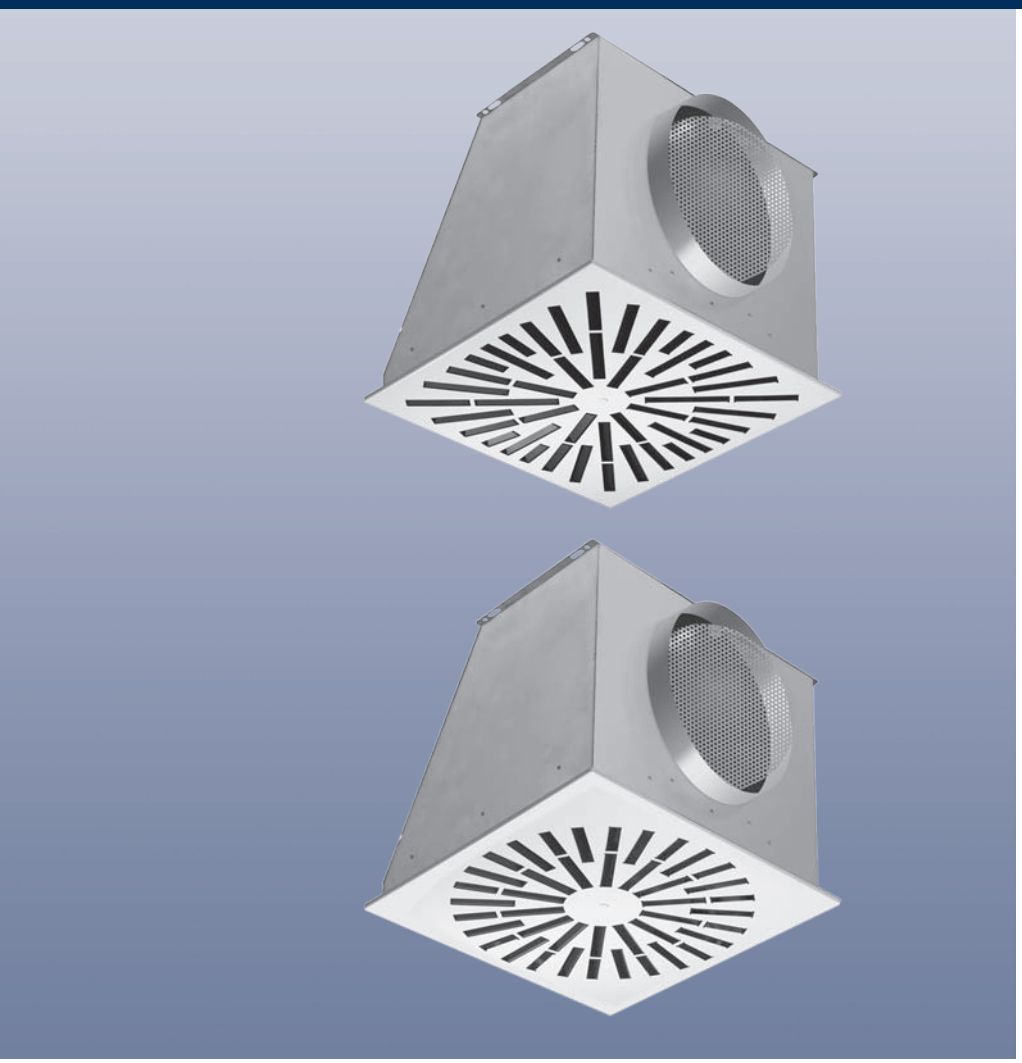
Krantz KOMPONENTEN®
Applied system solutions



Radial slot outlet RL....

Radial slot outlet

with square and circular bar array

Preliminary remarks

The radial slot outlet generates turbulent mixing-air flow and is used for supply air distribution in the commercial sector. It is particularly suitable for rooms with high indoor air flow requirements and can be installed flush with the ceiling or free-hanging. It is available in 6 sizes with a flat face. Discharge direction can be selected from horizontal to a downward incline. Discharge can be radial-symmetrical or asymmetrical.
The radial slot outlet ist also usable as a return air outlet.

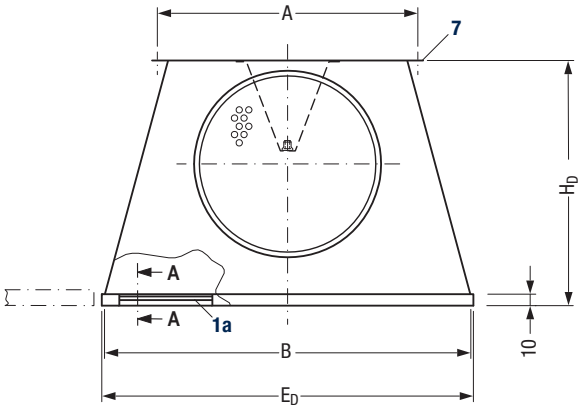
Construction design

The main components of the radial slot outlet are the air outlet element **1** with square face and linear, manually adjustable bars **1a** for radial air discharge. The air outlet element is available with square or circular bar array (see pages 4 and 5). The bars enable the alteration of discharge direction from horizontal to a downward incline. An adjustment key and instructions are available for readjustment.
The air is supplied via a connection box **2** with spigot **3** and volume flow damper **4**, operated from the room. Connection spigot **3** with lip seal available on request.
The air outlet element is easy to take down after releasing the central fastener **5**. The complete air outlet unit is suspended at two fastening points (ø 9) **6** in the lateral suspension strips **7**, e.g. with standard fast clamping devices or threaded rods.

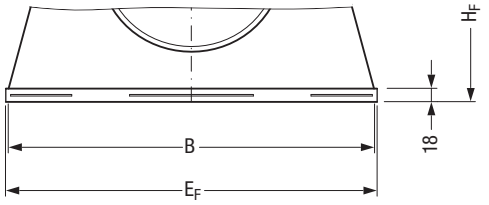
Size		300	400	500	600	625	800
Volume flow rate [1] in	l/s						
– Square bar array	$\dot{V}_{max}$	56	83	153	222		333
	$\dot{V}_{min}$ [2]	17	25	46	67		100
	$\dot{V}_{min}$ [3]	25	38	69	100		150
– Circular bar array	$\dot{V}_{max}$	42	75	125	181		264
	$\dot{V}_{min}$ [2]	13	22	38	54		79
	$\dot{V}_{min}$ [3]	19	33	56	81		119
Volume flow rate [1] in	m³/h						
– Square bar array	$\dot{V}_{max}$	200	300	550	800		1200
	$\dot{V}_{min}$ [2]	60	90	165	240		360
	$\dot{V}_{min}$ [3]	90	135	250	360		540
– Circular bar array	$\dot{V}_{max}$	150	270	450	650		950
	$\dot{V}_{min}$ [2]	45	80	135	195		285
	$\dot{V}_{min}$ [3]	70	120	200	290		430
Discharge height	m	2.5 – 4.5		2.7 – 4.5			
Dimensions							
A	mm	210	289	346	405		562
B	mm	288	388	488	588		788
C	mm	110	160	210	260		300
C_1	mm	150	223	269	319		473
D_5	mm	149	179	249	314 [4]		399
E_D (flush with ceiling)	mm	295	395	495	595	620	795
E_F (free-hanging)	mm	298	398	498	598	—	798
H_D (flush with ceiling)	mm	208	248	328	403		488
H_F (free-hanging)	mm	225	265	345	420	—	505
L_1	mm	40	40	60			80
Weight G_D (flush with ceiling)	kg	2.7	4.6	7.1	10.1	10.5	18
Weight G_F (free-hanging)	kg	3	5	7.5	10.6		18.5
Max. temperature difference Supply air–indoor air		–12 K when cooling +10 K when heating (≤ 3 m) + 5 K when heating (> 3 m)					

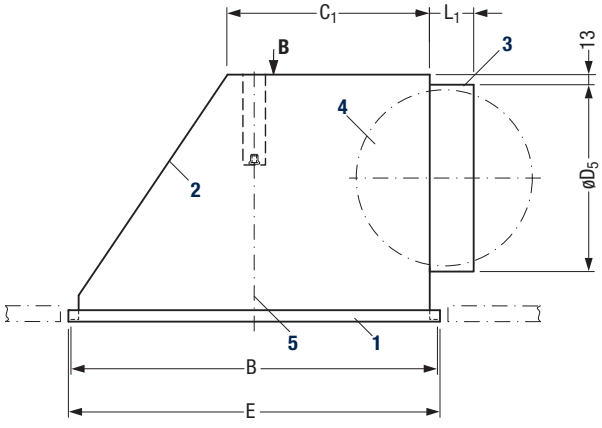
[1] All bars open; $\dot{V}_{max}$ and $\dot{V}_{min}$ are reduced by closing single bars
[2] $\dot{V}_{min}$ flush with ceiling
[3] $\dot{V}_{min}$ free-hanging
[4] Spigot DN 250 possible on request, with low connection box

Air outlet placement flush with ceiling



Air outlet placement downstanding





View B

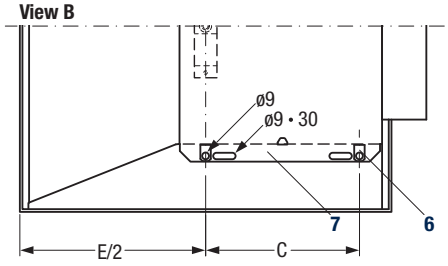


Figure 1: Dimensions and technical data

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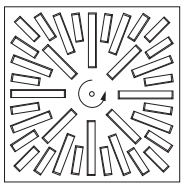
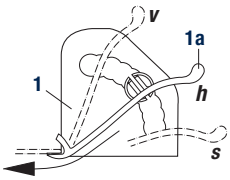
Radial slot outlet

Mode of operation





Detail to Figure 1, Section A - A
Bar position for discharge direction:
h horizontal
v vertical
s closed position

Figure 2: Face with square bar array, shown for size 500; Right: Section of adjustable bar

Mode of operation

The radial slot outlet produces turbulent mixing flow with high-induction, radial air jets. The bar position or discharge direction is horizontal.

With air outlet installation flush with ceiling (Figure 3) and horizontal discharge direction, the high-turbulence air jets glide along the ceiling. The resulting flow produces an intensive admixture of indoor air with rapid temperature equalization.

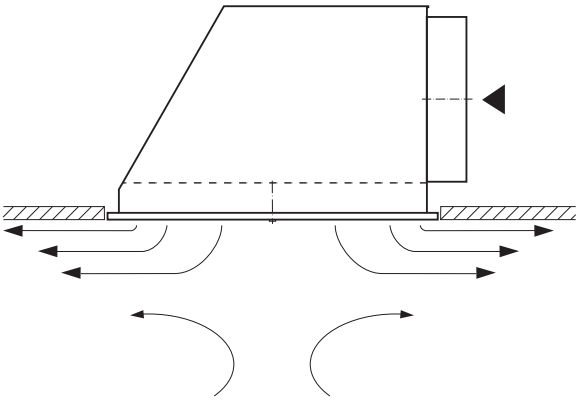


Figure 3: Jet pattern with air outlet installed flush with ceiling

In the free-hanging position (Figure 4), the air outlet element has additional lateral air slots. The additional air jets generated in this way stabilize the total supply air flow and raise the discharge flow with a large radial penetration depth into the room, also when cooling. The thermal exchange between supply air and indoor air corresponds to the air outlet installation flush with ceiling.

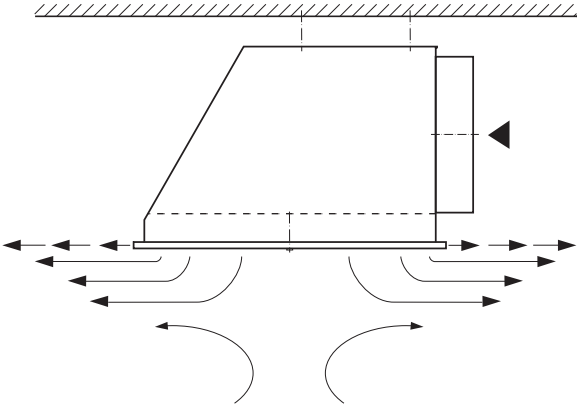


Figure 4: Jet pattern with free-hanging air outlet

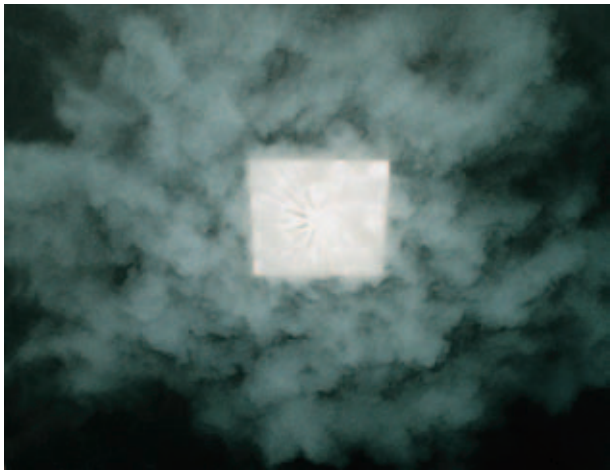


Figure 5: Radial air jet pattern, made visible with smoke tracer

Figure 6: Radial slot outlet, installed flush with ceiling

Note:
As a return air outlet, the radial slot outlet is available with horizontal or vertical bars (standard bar position) or without bars.

Radial slot outlet

with square bar array

Discharge directions and volume flow rates

– Square bar array

With the radial slot outlet, discharge can be four-sided, three-sided or double-sided. With four-sided discharge all bars are open. If three-sided or double-sided symmetrical discharge or double-sided asymmetrical discharge is required, various bar segments must be closed. The volume flow rate is reduced. Figure 4 shows the respective open and closed bar segments for different discharge directions. The table shows the corresponding factors for volume flow rate reduction.

The relevant equation is: $\dot{V}_{Red} = \dot{V}_A \cdot F$.

Volume flow rate factor F with square bar array					
Size	**800**	**625 / 600**	**500**	**400**	**300**
4-sided	1.00	1.00	1.00	1.00	1.00
3-sided	0.80	0.80	0.80	0.72	0.81
2-sided symm.	0.52	0.59	0.60	0.50	0.62
2-sided asymm.	0.53	0.57	0.57	0.50	0.62

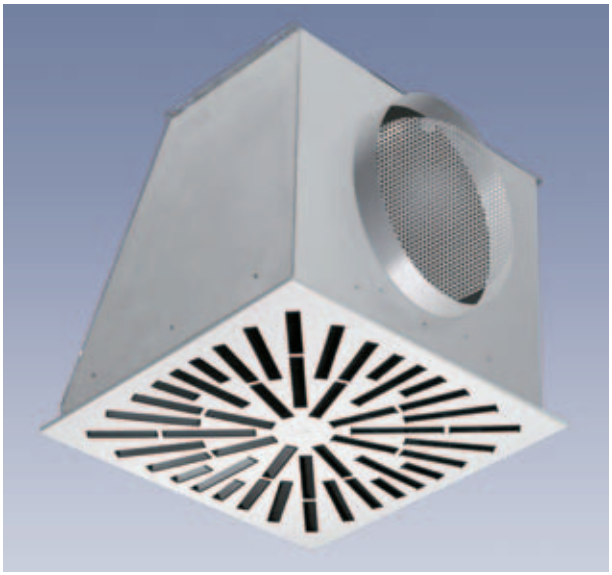


Figure 8: Radial slot outlet with square bar array, size 600; air outlet element for installation flush with ceiling

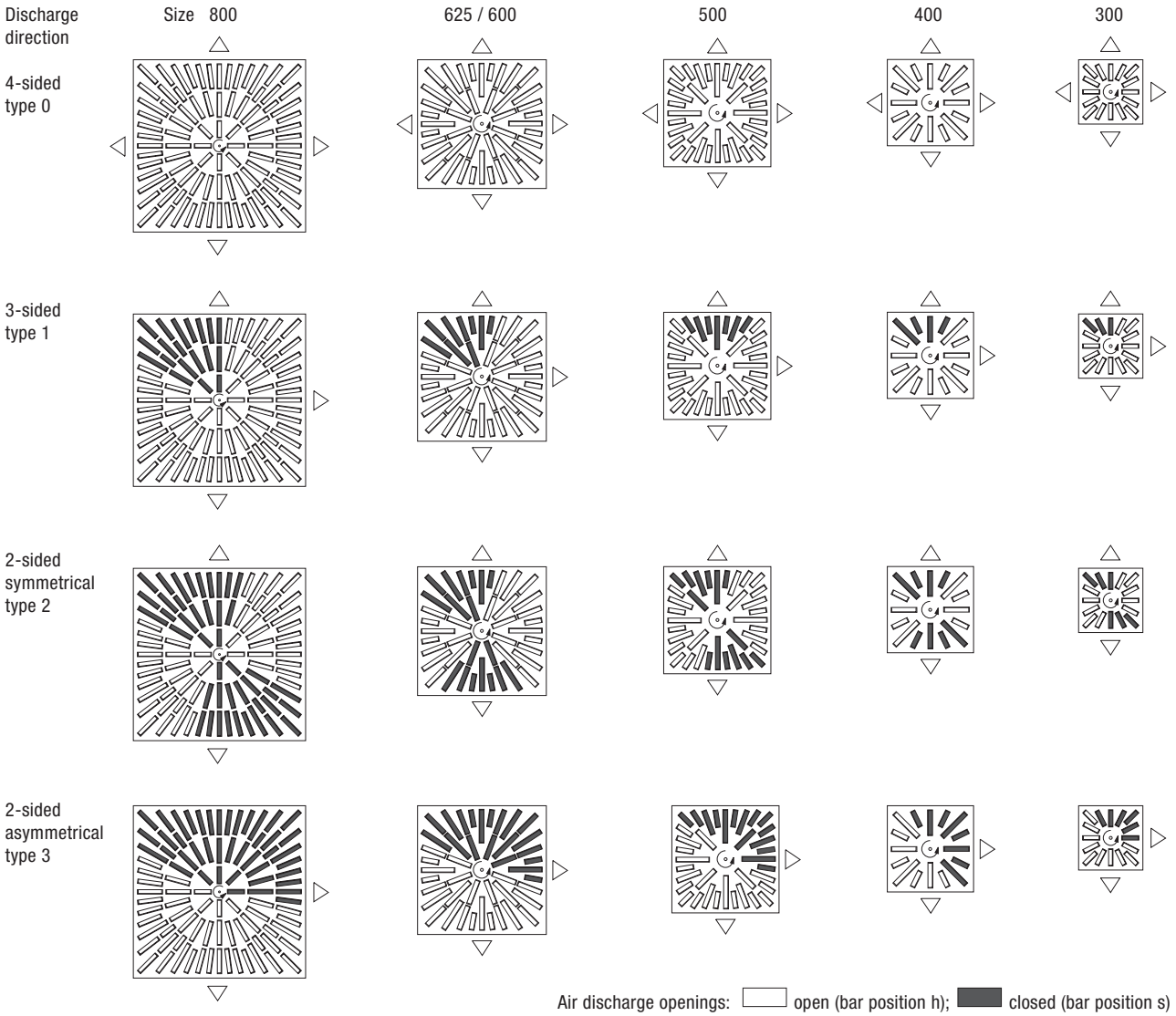


Figure 7: Various discharge directions by closing individual air discharge openings, square bar array

Radial slot outlet

with circular bar array

Discharge directions and volume flow rate

– Circular bar array

The same specifications apply for the circular bar array as for the square array. Figure 9 shows the open or closable bar segments for the various discharge directions. The relevant volume flow rate factors can be read off the table.

The relevant equation is: $\dot{V}_{Red} = \dot{V}_A \cdot F$

Volume flow rate factor F with circular bar array					
Size	**800**	**625 / 600**	**500**	**400**	**300**
4-sided	1.00	1.00	1.00	1.00	1.00
3-sided	0.78	0.83	0.80	0.75	0.75
2-sided symm.	0.56	0.66	0.61	0.50	0.50
2-sided asymm.	0.56	0.60	0.58	0.55	0.58

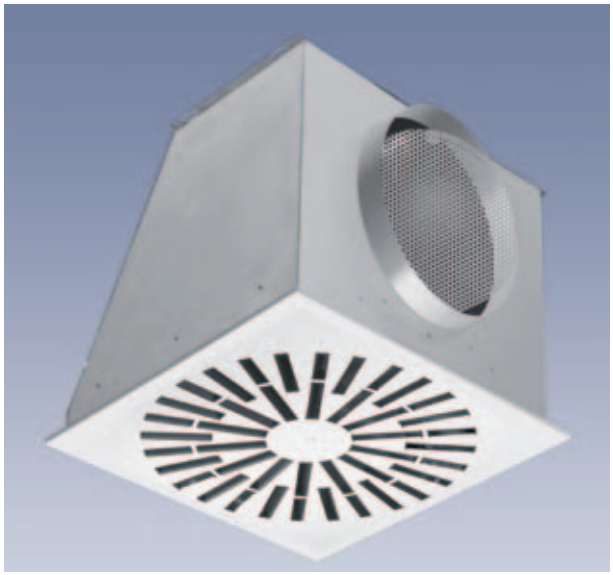


Figure 10: Radial slot outlet with circular bar array, size 600; air outlet element for installation flush with ceiling

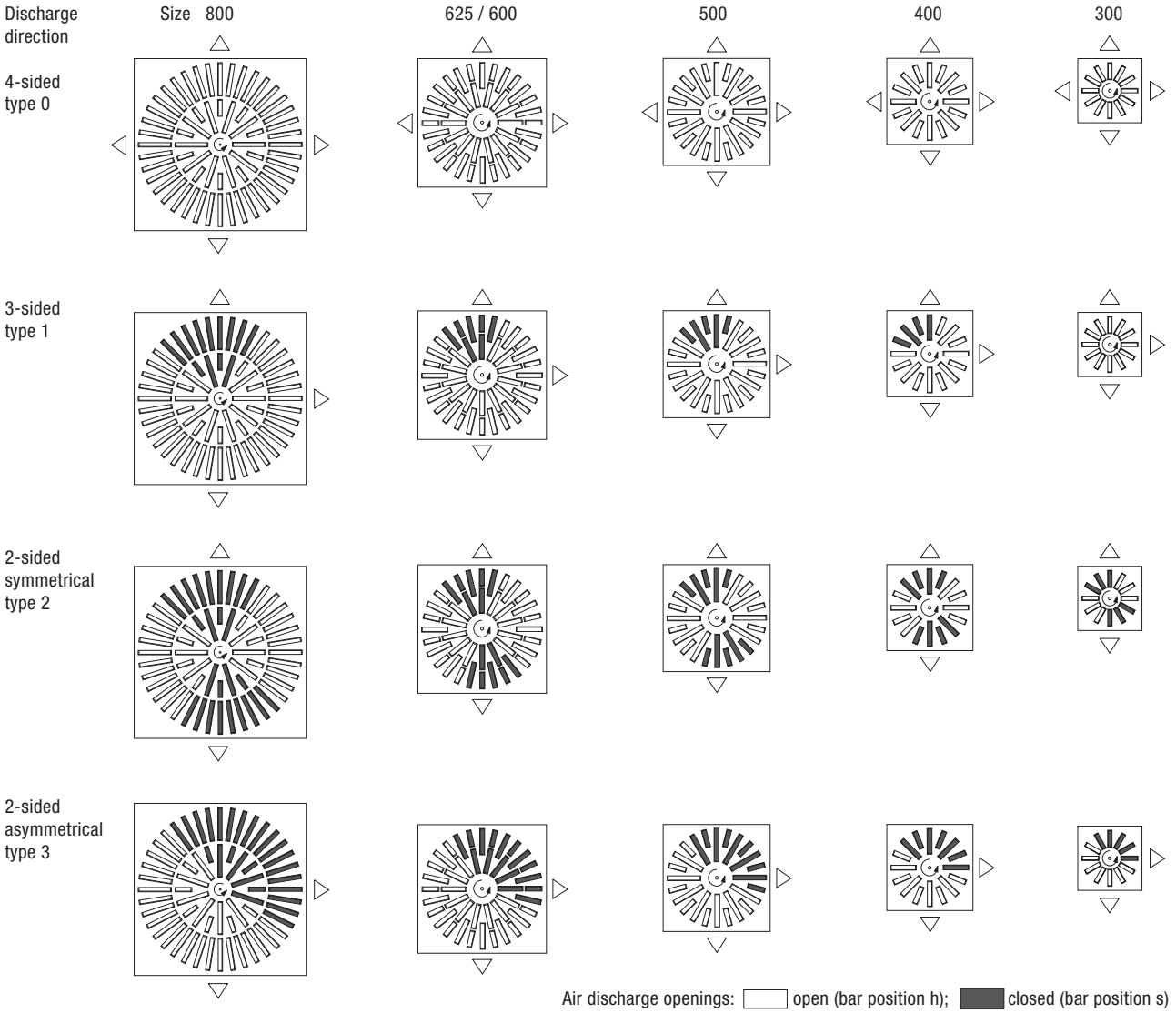


Figure 9: Various discharge directions by closing individual air discharge openings, circular bar array

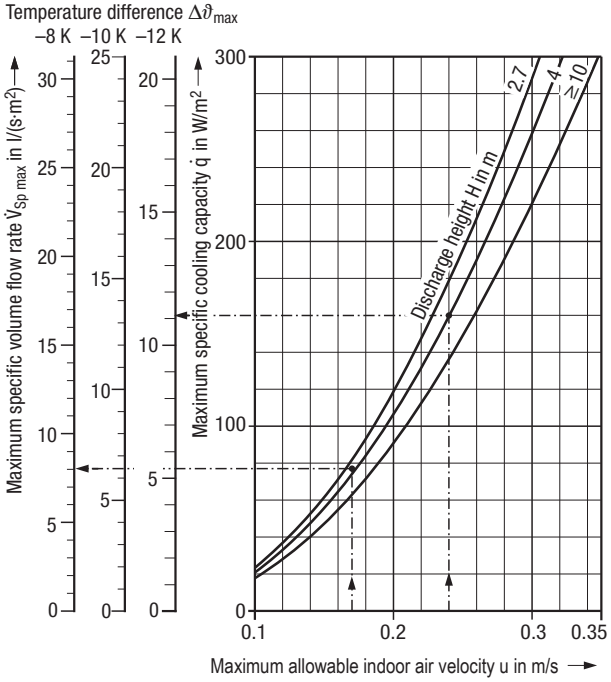
Comfort criteria [1)]

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).

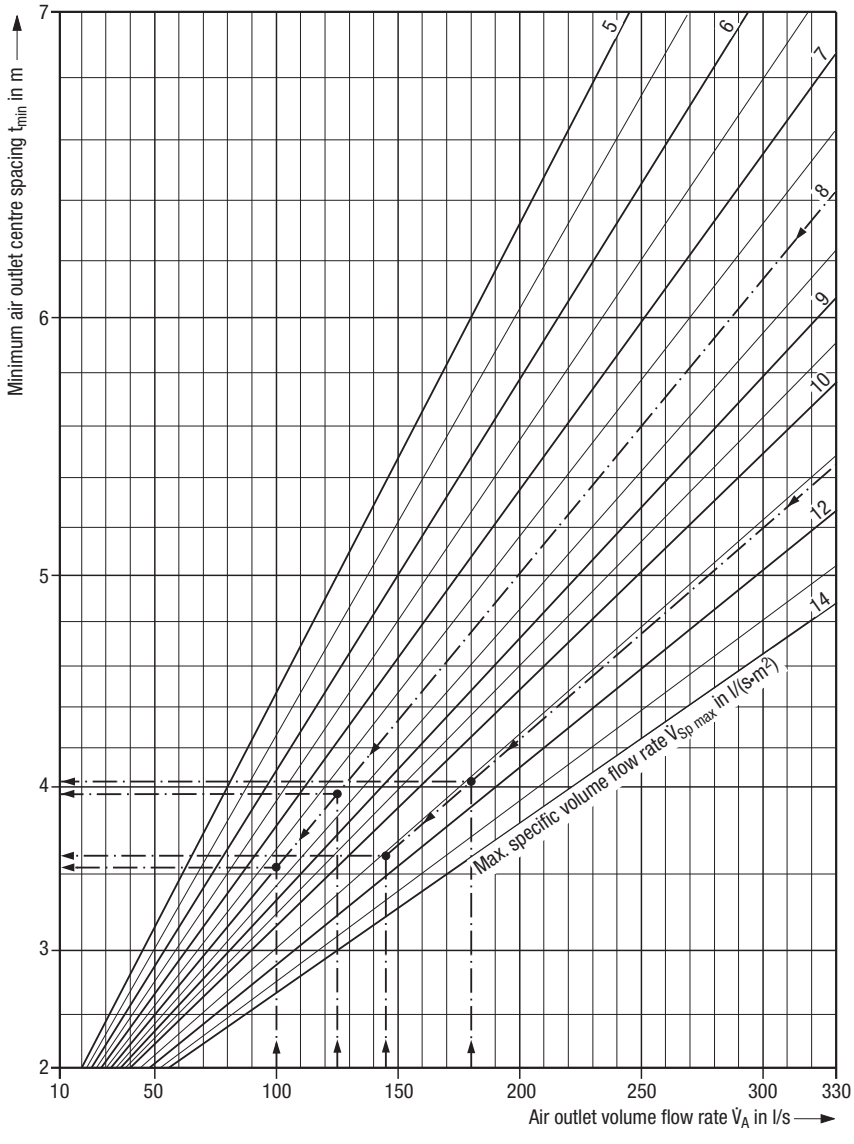
Graph 1 enables to determine for the cooling mode the maximum specific volume flow rate $\dot{V}_{Sp\ max}$ in relation to the maximum specific cooling capacity and the maximum temperature difference $\Delta\vartheta_{max}$. The volume flow rate supplied to the room $\dot{V}_{Sp\ tats}$ may not exceed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

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

[1)] See also our TB 69 – Layout specifications for thermal comfort



Graph 1: Maximum specific volume flow rate



Graph 2: Minimum air outlet centre spacing

Key for layout:

$\dot{V}_A$ = volume flow rate per air outlet in l/s
$\dot{V}_{A\ max}$ = max. volume flow rate per air outlet when cooling in l/s
$\dot{V}_{A\ min}$ = min. volume flow rate per air outlet when cooling in l/s
$\dot{V}_{Sp\ max}$ = max. specific volume flow rate per m² of floor area in l/(s·m²)
$\dot{V}_{Sp\ tats}$ = 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

Size 500 (see layout examples on page 7)
$\dot{V}_A$ selected = 125 l/s
$\dot{V}_{Sp\ max}$ = 8 l/(s·m²)
t_{min} ≈ 4 m

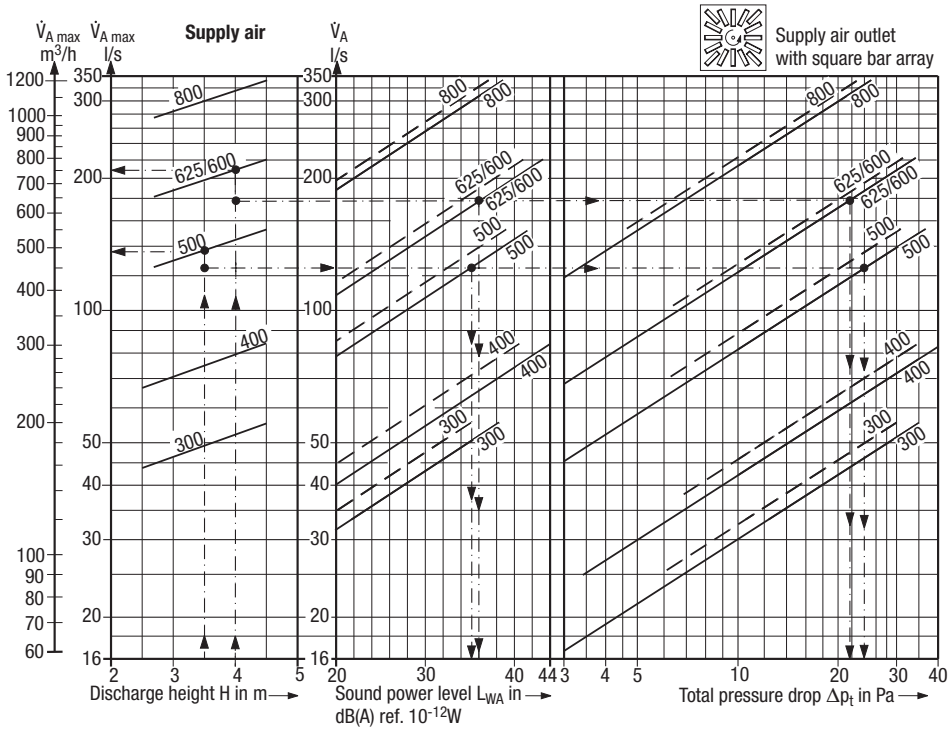
Size 625 (see layout examples on page 7)
$\dot{V}_A$ selected = 180 l/s
$\dot{V}_{Sp\ max}$ = 11.1 l/(s·m²)
t_{min} ≈ 4 m

Size 500 (see layout examples on page 9)
$\dot{V}_A$ selected = 100 l/s
$\dot{V}_{Sp\ max}$ = 8 l/(s·m²)
t_{min} ≈ 3.5 m

Size 625 (see layout examples on page 9)
$\dot{V}_A$ selected = 145 l/s
$\dot{V}_{Sp\ max}$ = 11.1 l/(s·m²)
t_{min} ≈ 3.6 m

Radial slot outlet

with square bar array, layout as supply air outlet



Air outlet placement

——— flush with ceiling
$\dot{V}_{min}$ = 30% max

– – – free-hanging
$\dot{V}_{min}$ = 45% max

Sound power levels and pressure drops apply for bar position in 'horizontal' (standard) and 'open' $\dot{V}$ damper position, with four-sided discharge. For three-sided and double-sided discharge the volume flow rate is reduced; see information in the table on Page 3 and layout example for size 625 below.

Sound power level correlated with placement

Air outlet volume flow rate $\dot{V}_A$		flush with ceiling / horizontal							free-hanging / horizontal						
		Sound power level L_W in dB ref.10^{-12}W							Sound power level L_W in dB ref.10^{-12}W						
		L_{WA}	Octave band centre frequency in Hz						L_{WA}	Octave band centre frequency in Hz					
l/s	m³/h	dB(A)	125	250	500	1K	2K	4K	dB(A)	125	250	500	1K	2K	4K
Size 300															
28	100	16	17	21	12	—	—	—	14	17	15	—	—	—	—
42	150	29	21	32	28	24	12	—	26	23	31	25	18	—	—
56	200	38	32	38	35	35	27	11	35	27	38	33	31	22	—
Size 400															
42	150	22	23	29	16	10	—	—	18	19	23	—	—	—	—
56	200	31	30	36	29	25	—	—	27	27	33	24	18	—	—
83	300	44	39	44	41	41	30	16	40	37	40	39	36	24	11
Size 500															
83	300	22	24	27	21	—	—	—	19	33	25	16	—	—	—
110	400	32	33	33	32	26	10	—	28	31	32	28	20	—	—
140	500	39	38	39	39	34	24	—	36	37	38	36	30	21	—
Size 625/600															
140	500	28	33	32	28	15	—	—	26	31	30	26	15	—	—
167	600	34	37	36	35	25	10	—	32	35	34	32	25	11	—
194	700	39	41	39	38	35	20	—	37	39	38	37	31	19	—
Size 800															
194	700	21	22	20	21	17	—	—	19	22	19	18	14	—	—
250	900	29	30	28	29	25	10	—	28	30	28	28	22	10	—
305	1100	36	37	35	36	32	17	—	34	36	34	34	28	16	—

Insertion loss in dB						
	Octave band centre frequency in Hz					
Size	125	250	500	1 K	2 K	4 K
300	5	3	3	3	3	2
400	5	3	2	3	3	2
500	4	2	2	3	3	2
625/600	3	2	2	3	3	2
800	2	2	3	3	3	2

Layout examples

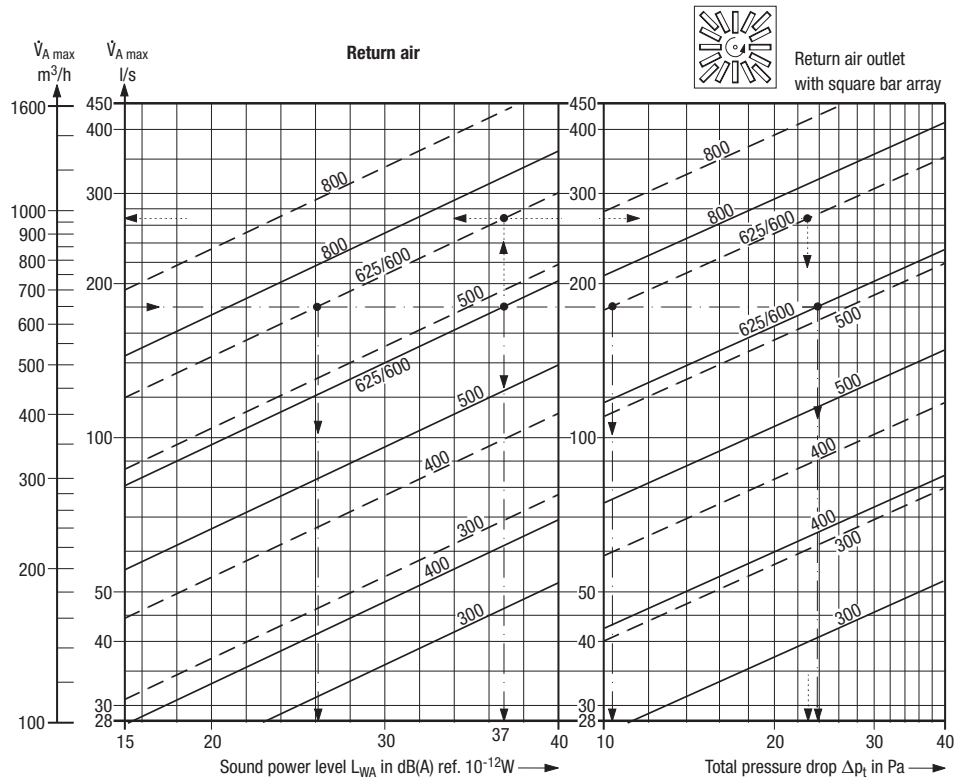
Square bar array, installation flush with ceiling				
Size:		**500**	**625**	
Application:		open-plan office	department store	
1 Supply air volume flow rate	$\dot{V}$ l/s	5 000	11 000	
2 Discharge height	H m	3.5	4	
3 Room area	A m²	720	2 400	
4 Max. allowable sound power level L_{WA} dB(A) ref. 10^{-12}-W		40	40	
5 Temperature diffference	$\Delta\vartheta_{max}$ K	–8	–12	
6 Discharge direction		all 4-sided	6 units 3-sided	Remainder 4-sided
7 Comfort criteria (see page 6)				
– Max. allowable indoor air velocity u m/s		0.17	0.24	
– Max. specific volume flow rate $\dot{V}_{Sp\,max}$	l/(s•m²)	8.0	11.1	
– actual specific volume flow rate $\dot{V}_{Sp\,tats}$ [from **1** : **3**]	l/(s•m²)	6.9	4.6	
Criterion is met if $\dot{V}_{Sp\,tats} < \dot{V}_{Sp\,max}$				
From nomogram				
8 $\dot{V}_{A\,max}$	l/s	136	210	
			168 [1] (210•0.8)	210
9 $\dot{V}_A$ selected	l/s	125	144 [1] (180•0.8)	180
10 Z	unit	40 [from **1** : **9**]	6 (specified)	57 [2]
11 L_{WA}	dB(A) ref. 10^{-12}W	≈ 35	36	36
12 Δp_t	Pa	24	≈ 22	≈ 22
13 t_{min} [Graph on page 6 below]	m	≈ 4	≈ 4	≈ 4

[1] See table on page 4

[2] Number = $\frac{11\,000 - (144 \cdot 6)}{180} \approx 57$

Radial slot outlet

with square bar array, layout as return air outlet



Note (on return air graph and table):
The figures for sound power level and pressure drop apply for air placement **flush with ceiling** in bar position:
——— horizontal
– – – vertical
and $\dot{V}$ damper "open"

With **free-hanging** placement the sound power level and pressure drops are lower, by:

Size	ΔL_{WA} dB(A)	Δp_t %
300	4	17
400	4	17
500	3	16
625/600	3	13
800	1	12

As a return air outlet **without bars** the noise level and pressure drops are also lower compared with vertical bar position, by:

Size	ΔL_{WA} dB(A)	Δp_t %
300	6	33
400	6	31
500	5	30
625/600	5	29
800	1	26

Sound power level for installation flush with ceiling, horizontal or vertical bar position

Air outlet volume flow rate $\dot{V}_A$		flush with ceiling / horizontal							flush with ceiling / vertical						
		Sound power level L_W in dB ref. 10^{-12} W							Sound power level L_W in dB ref. 10^{-12} W						
		L_{WA}	Octave band centre frequency in Hz						L_{WA}	Octave band centre frequency in Hz					
m³/h		dB(A)	125	250	500	1K	2K	4K	dB(A)	125	250	500	1K	2K	4K
Size 300															
28	100	23	21	30	18	—	—	—	13	11	10	—	—	—	—
42	150	34	28	37	34	26	17	—	23	22	27	22	14	—	—
56	200	42	33	42	40	38	31	20	31	29	32	30	26	21	—
Size 400															
42	150	26	27	33	21	12	—	—	13	14	11	—	—	—	—
56	200	34	32	39	33	26	16	—	21	25	26	18	10	—	—
83	300	45	40	44	41	42	36	28	32	32	34	30	28	15	—
Size 500															
83	300	26	28	32	24	12	—	—	14	24	13	—	—	—	—
110	400	34	34	36	35	25	18	—	22	26	25	22	—	—	—
140	500	40	38	41	40	34	28	19	28	30	29	28	22	13	—
Size 625/600															
140	500	30	34	35	29	18	—	—	19	19	20	18	—	—	—
167	600	35	36	38	36	26	16	—	24	26	26	24	16	—	—
194	700	39	39	40	40	32	25	15	28	30	29	28	23	10	—
Size 800															
194	700	23	25	23	24	15	—	—	15	26	16	13	—	—	—
250	900	30	32	30	31	22	13	—	22	33	23	20	13	—	—
305	1100	35	37	35	36	27	18	—	27	38	28	25	18	11	—

Layout examples

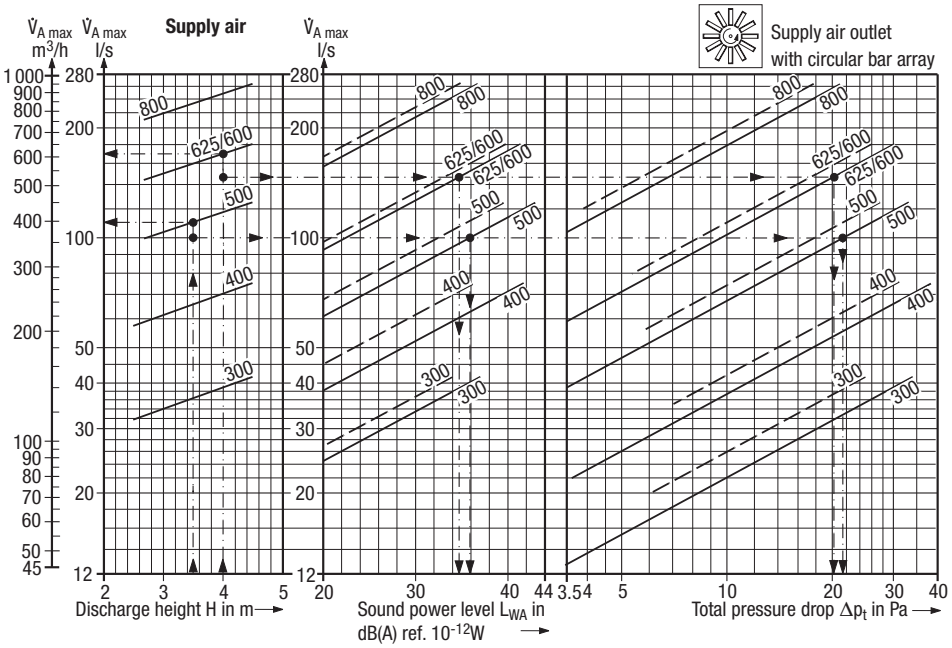
Square bar array, installation flush with ceiling			
Size:		**625**	**625**
Bar position:		horizontal	vertical
1 Return air volume flow rate $\dot{V}$	l/s	3 600	3 600
From nomogram			
2 $\dot{V}_{A\,selected}$	l/s	180	180
3 Z	Stück	20	20
4 L_{WA}	dB(A) ref. 10^{-12} W	37	≈ 26
5 Δp_t	Pa	≈ 24	≈ 11

Regarding layout example (above + graph):
For the same size and same volume flow rate the sound power level and pressure drop in the vertical bar position is distinctly lower than in the horizontal position. If, however, the higher sound power level of 37 dB(A) is tolerated, the air outlet volume flow rate in vertical bar position can be raised by approx. 47% (from 180 to 266 l/s) and fewer air outlets built in. Pressure drop rises from 11 to 23 Pa.

Insertion loss in dB Bar position horizontal, vertical or without bars						
	Octave band centre frequency in Hz					
Size	63	125	250	500	1 K	2 K
300	5	3	3	3	3	2
400	5	3	3	3	3	2
500	4	3	2	3	3	2
625/600	3	3	2	3	3	2
800	2	3	2	3	3	2

Radial slot outlet

with circular bar array, layout as supply air outlet



Air outlet placement

——— flush with ceiling
$\dot{V}_{min} = 30\%\ \dot{V}_{max}$

– – – free-hanging
$\dot{V}_{min} = 45\%\ \dot{V}_{max}$

Sound power levels and pressure drops apply for bar position in 'horizontal' (standard) and 'open' $\dot{V}$ damper position, with four-sided discharge. For three-sided and double-sided discharge the volume flow rate is reduced; see information in the table on Page 3 and layout example for size 625 below.

Sound power level correlated with placement

Air outlet volume flow rate $\dot{V}_A$		flush with ceiling / horizontal							free-hanging / horizontal						
		Sound power level L_W in dB ref. 10^{-12} W							Sound power level L_W in dB ref. 10^{-12} W						
		L_{WA}	Octave band centre frequency in Hz						L_{WA}	Octave band centre frequency in Hz					
l/s	m³/h	dB(A)	125	250	500	1K	2K	4K	dB(A)	125	250	500	1K	2K	4K
Size 300															
22	80	17	13	17	15	14	—	—	16	14	17	14	12	—	—
33	120	30	26	30	28	27	17	—	27	25	28	25	23	13	—
42	150	37	33	37	35	34	24	—	34	32	35	32	30	20	—
Size 400															
39	140	21	21	24	19	17	—	—	15	13	15	12	12	—	—
56	200	32	32	25	30	28	12	—	27	25	27	24	24	15	—
72	260	41	41	44	39	37	21	—	35	33	35	32	32	23	—
Size 500															
67	240	23	23	23	24	17	—	—	20	20	22	20	14	—	—
89	320	32	32	32	33	26	14	—	29	29	31	29	23	11	—
110	400	39	39	39	40	33	21	—	36	36	38	36	30	18	—
Size 625/600															
110	400	26	28	25	25	22	—	—	24	26	23	24	19	—	—
140	500	33	35	32	32	29	17	—	32	34	31	32	27	15	—
167	600	39	41	38	38	35	23	—	37	39	36	37	32	20	—
Size 800															
167	600	22	24	21	23	16	—	—	20	22	20	21	14	—	—
208	750	29	31	28	30	23	10	—	27	29	27	28	21	—	—
250	900	35	37	34	36	29	16	—	33	35	33	34	27	13	—

Insertion loss in dB						
	Octave band centre frequency in Hz					
Size	125	250	500	1 K	2 K	4 K
300	5	3	3	3	3	2
400	5	3	2	3	3	2
500	4	2	2	3	3	2
625/600	3	2	2	3	3	2
800	2	2	3	3	3	2

Layout examples

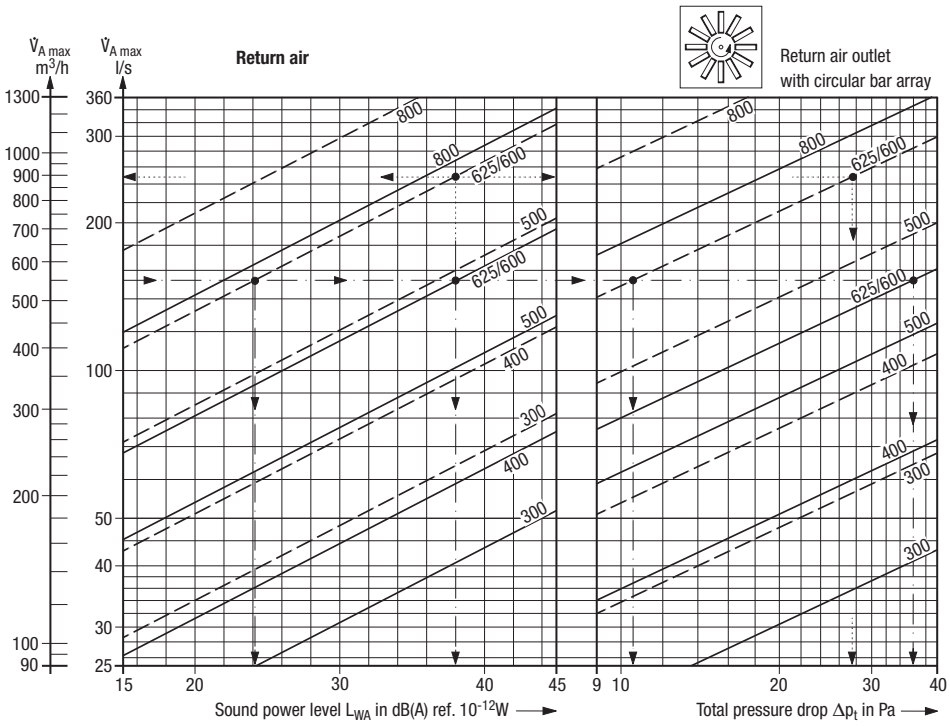
Circular bar array, installation flush with ceiling				
Size:		**500**	**625**	
Application:		open-plan office	department store	
1 Supply air volume flow rate $\dot{V}$	l/s	5 000	11 000	
2 Discharge height H	m	3.5	4	
3 Room area A	m^2	720	2 400	
4 Max. allowable sound power level L_{WA}	dB(A) ref. 10^{-12} W	40	40	
5 Temperature diffference $\Delta\vartheta_{max}$	K	–8	–12	
6 Discharge direction		all 4-sided	6 units 3-sided	Remainder 4-sided
7 Comfort criteria (see page 6)				
– Max. allowable indoor air velocity u	m/s	0.17	0.24	
– Max. spec. volume flow rate $\dot{V}_{Sp\,max}$	$m^3/(h{\cdot}m^2)$	8.0	11.1	
– actual specific volume flow rate $\dot{V}_{Sp\,tats}$ [from **1** : **3**]	$l/(s{\cdot}m^2)$	6.9	4.6	
Criterion is met if $\dot{V}_{Sp\,tats} < \dot{V}_{Sp\,max}$				
From nomogram				
8 $\dot{V}_{A\,max}$	l/s	111	172	
			143 [1] (172·0.8)	172
9 $\dot{V}_A$ selected	l/s	100	121 [1] (145·0.83)	145
10 Z	unit	50 [from **1** : **9**]	6 (specified)	71 [2]
11 L_{WA}	dB(A) ref. 10^{-12} W	≈ 36	≈ 35	≈ 35
12 Δp_t	Pa	≈ 22	≈ 20	≈ 20
13 t_{min} [Graph on page 6 below]	m	≈ 3.5	≈ 3.6	≈ 3.6

[1] See table on page 5

[2] Number = $\frac{11\,000 - (121{\cdot}6)}{145} \approx 71$

Radial slot outlet

with circular bar array, layout as return air outlet



Note (on return air graph and table):
The figures for sound power level and pressure drop apply for air placement flush with ceiling in bar position:
——— horizontal
– – – vertical
and $\dot{V}$ damper "open"
With free-hanging placement the sound power level and pressure drops are lower, by:

Size	ΔL_{WA} dB(A)	Δp_t %
300	4	32
400	4	20
500	3	17
625 / 600	3	17
800	2	12

As a return air outlet without bars the noise level and pressure drops are also lower compared with vertical bar position, by:

Size	ΔL_{WA} dB(A)	Δp_t %
300	6	33
400	6	31
500	5	30
625 / 600	5	29
800	1	26

Sound power level for installation flush with ceiling, horizontal or vertical bar position

Air outlet volume flow rate $\dot{V}_A$		flush with ceiling / horizontal							flush with ceiling / vertical						
		Sound power level L_W in dB ref. 10^{-12} W							Sound power level L_W in dB ref. 10^{-12} W						
		L_{WA}	Octave band centre frequency in Hz						L_{WA}	Octave band centre frequency in Hz					
l/s	m³/h	dB(A)	125	250	500	1K	2K	4K	dB(A)	125	250	500	1K	2K	4K
Size 300															
22	80	21	18	21	20	17	—	—	12	11	12	12	10	—	—
33	120	33	30	33	32	29	21	13	19	18	19	19	14	—	—
42	150	39	36	39	38	35	27	19	26	25	26	26	21	—	—
Size 400															
39	140	26	26	29	26	19	—	—	12	15	13	12	—	—	—
56	200	36	36	39	36	29	19	10	22	25	23	22	14	—	—
72	260	44	44	47	44	37	27	16	30	33	31	30	22	16	—
Size 500															
67	240	26	21	25	24	22	16	—	13	12	13	12	10	—	—
89	320	34	29	33	32	30	24	15	21	20	21	20	16	10	—
110	400	41	36	40	39	37	31	22	28	27	28	27	22	12	—
Size 625/600															
110	400	29	29	29	30	22	15	—	15	17	13	14	11	—	—
140	500	35	37	37	36	26	17	10	21	23	19	20	17	10	—
167	600	41	41	41	42	34	27	16	27	29	25	26	23	14	—
Size 800															
167	600	25	27	25	26	17	11	—	13	23	15	11	—	—	—
208	750	31	33	31	32	23	15	10	20	30	22	18	11	—	—
250	900	36	38	36	37	28	20	15	25	35	27	23	16	13	—

Layout examples

Circular bar array, installation flush with ceiling			
Size:		**625**	**625**
Bar position:		horizontal	vertical
1 Return air volume flow rate $\dot{V}$	l/s	3 055	3 055
From nomogram			
2 $\dot{V}_{A\,selected}$	l/s	153	153
3 Z	unit	20	20
4 L_{WA}	dB(A) ref. 10^{-12} W	38	≈ 24
5 Δp_t	Pa	36	≈ 11

Regarding layout example (above + graph):
For the same size and same volume flow rate the sound power level and pressure drop in the vertical bar position is distinctly lower than in the horizontal position. If, however, the higher sound power level of 38 dB(A) is tolerated, the air outlet volume flow rate in vertical bar position can be raised by approx. 63% (from 153 to 250 l/s) and fewer air outlets built in. Pressure drop rises from 11 to 28 Pa.

Insertion loss in dB
Bar position horizontal, vertical or without bars

	Octave band centre frequency in Hz					
Size	63	125	250	500	1 K	2 K
300	5	3	3	3	3	2
400	5	3	3	3	3	2
500	4	3	2	3	3	2
625/600	3	3	2	3	3	2
800	2	3	2	3	3	2

Radial slot outlet

with square or circular bar array

Features

- Turbulent mixing air flow
- Discharge direction manually adjustable from horizontal to downward incline
- Radial symmetrical or asymmetrical jet dispersion
- Stable supply air jets, also at minimum volume flow rate
- Maximum temperature difference between supply air and indoor air:
  –12 K when cooling, +5 K when heating (+10 K up to 3 m room height)
- Low sound power level
- With square face for installation flush with ceiling or free-hanging
- With square or circular bar array
- With connection box and built-in volume flow damper, adjustable from room
- Air outlet element easily removable from below
- Face made of galvanized sheet metal, powder-coated (similar to RAL 9010, pure white); bars made of polycarbonate (coloured similar to RAL 9005, black or RAL 9010, pure white); connection box made of galvanized sheet metal
- Available in 6 sizes
- Also usable as a return air inlet

Type code

RL – __ __ – ____ / ____ – __ – __ – __ __ – ____ – __

Radial slot outlet | Bar array | Mounting | Square face | Size | Supply/Return air | Bar position | Connection type | Damper | Surface finish | Colour of discharge element

Bar array

Q = square array
R = circular array

Mounting

D = flush with ceiling
F = freely suspended (free-hanging) [1]

Square face

300 = 295 x 295
400 = 395 x 395
500 = 495 x 495
600 = 595 x 595
625 = 620 x 620
800 = 795 x 795

Size

300 = Size 300
400 = Size 400
500 = Size 500
600 = Size 600
625 = Size 625
800 = Size 800

Supply/Return air

Z = Supply air
A = Return air

Bar position

Supply air

0 = 4-way air discharge
1 = 3-way air discharge
2 = 2-way symmetric air discharge (180°)
3 = 2-way asymmetric air discharge (90°)

Return air [2]

H = Bar position horizontal
V = Bar position vertical
N = no bars

Connection type

0 = No connection piece (only discharge element)
K = Connection box

Damper

0 = no volume flow damper
R = with volume flow damper adjustable from room

Surface finish

9010 = Face painted to RAL 9010, semi-matt
.... = Face painted to RAL ...

Colour of discharge element

S = black similar to RAL 9005
W = white similar to RAL 9010

[1] Except size 625

[2] Unless otherwise stated in the order, the return air outlet will be delivered with vertical bar position

Radial slot outlet

Tender text
– Supply air outlet

..... units
Radial slot outlet to generate high-induction radial air jets for high-quality indoor air flow, with symmetrical or asymmetrical jet dispersion; discharge direction manually adjustable from horizontal to a downward incline,
installation flush with ceiling or free-hanging [1],

consisting of:
- air outlet with square face and radial, linear air discharge openings, built-in adjustable bars in square or circular array, discharge direction [3] optionally 4-sided, 3-sided, 2-sided symmetrical or 2-sided asymmetrical, bar underside almost level with the outlet face; central fastening screw with cap.
- connection box with built-in air-outlet centre fastening, bores for mounting in the upper suspension strips, and lateral connection spigot [2] with built-in volume flow damper adjustable from room.

Materials:
- Air outlet made of galvanized sheet metal, with powder coating, face painted to RAL 9010, pure white [5]
- Adjustable bars made of polycarbonate PC GF 10 coloured similar to RAL 9005, pitch-black, or similar to RAL 9010, pure white
- Connection box made of galvanized sheet metal

Make: KRANTZ KOMPONENTEN
Type: RL – __ __ – ___ / ___ – Z – __ – __ __ – ___ – _

1) Except for size 625
2) With lip seal on request
3) Horizontal bar position
4) Unless otherwise stated in the order, the return air outlet will be delivered with vertical bar position
5) Other colours on request

– Return air inlet

..... units
Radial slot outlet for use as return air inlet,
installation flush with ceiling or free-hanging [1],

consisting of:
- air outlet with square face and radial, linear air intake openings, built-in adjustable bars in square or circular array, bar position [4] either vertical or horizontal, bar underside almost level with the outlet face; central fastening screw with cap. On request the outlet can be supplied without bars.
- connection box with built-in air-outlet centre fastening, bores for mounting in the upper suspension strips, lateral connection spigot [2] with built-in volume flow damper adjustable from room.

Materials:
- Air outlet made of galvanized sheet metal, with powder coating, face painted to RAL 9010, pure white [5]
- Adjustable bars made of polycarbonate PC GF 10, coloured similar to RAL 9005, pitch-black, or similar to RAL 9010, pure white
- Connection box made of galvanized sheet metal

Make: KRANTZ KOMPONENTEN
Type: RL – __ __ – ___ / ___ – A – __ – __ __ – ___ – _

Subject to technical alterations.

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