 2 Air discharge element | 9 Adjusting device | 13b Threaded rod (by others) |
| 3 Jet channel | | |

Air outlet profile **IN-V2**,
with lateral ceiling support
profile **1b**



View A

Type	Design	Length L _A ¹⁾ mm	Air outlet				Connection box ³⁾						L _E mm
			Volume flow rate $\dot{V}_A$		Discharge height m	B _A mm	A mm	C mm	D mm	L ₁ mm	B mm	G ⁴⁾ kg	
			l/(s·m)	m ³ /(h·m)									
IN-V2	1-row	1 050	11 – 36	40 – 130	2.7 – 4.0	28	175	62.5	99	100	100	4.9	123
		1 200					200	75.0	124	112		6.1	
		1 350										6.8	
		1 500										7.5	
	2-row	1 050	19 – 67	70 – 240	2.7 – 4.5	56	235	92.5	159	130	130	7.1	151
		1 200					255	102.5	179	140		8.5	
		1 350										9.5	
		1 500										10.5	
	3-row	1 050	33 – 89	120 – 320	3.0 – 5.0	84	255	102.5	179	140	160	8.7	179
		1 200					275	112.5	199	150		10.2	
		1 350										11.4	
		1 500										12.6	
	4-row	1 050	44 – 111	160 – 400	3.5 – 5.0	112	275	112.5	199	150	190	10.2	207
		1 200					300	125.0	223	162		12.1	
		1 350										13.5	
		1 500										14.9	

¹⁾ Other lengths and greater heights on request; for IN-V2: length L_A = number of single elements x 75

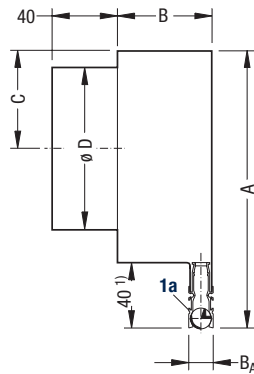
²⁾ Accessories: endwise angle pieces **1c** for IN-V2, supplied loose, with fastening screws

3) Connection box with 2 or more spigots on request

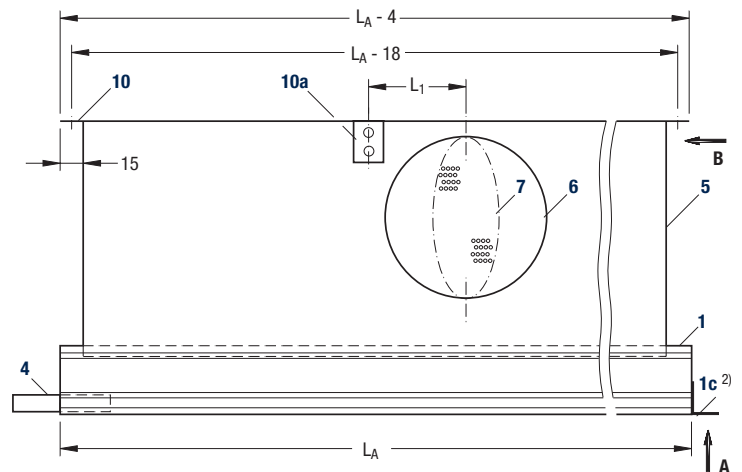
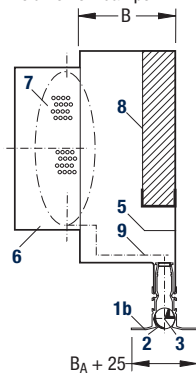
⁴⁾ Weights stated for design with acoustic lining; without acoustic lining the values are reduced by up to 0.5 kg

Construction design of IN-V3

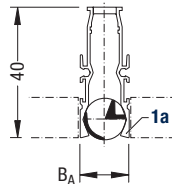
IN-V3 with flush contact
profile **1a** for false ceiling; con-
nection box **without** acoustic lining



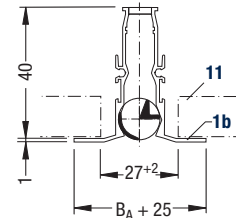
IN-V3 with fixed support
profile **1b**; connection box
with acoustic lining and
volume flow damper



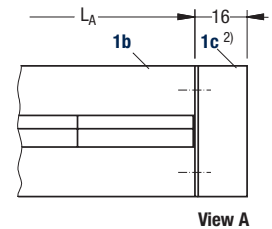
Flush contact profile
(e.g. for metal ceilings)



Ceiling support profile
(e.g. for plasterboard ceilings)



Air outlet profile **IN-V3**,
with lateral ceiling support
profile **1b**

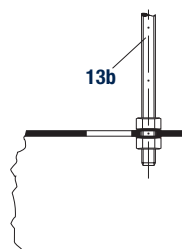


Type	Design	Length L _A ¹⁾ mm	Air outlet					Connection box ³⁾					L _E mm
			Volume flow rate $\dot{V}_A$ l/(s·m) m³/(h·m)	Discharge height m	B _A mm	A mm	C mm	D mm	L ₁ mm	B mm	G ⁴⁾ kg		
IN-V3	1-row	1 050	3 – 17	10 – 60	2.5 – 3.5	15	170	65	99	90	80	4.3	110
		1 200										4.9	
		1 350										5.5	
		1 500										6.1	

Suspension examples

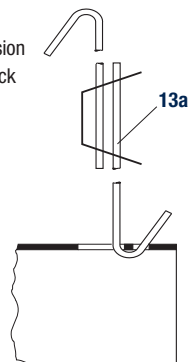
View B

Suspension with threaded rod M8 and lock nuts

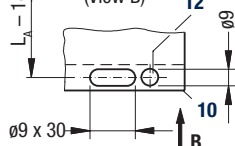


View B

Suspension
with quick
fastener

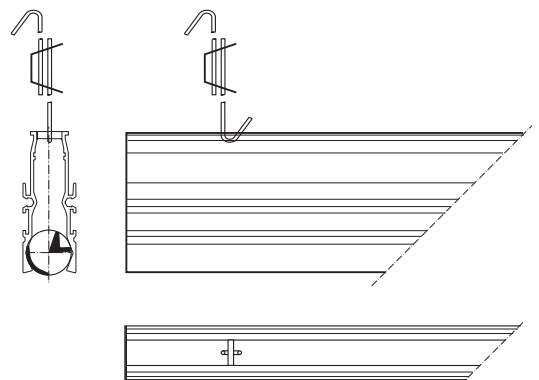


Top view
(View B)



Blank element with standard quick fastener

(by others)



- 1) Other lengths and greater heights on request;
for IN-V2: length L_A = number of single elements x 75
- 2) Accessories: endwise angle pieces **1c** for IN-V3,
supplied loose, with fastening screws
- 3) Connection box with 2 or more spigots on request
- 4) Weights stated for design with acoustic lining; without acoustic
lining the values are reduced by approx. 0.2 kg

Adjustable induction outlet

Corner pieces and adjustment of volume flow damper (IN-V2 and IN-V3)

Corner pieces

For arranging air outlets at right angles to each other, e.g. for getting square or rectangular areas, corner pieces are available as accessories for IN-V2 in the 1-row to 4-row design and for IN-V3 in the 1-row design. The single elements are in closed position (see page 3).

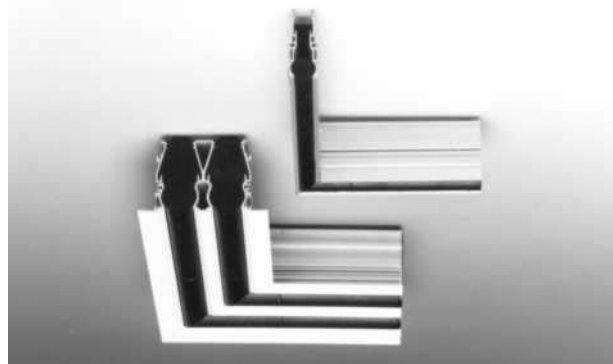


Fig. 7: Corner pieces for IN-V2, 2-row design, with lateral ceiling support profile (bottom) and for IN-V3 with flush contact profile (top)

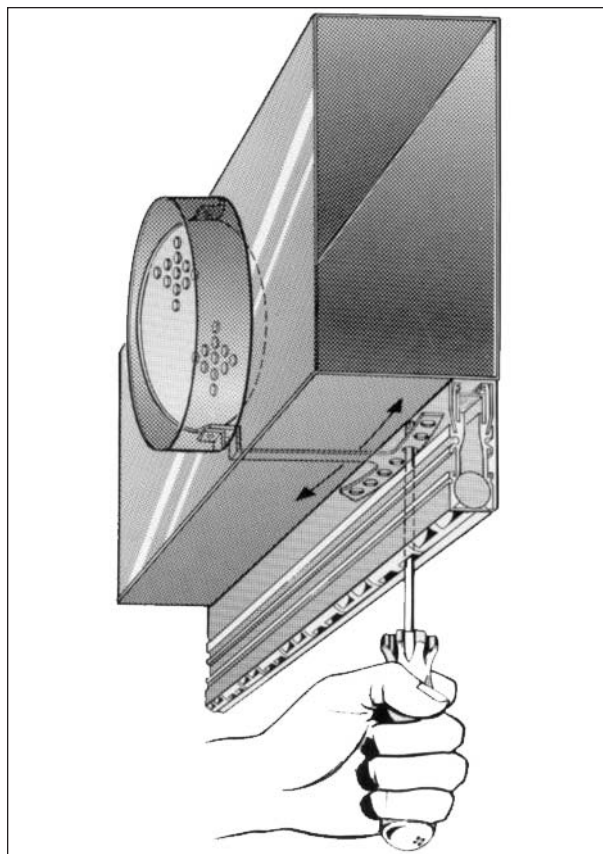


Fig. 9: Adjustment of volume flow damper from below at perforated slide (perforation Ø 4 mm) using a rod, e.g. a screwdriver

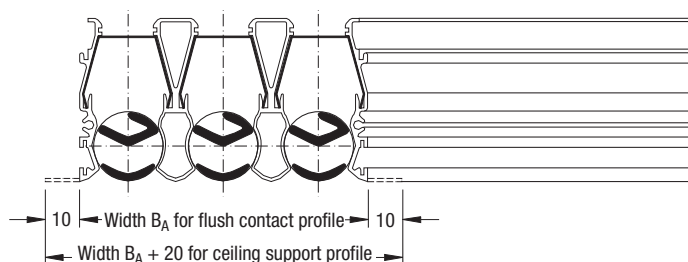
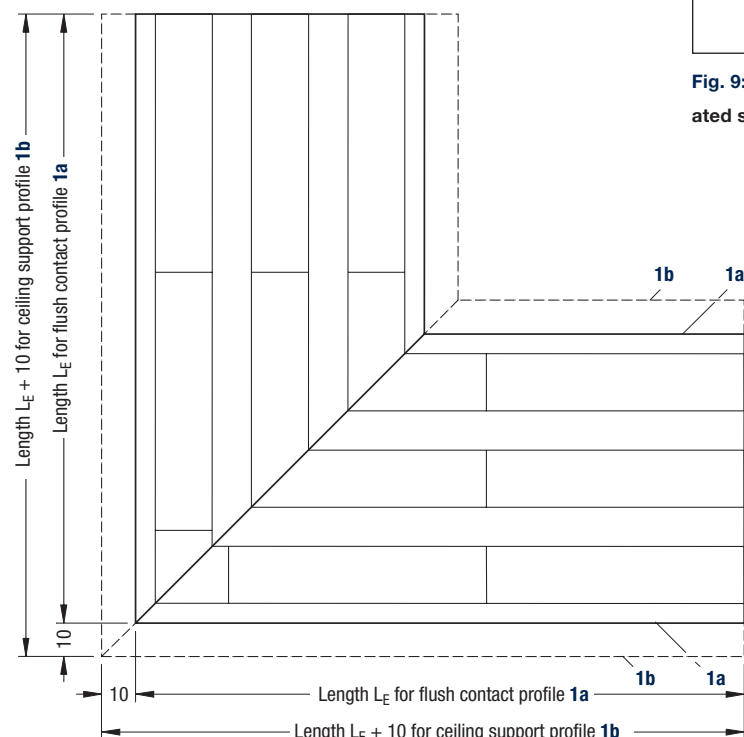
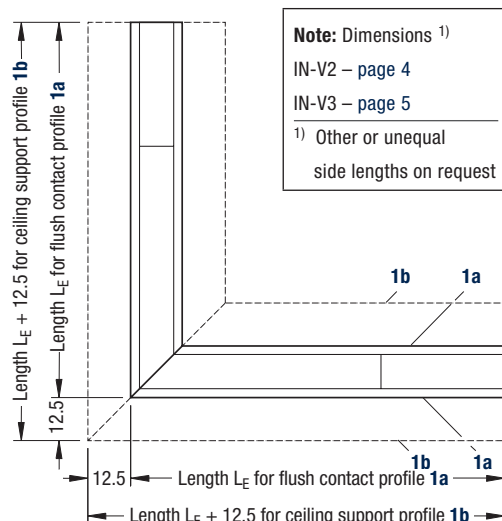
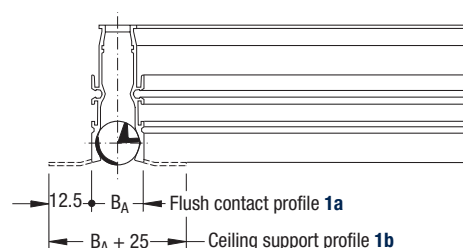


Fig. 8: Sketches of corner pieces for IN-V2; 1-row to 4-row design (3-row design shown here)



Note: Dimensions ¹⁾
IN-V2 – page 4
IN-V3 – page 5
¹⁾ Other or unequal
side lengths on request



for IN-V3; 1-row design

Adjustable induction outlet

Installation of the IN-V2 from the room

Installation of the IN-V2 from the room ¹⁾

For IN-V2 installation from the room, the diffuser elements and the connection boxes are supplied separately. Fig. 10a shows the "shaft system" (ceiling support profile) for plasterboard ceilings. In this case the connection boxes are mounted prior to the installation of the suspended ceiling and connected to the air ductwork. The diffuser elements are installed only upon completion of the room ceiling. Fig. 10b shows the "push-in system" (flush contact profile) for metal ceilings. Expansion brackets for blank elements are used for metal or plasterboard ceilings, see Fig. 10c.

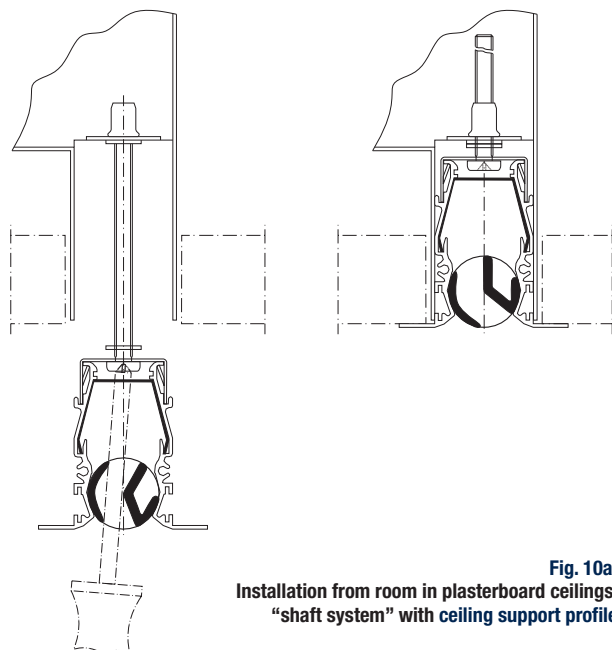


Fig. 10a:
Installation from room in plasterboard ceilings,
"shaft system" with ceiling support profile

Sound power level and pressure drop

The adjustable induction outlet is quiet. For sound power level and insertion loss in relation to octave band centre frequency, see pages 10 – 12.

The sound power level of the air outlet with lined connection box is lower by about 2 dB(A) ref. 10^{-12} W and its insertion loss is much higher. The pressure drop is not changed by the lining.

¹⁾ Solution for the IN-V3 on request

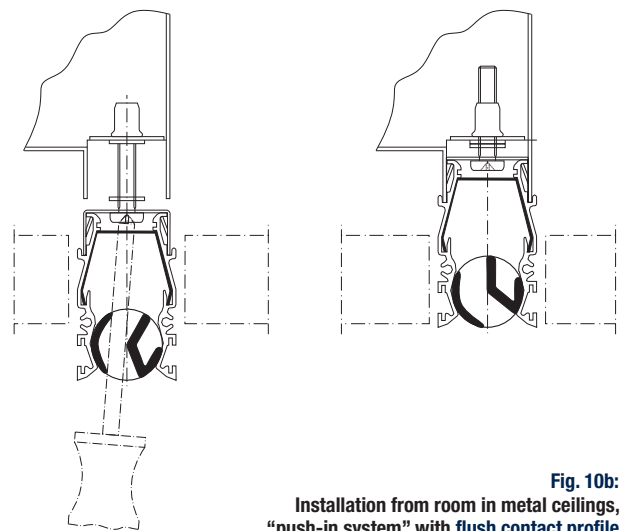


Fig. 10b:
Installation from room in metal ceilings,
"push-in system" with flush contact profile

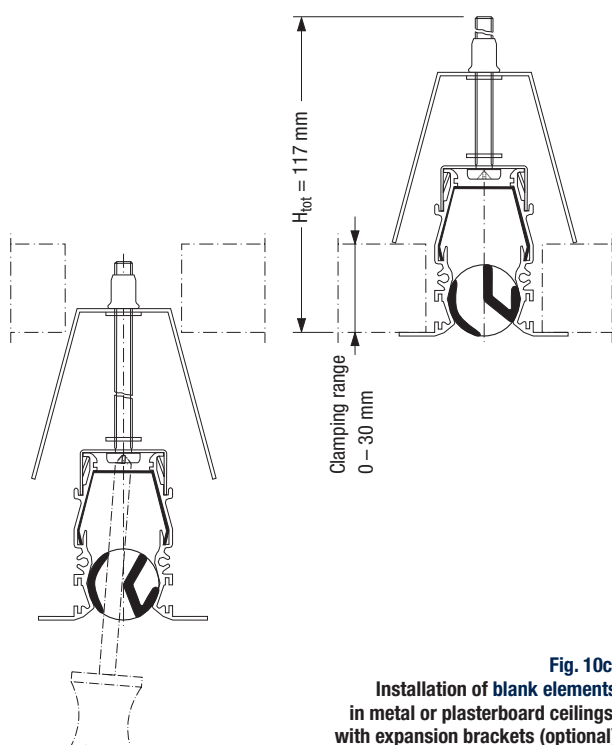


Fig. 10c:
Installation of blank elements
in metal or plasterboard ceilings,
with expansion brackets (optional)

Fig. 10: Different systems for IN-V2 installation from the room

Adjustable induction outlet

Layout sheet

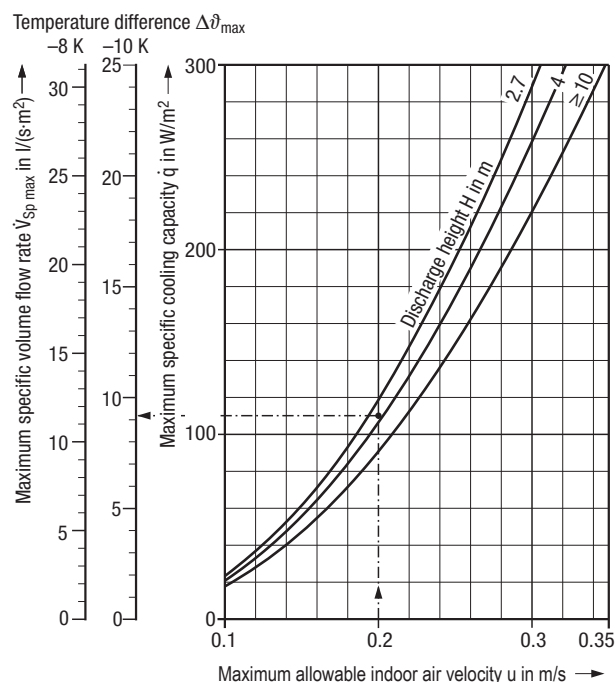
Comfort criteria ¹⁾

The outlet layout must comply with the maximum allowable indoor air velocities u in the occupied zone in the cooling mode. The indoor air velocity depends on the cooling load that is to be removed from the room. The maximum specific cooling capacity $\dot{q}$ depends on the discharge height and the maximum allowable indoor air velocity u (Graph 1).

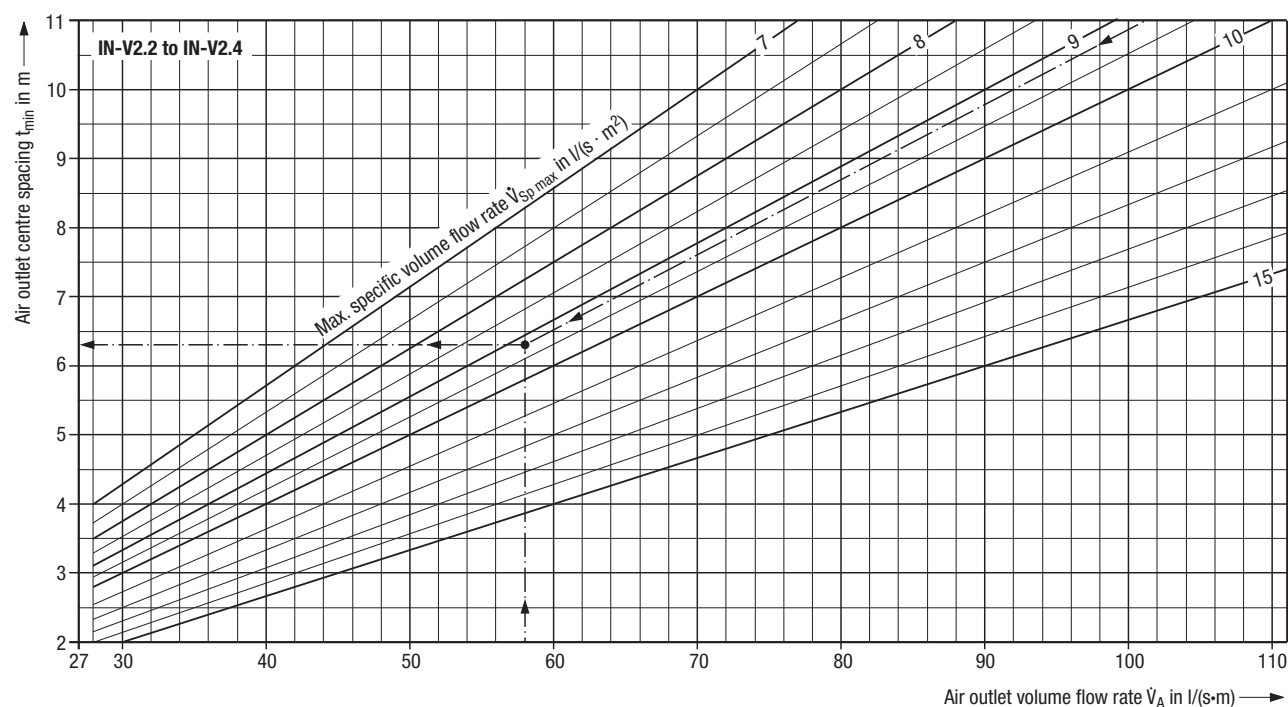
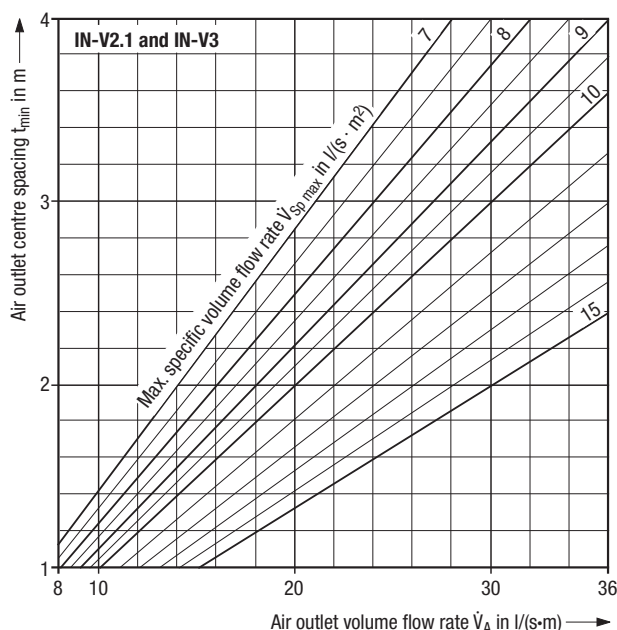
Graph 1 enables to determine for the cooling mode the maximum specific volume flow rate $\dot{V}_{Sp\ max}$ in relation to the maximum specific cooling capacity and the maximum temperature difference $\Delta\vartheta_{max}$. The volume flow rate supplied to the room $\dot{V}_{Sp\ tats}$ may not exceed this value.

Graph 2 enables to determine the minimum centre spacing between two outlet rows on the basis of the maximum specific volume flow rate.

¹⁾ See our brochure ref. TB 69 'Layout specifications for thermal comfort'



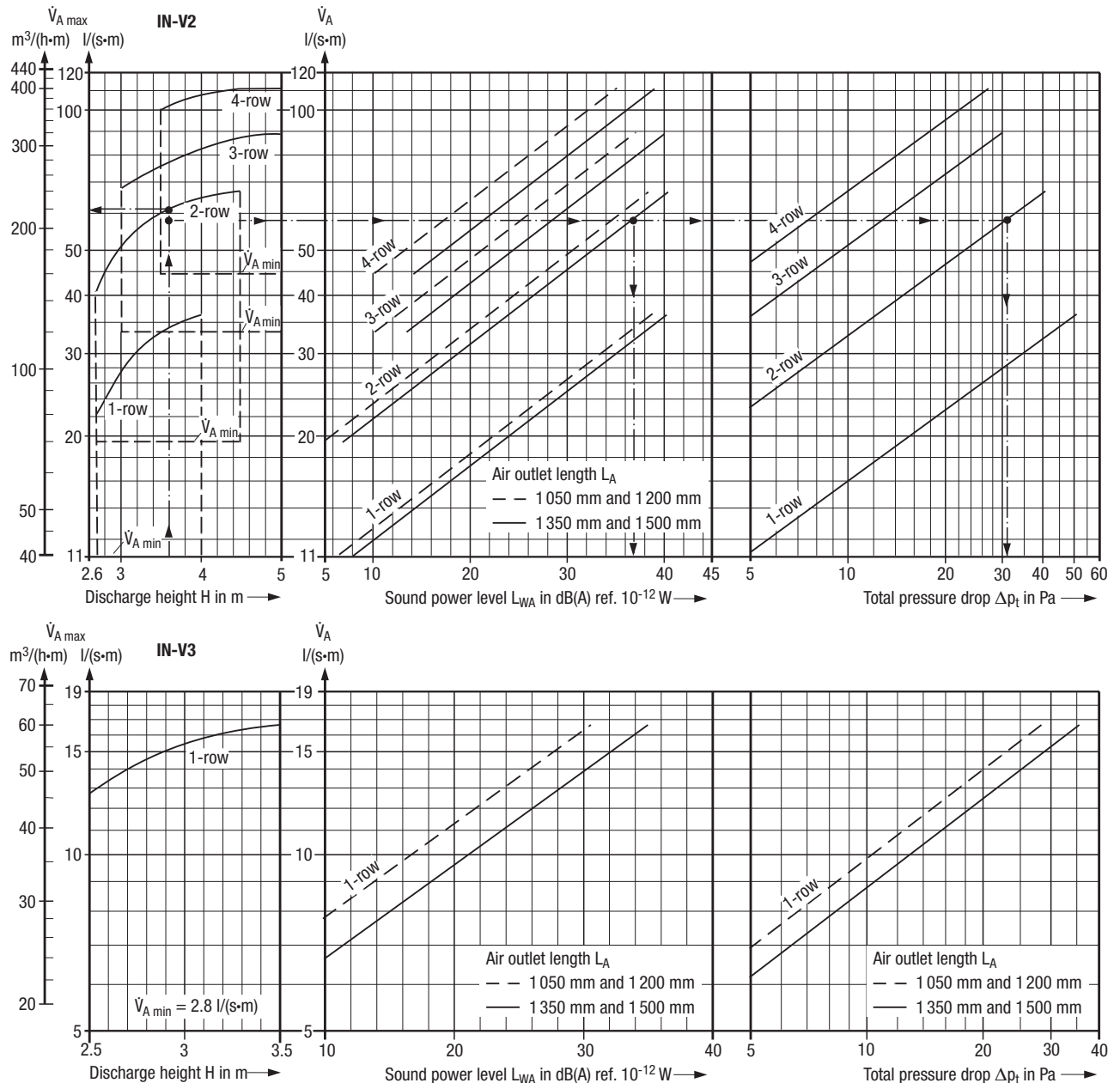
Graph 1: Maximum specific volume flow rate



Graph 2: Minimum air outlet centre spacing

Adjustable induction outlet

Layout as supply air outlet



Layout example

Induction outlet		IN-V2
1 Length / Design		1 350 / 2-row
2 Supply air volume flow rate $\dot{V}$		6 945 l/s
3 Discharge height H		3.6 m
4 Room area A		1 000 m²
5 Max. allowable sound power level L_{WA}		40 dB(A) ref. 10^{-12} W
6 Comfort criteria (see page 6)		
– Max. allowable indoor air velocity u		0.2 m/s
– Max. specific volume flow rate $\dot{V}_{Sp \max}$		
at $\Delta\vartheta_{\max} = -10$ K [from Graph 1 on page 8]		9.2 l/(s·m²)
– Actual specific volume flow rate $\dot{V}_{Sp \text{ tats}}$ [from 1 : 3]		6.9 l/(s·m²)
Criterion is met if $\dot{V}_{Sp \text{ tats}} < \dot{V}_{Sp \max}$		
From nomogram:		
7 $\dot{V}_A \max$		62 l/(s·m)
8 $\dot{V}_A$ selected		58 l/(s·m)
9 Z_1 [from 2 : 8]		120 m
10 Z_2 [from 9 : 1]		89 units
11 L_{WA}		≈ 37 dB(A) ref. 10^{-12} W
12 Δp_t		≈ 32 Pa
13 $t_{\min}$ [from Graph 2 on page 8]		≈ 6,3 m

The graph values for sound power level and pressure drop apply for an induction outlet with connection box fitted with acoustic lining, discharge direction 0° to 40° as well as built-in volume flow damper in position "open". If the connection box is without acoustic lining, the sound power level is higher by 1 – 2 dB(A) ref. 10^{-12} W, but the pressure drop remains unchanged. If the volume flow damper is closed, the sound power level rises by 2 – 6 dB(A) ref. 10^{-12} W while the pressure drop doubles or even triples.

Key for layout:

$\dot{V}_A$	= volume flow rate per air outlet in l/(s·m)
$\dot{V}_A \max$	= max. volume flow rate per air outlet when cooling in l/(s·m)
$\dot{V}_A \min$	= min. volume flow rate per air outlet when cooling in l/(s·m)
$\dot{V}_{Sp \max}$	= max. specific volume flow rate per m² of floor area in l/(s·m²)
$\dot{V}_{Sp \text{ tats}}$	= actual specific volume flow rate per m² of floor area in l/(s·m²)
u	= max. allowable indoor air velocity in m/s
$\dot{q}$	= max. specific cooling capacity in W/m²
$\Delta\vartheta_{\max}$	= max. temperature difference supply air to return air in K
$t_{\min}$	= minimum air outlet centre spacing in m
H	= discharge height in m
L_{WA}	= sound power level in dB(A) ref. 10^{-12} W
Δp_t	= total pressure drop in Pa

Adjustable induction outlet

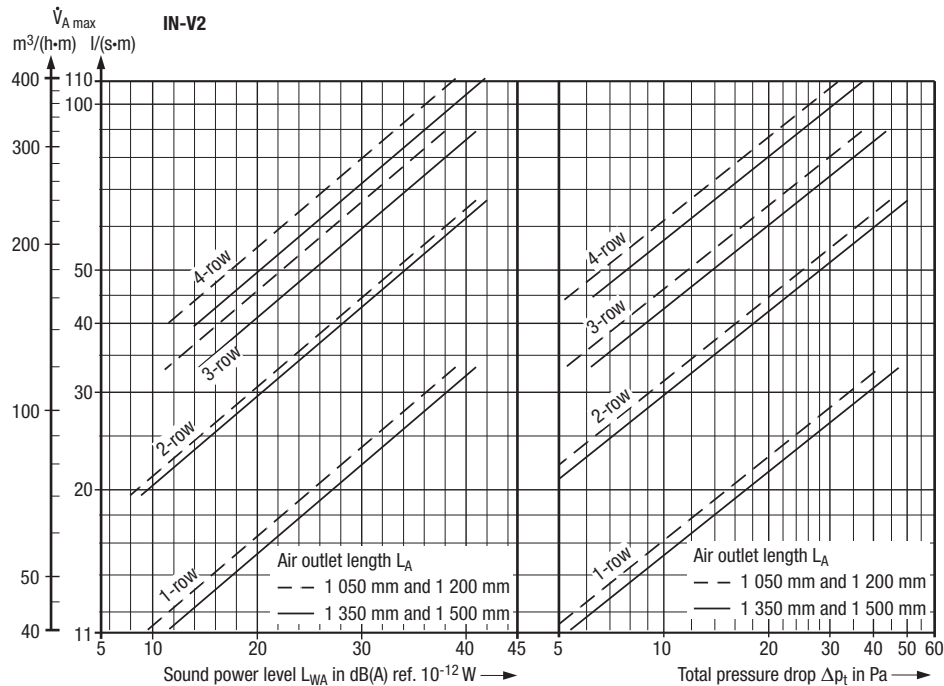
Sound power level – Supply air ¹⁾

		Air outlet volume flow rate		Total pressure drop Δp_t Pa	Connection box with acoustic lining							Total pressure drop Δp_t Pa	Connection box without acoustic lining										
		Sound power level L_W in dB ref. 10^{-12} W							Sound power level L_W in dB ref. 10^{-12} W														
		$\dot{V}_A$ l/(s·m)	m ³ /(h·m)	L_{WA} dB(A)	Octave band centre frequency in Hz						L_{WA} dB(A)	Octave band centre frequency in Hz											
						125	250	500	1 K	2 K	4 K			125	250	500	1 K	2 K	4 K				
IN-V2																							
1-row design Length in mm	1 050	16.5	60	11	17	25	22	16	—	—	—	11	19	25	24	18	—	—	—				
		25	90	24	28	34	32	27	18	11	—	24	30	34	34	29	20	15	—				
		33	120	42	36	40	39	35	29	23	14	43	38	40	41	36	31	27	17				
	1 200	16.5	60	11	17	25	22	16	—	—	—	11	19	25	24	18	—	—	—				
		25	90	24	28	34	32	27	18	11	—	24	30	34	34	29	20	15	—				
		33	120	42	36	40	39	35	29	23	14	43	38	40	41	36	31	27	17				
	1 350	16.5	60	11	19	25	22	19	—	—	—	11	20	25	23	21	—	—	—				
		25	90	24	30	34	33	30	20	13	—	24	31	35	34	31	22	15	—				
		33	120	42	38	41	41	37	31	26	16	43	39	42	42	38	32	27	17				
	1 500	16.5	60	11	19	25	22	19	—	—	—	11	20	25	23	21	—	—	—				
		25	90	24	30	34	33	30	20	13	—	24	31	35	34	31	22	15	—				
		33	120	42	38	41	41	37	31	26	16	43	39	42	42	38	32	27	17				
2-row design Length in mm	1 050	33	120	10	19	28	23	18	—	—	—	10	20	28	24	18	10	—	—				
		50	180	22	31	36	34	29	23	19	—	22	31	36	35	30	23	19	—				
		65	240	39	39	42	42	37	32	30	16	39	39	42	43	38	32	30	16				
	1 200	33	120	10	19	28	23	18	—	—	—	10	20	28	24	18	10	—	—				
		50	180	22	31	36	34	29	23	19	—	22	31	36	35	30	23	19	—				
		65	240	39	39	42	42	37	32	30	16	39	39	42	43	38	32	30	16				
	1 350	33	120	10	21	29	25	20	11	—	—	10	23	30	28	21	12	—	—				
		50	180	23	32	38	36	31	25	18	—	22	34	39	38	32	26	20	—				
		65	240	41	41	44	44	38	35	32	19	39	42	45	45	40	36	32	21				
	1 500	33	120	10	21	29	25	20	11	—	—	10	23	30	28	21	12	—	—				
		50	180	23	32	38	36	31	25	18	—	22	34	39	38	32	26	20	—				
		65	240	41	41	44	44	38	35	32	19	39	42	45	45	40	36	32	21				
3-row design Length in mm	1 050	50	180	9	21	27	27	14	12	—	—	9	21	27	27	19	10	—	—				
		70	250	18	29	34	35	25	22	14	—	18	30	33	35	28	23	14	—				
		90	320	29	36	39	41	33	30	25	12	29	37	37	41	34	32	26	11				
	1 200	50	180	9	21	27	27	14	12	—	—	9	21	27	27	19	10	—	—				
		70	250	18	29	34	35	25	22	14	—	18	30	33	35	28	23	14	—				
		90	320	29	36	39	41	33	30	25	12	29	37	37	41	34	32	26	11				
	1 350	50	180	9	25	31	31	20	14	—	—	9	25	32	32	21	15	—	—				
		70	250	18	33	38	39	29	26	18	—	18	34	39	40	30	27	19	—				
		90	320	30	40	43	45	36	35	29	17	29	41	43	45	37	36	30	17				
	1 500	50	180	9	25	31	31	20	14	—	—	9	25	32	32	21	15	—	—				
		70	250	18	33	38	39	29	26	18	—	18	34	39	40	30	27	19	—				
		90	320	30	40	43	45	36	35	29	17	29	41	43	45	37	36	30	17				
4-row design Length in mm	1 050	65	240	10	21	27	28	15	13	—	—	10	22	28	29	16	14	—	—				
		90	320	17	29	34	35	25	22	14	—	17	30	34	36	26	23	15	—				
		111	400	27	35	38	40	32	29	23	10	27	36	39	41	33	30	24	10				
	1 200	65	240	10	21	27	28	15	13	—	—	10	22	28	29	16	14	—	—				
		90	320	17	29	34	35	25	22	14	—	17	30	34	36	26	23	15	—				
		111	400	27	35	38	40	32	29	23	10	27	36	39	41	33	30	24	10				
	1 350	65	240	10	25	32	32	20	15	—	—	10	26	32	32	21	16	—	—				
		90	320	17	33	38	39	29	26	18	—	17	34	38	40	30	27	19	—				
		111	400	27	39	42	44	35	34	27	15	27	40	43	44	36	35	26	16				
	1 500	65	240	10	25	32	32	20	15	—	—	10	26	32	32	21	16	—	—				
		90	320	17	33	38	39	29	26	18	—	17	34	38	40	30	27	19	—				
		111	400	27	39	42	44	35	34	27	15	27	40	43	44	36	35	26	16				
IN-V3																							
1-row design Length in mm	1 050	11	40	13	20	29	25	17	—	—	—	13	21	29	26	20	—	—	—				
		14	50	20	26	32	32	24	10	—	—	20	27	32	32	27	10	—	—				
		16.5	60	28	31	35	37	29	20	10	—	28	32	35	37	32	20	13	—				
	1 200	11	40	13	20	29	25	17	—	—	—	13	21	29	26	20	—	—	—				
		14	50	20	26	32	32	24	10	—	—	20	27	32	32	27	10	—	—				
		16.5	60	28	31	35	37	29	20	10	—	28	32	35	37	32	20	13	—				
	1 350	11	40	16	24	29	30	22	—	—	—	16	25	30	31	23	12	—	—				
		14	50	25	30	34	35	29	20	—	—	25	31	34	37	30	21	10	—				
		16.5	60	36	35	35	40	34	26	16	14	36	36	37	41	35	27	18	16				
	1 500	11	40	16	24	29	30	22	—	—	—	16	25	30	31	23	12	—	—				
		14	50	25	30	34	35	29	20	—	—	25	31	34	37	30	21	10	—				
		16.5	60	36	35	35	40	34	26	16	14	36	36	37	41	35	27	18	16				

¹⁾ Sound power levels apply for volume flow damper in position "open"

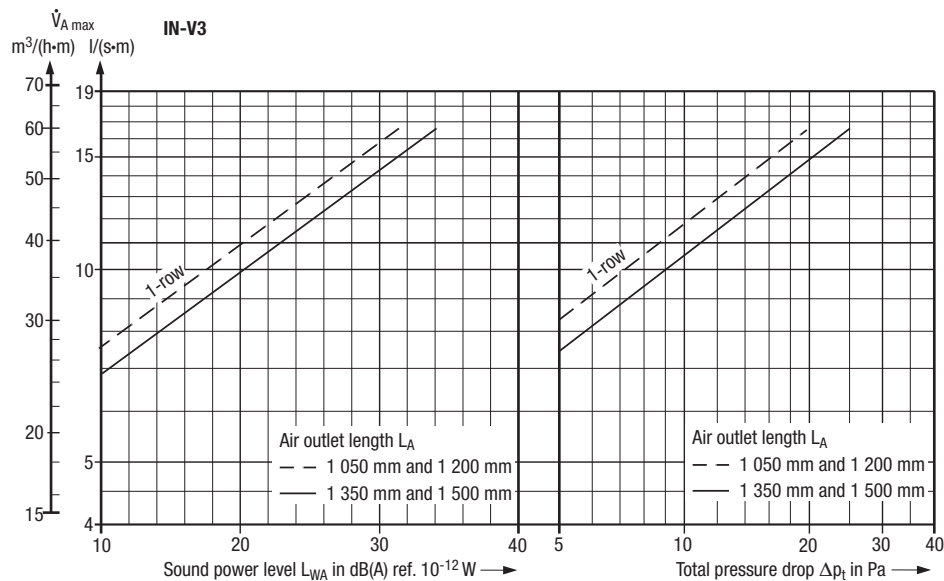
Adjustable induction outlet

Layout as return air inlet - Insertion loss



The graph values for sound power level and total pressure drop apply for an induction outlet with acoustic lining and open volume flow damper.

If the damper is closed, the sound power level rises by 1 – 2 dB(A) ref. 10^{-12} W while the pressure drop doubles.



Insertion loss in dB										Insertion loss in dB								
Connection box with acoustic lining								Connection box without acoustic lining										
Octave band centre frequency in Hz								Octave band centre frequency in Hz										
	125	250	500	1 K	2 K	4 K	8 K	Mean value		125	250	500	1 K	2 K	4 K	8 K	Mean value	
IN-V2																		
1-row	1	6	8	17	11	13	14	10		1	3	7	10	6	8	9	6	
2-row	3	6	11	12	12	15	12	10		2	6	8	10	8	11	10	8	
3-row	3	4	9	8	9	12	9	7		3	4	5	4	4	6	7	5	
4-row	2	4	9	7	8	10	9	7		2	3	5	4	4	5	7	4	
IN-V3																		
1-row	3	7	11	20	14	11	14	11		2	3	4	12	12	7	10	7	

Adjustable induction outlet

Sound power level – Return air ¹⁾

		Air outlet volume flow rate		Total pressure drop Δp _t Pa	Connection box with acoustic lining							Total pressure drop Δp _t Pa	Connection box without acoustic lining														
		Sound power level L _W in dB ref. 10 ⁻¹² W							Sound power level L _W in dB ref. 10 ⁻¹² W																		
		$\dot{V}_A$ l/(s·m)	m ³ /(h·m)	L _{WA} dB(A)	Octave band centre frequency in Hz				Octave band centre frequency in Hz				L _{WA} dB(A)	Octave band centre frequency in Hz													
		125	250	500	1 K	2 K	4 K	125	250	500	1 K	2 K	4 K														
IN-V2																											
1-row design Length in mm	1 050	16.5	60	11	21	20	25	20	11	—	—	11	21	22	26	20	11	—	—								
		25	90	24	31	31	35	30	22	19	—	24	32	30	36	32	23	18	—								
		33	120	41	38	39	42	37	30	27	18	42	40	36	43	40	32	31	19								
	1 200	16.5	60	11	21	20	25	20	11	—	—	11	21	22	26	20	11	—	—								
		25	90	24	31	31	35	30	22	19	—	24	32	30	36	32	23	18	—								
		33	120	41	38	39	42	37	30	27	18	42	40	36	43	40	32	31	19								
	1 350	16.5	60	12	22	25	26	22	12	—	—	12	24	26	28	23	13	—	—								
		25	90	27	33	34	36	32	24	20	—	27	34	35	37	33	25	22	10								
		33	120	47	40	41	43	39	32	30	20	47	41	42	44	40	33	31	22								
	1 500	16.5	60	12	22	25	26	22	12	—	—	12	24	26	28	23	13	—	—								
		25	90	27	33	34	36	32	24	20	—	27	34	35	37	33	25	22	10								
		33	120	47	40	41	43	39	32	30	20	47	41	42	44	40	33	31	22								
2-row design Length in mm	1 050	33	120	11	23	28	26	22	14	10	—	11	24	29	28	23	13	11	—								
		50	180	25	33	36	36	33	25	22	—	24	34	34	37	34	25	22	—								
		65	240	44	41	42	43	41	33	33	21	42	42	41	44	41	34	34	22								
	1 200	33	120	11	23	28	26	22	14	10	—	11	24	29	28	23	13	11	—								
		50	180	25	33	36	36	33	25	22	—	24	34	34	37	34	25	22	—								
		65	240	44	41	42	43	41	33	33	21	42	42	41	44	41	34	34	22								
	1 350	33	120	13	24	31	27	22	15	—	—	13	25	32	30	22	17	—	—								
		50	180	28	34	38	36	33	27	21	—	28	35	39	38	34	29	23	11								
		65	240	50	42	43	42	41	35	33	22	50	43	44	44	42	37	35	24								
	1 500	33	120	13	24	31	27	22	15	—	—	13	25	32	30	22	17	—	—								
		50	180	28	34	38	36	33	27	21	—	28	35	39	38	34	29	23	11								
		65	240	50	42	43	42	41	35	33	22	50	43	44	44	42	37	35	24								
3-row design Length in mm	1 050	50	180	12	24	28	25	25	14	—	—	12	25	31	28	24	16	—	—								
		70	250	23	32	35	35	31	25	18	—	23	33	36	36	32	26	20	—								
		90	320	37	38	39	41	36	32	29	17	37	40	40	42	38	33	31	16								
	1 200	50	180	12	24	28	25	25	14	—	—	12	25	31	28	24	16	—	—								
		70	250	23	32	35	35	31	25	18	—	23	33	36	36	32	26	20	—								
		90	320	37	38	39	41	36	32	29	17	37	40	40	42	38	33	31	16								
	1 350	50	180	14	26	30	30	25	15	10	—	14	27	31	31	26	17	10	—								
		70	250	26	34	37	38	33	26	22	—	26	35	37	39	34	27	23	—								
		90	320	43	41	42	44	39	34	31	17	43	42	42	45	40	35	33	19								
	1 500	50	180	14	26	30	30	25	15	10	—	14	27	31	31	26	17	10	—								
		70	250	26	34	37	38	33	26	22	—	26	35	37	39	34	27	23	—								
		90	320	43	41	42	44	39	34	31	17	43	42	42	45	40	35	33	19								
4-row design Length in mm	1 050	65	240	12	26	31	29	26	18	—	—	12	27	31	30	27	19	10	—								
		90	320	21	34	36	37	32	27	21	—	21	34	37	37	33	28	23	11								
		111	400	33	39	40	42	37	33	30	19	33	41	41	43	38	35	32	21								
	1 200	65	240	12	26	31	29	26	18	—	—	12	27	31	30	27	19	10	—								
		90	320	21	34	36	37	32	27	21	—	21	34	37	37	33	28	23	11								
		111	400	33	39	40	42	37	33	30	19	33	41	41	43	38	35	32	21								
	1 350	65	240	14	29	33	33	28	19	13	—	14	30	34	34	29	21	15	—								
		90	320	24	36	38	40	35	29	25	11	24	37	39	41	36	30	27	13								
		111	400	38	42	42	45	39	35	33	19	38	43	43	46	40	37	35	20								
	1 500	65	240	14	29	33	33	28	19	13	—	14	30	34	34	29	21	15	—								
		90	320	24	36	38	40	35	29	25	11	24	37	39	41	36	30	27	13								
		111	400	38	42	42	45	39	35	33	19	38	43	43	46	40	37	35	20								
IN-V3																											
1-row design Length in mm	1 050	11	40	9	20	22	26	17	—	—	—	9	22	22	28	20	—	—	—								
		14	50	14	26	27	31	25	13	—	—	14	27	27	32	28	12	—	—								
		16.5	60	20	31	31	35	31	20	10	—	20	33	31	36	34	19	11	—								
	1 200	11	40	9	20	22	26	17	—	—	—	9	22	22	28	20	—	—	—								
		14	50	14	26	27	31	25	13	—	—	14	27	27	32	28	12	—	—								
		16.5	60	20	31	31	35	31	20	10	—	20	33	31	36	34	19	11	—								
	1 350	11	40	11	22	21	28	20	10	—	—	11	25	21	32	23	12	—	—								
		14	50	17	29	27	34	28	16	—	—	17	31	28	37	30	18	—	—								
		16.5	60	25	34	32	39	34	21	11	—	25	36	34	41	36	23	13	—								
	1 500	11	40	11	22	21	28	20	10	—	—	11	25	21	32	23	12	—	—								
		14	50	17	29	27	34	28	16	—	—	17	31	28	37	30	18	—	—								
		16.5	60	25	34	32	39	34	21	11	—	25	36	34	41	36	23	13	—								

¹⁾ Sound power levels apply for volume flow damper in position "open"

Adjustable induction outlet

Tender text

Tender text

..... units

Adjustable induction outlet ¹⁾

of small width, with high induction effect for diffuse indoor air flow and high thermal comfort in the occupied zone, well suited for installation in suspended ceiling systems, with discharge direction adjustable from horizontal to vertical as required, for use as supply air outlet or return air inlet,

consisting of:

- linear discharge element with consecutive cylindrical and rotatable single elements for alternate air discharge to the right and to the left or one-sided air discharge, or even in closed position; 1-row to 4-row design (only 1-row design for IN-V3)
- air outlet profile for lateral attachment of false ceiling, or with lateral ceiling support profile
- connection box with endwise suspension strips and lateral bracket for stabilizing the vertical mounting position, optional volume flow damper adjustable from room; optional acoustic lining; connection box for IN-V2 optionally prepared for subsequent mounting of diffuser element from the room

Material:

- Linear discharge element made of polycarbonate, body-tinted in black similar to RAL 9005 ²⁾ or white similar to RAL 9010 ²⁾
- Air outlet profile made of aluminium anodized in natural colour or painted to RAL 9010 ²⁾ pure white
- Ceiling support profile made of aluminium anodized in natural colour or painted to RAL 9010 ²⁾ pure white
- Connection box made of galvanized sheet metal

Make: KRANTZ KOMPONENTEN

Type: IN-V_ / _ - _ - _ - _ - _ - _ - _ - _ - _

Blank element

..... units

Induction outlet with linear discharge element and air outlet profile as described before, but without connection box, as blank element for continuous lines of outlets where required, open or closed at the rear; for IN-V2 optional fastening with expansion brackets

Accessories

..... units

Corner piece for outlet arrangement at 90°, to fit air outlet profile and linear discharge element as described before

..... units

Endwise angle piece to fit ceiling support profile as described before, supplied loose, with boreholes and fastening screws

Make: KRANTZ KOMPONENTEN

Subject to technical alterations.

¹⁾ If the adjustable induction outlet is required for use as return air inlet, the tender text is the same as for the supply air outlet

²⁾ Other lengths and colours on request

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