

Adjustable radial outlet RA-V....

Adjustable radial outlet

Construction design

Preliminary remarks

KRANTZ KOMPONENTEN has developed its wellknown, successful radial outlet into an **adjustable radial outlet**. The supply air can be discharged from almost horizontal to vertically downwards. Special features are its low height and simple construction; it operates in the same way as our famous variable twist outlet.

The adjustable radial outlet generates turbulent mixing air flow and is well suited for indoor spaces with no significant pollutant loads as well as for large discharge heights. It can be installed flush with the ceiling or free-hanging.

Construction design

The air outlet element consists of the outlet casing **1a**, the moulded face **1b** and the built-in radial vanes **1c**. The fixed disc **3** with fastening screw **4** is located in the centre of the discharge plane. The discharge direction is adjusted by rotating a vertically mobile guide ring **5**. Depending on size, the maximum lift ranges from 16 mm to 36 mm. For manual adjustment, the guide ring is fitted with two opposite cams **6** on the inside.

For motorized adjustment, a servomotor **7** is fastened to a console **7a** above the outlet casing **1a**. The radial outlet can be removed downwards after loosening the fastening screw **4**.

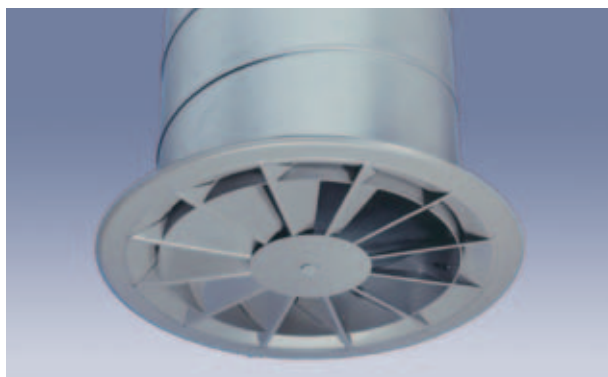
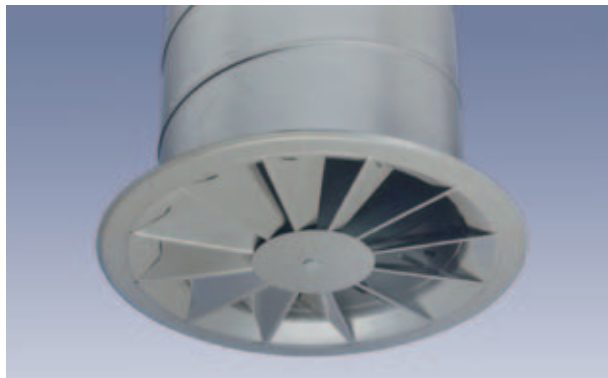


Fig. 1: Adjustable radial outlet with circular face

Top: Guide ring retracted for cooling

Bottom: Guide ring extracted for heating

The adjustable radial outlet is available with circular or square face. The square face can be optionally fitted with an outer skirting contact edge for ceiling attachment or with a 90° turn-up for installation in square tile ceilings.

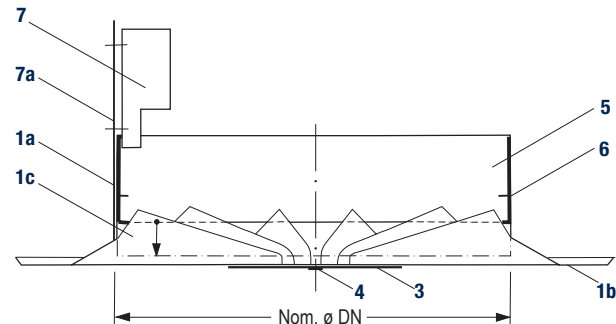


Fig. 2: Adjustable radial outlet with circular face

The air outlet can be connected to the duct system either directly using a circular duct **15** to EN 1506 (by others) or via a connection box **8** (see pages 4 and 5). Using a spigot **17** (by others), the adjustable radial outlet can also be fitted onto the bottom of a rectangular duct.

At the side of the connection box is the connection spigot **11** for junction to the duct system. A volume flow damper **9** can be preinstalled in the connection spigot and operated either directly at the spigot or from the room via an adjustment device **14**.

The connection spigot is available smooth or with a lip seal **11a** (on request).

For increased insertion loss, the connection box is available with acoustic lining.

Mode of operation

Depending on the connection type, the supply air flows either directly from the air duct or via the connection box into the air outlet and through its radial vanes into the room. This produces high-induction air jets with pronounced turbulence. If the vertically mobile guide ring is in the upper position, the air jets glide along the curved exit, resulting in a radial, horizontal jet deflection. The resultant jet pattern causes a strong admixture with ambient air and, consequently, rapid equalization of supply air temperature and indoor air temperature.

In the upper guide ring position, supply air discharge is radial and horizontal. It is used for air supply in rooms with low discharge height or high cooling loads (Figure 3a).

If the guide ring is moved downwards, the supply air jets shift progressively to vertical.

Adjustable radial outlet

Mode of operation

The guide ring is positioned between upper and lower position where air discharge is from large heights and the HVAC system is operating in the partial load range (Figure 3b).

When the guide ring is fully extracted, all the supply air flows downwards. This position is selected for heating or heating-up operation (Figure 3c).

The adjustable radial outlet is ideal for both commercial and industrial applications.

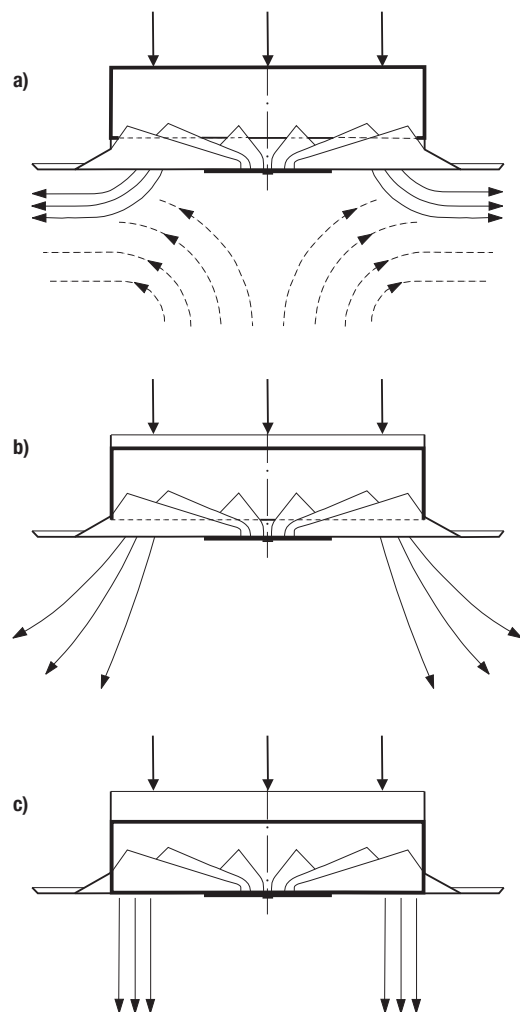


Fig. 3: Jet pattern of adjustable radial outlet at different positions of the guide ring

Air outlet data

| Nom. ϕ | Volume flow rate | | | | Discharge height H m | Max. temperature difference supply air–indoor air $\Delta\theta$ | |
|-------------|------------------|-------------------|------------------|-------------------|----------------------------|---|--------------|
| | \dot{V}_{\min} | | \dot{V}_{\max} | | | Cooling K | Heating K |
| | l/s | m ³ /h | l/s | m ³ /h | | | |
| 200 | 61 | 220 | 222 | 800 | 2.5 – 6 | -12 | 12 |
| 224 | 78 | 280 | 280 | 1 000 | 2.8 – 6 | | 15 |
| 250 | 97 | 350 | 360 | 1 300 | 2.8 – 6 | | 15 |
| 315 | 116 | 560 | 555 | 2 000 | 3 – 8 | | 15 |
| 355 | 194 | 700 | 695 | 2 500 | 3 – 9 | | 15 |
| 400 | 250 | 900 | 1 055 | 3 800 | 3.5 – 12 | | 15 |
| 500 | 444 | 1 600 | 1 530 | 5 500 | 4 – 13 | | 15 |

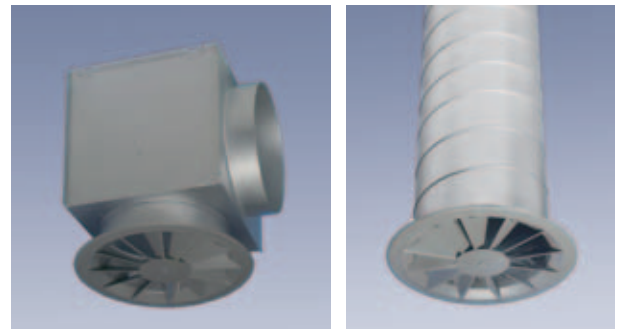


Fig. 4: Photographs of connection types

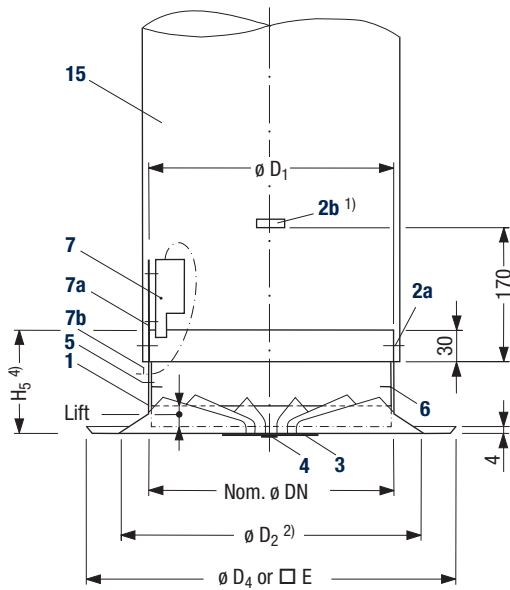
Left: With connection box

Right: Connection to spiral seam duct

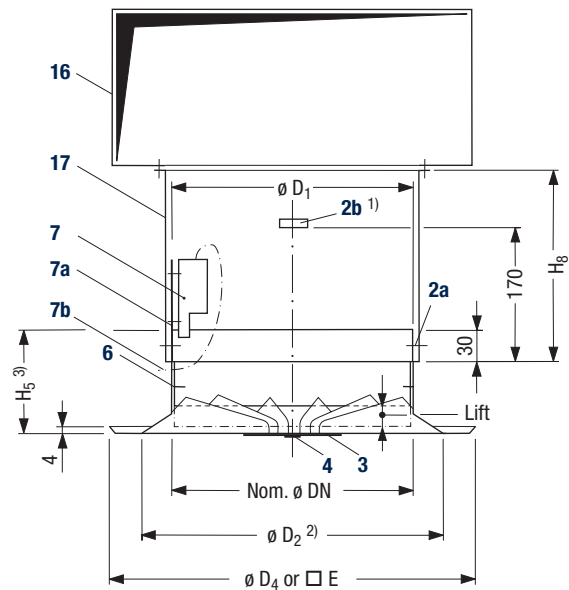
Adjustable radial outlet

Connection types and dimensions

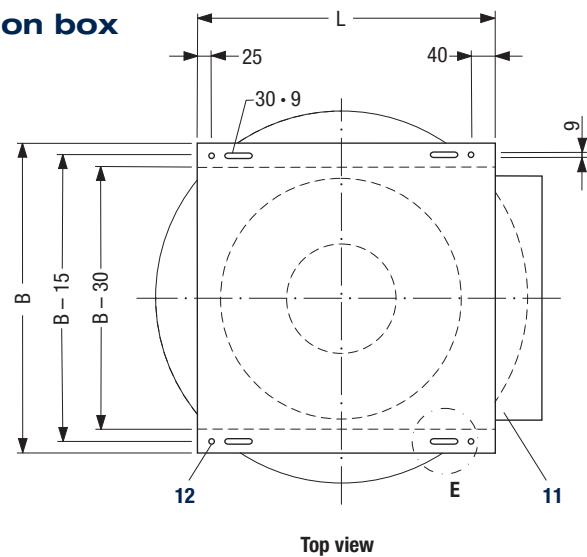
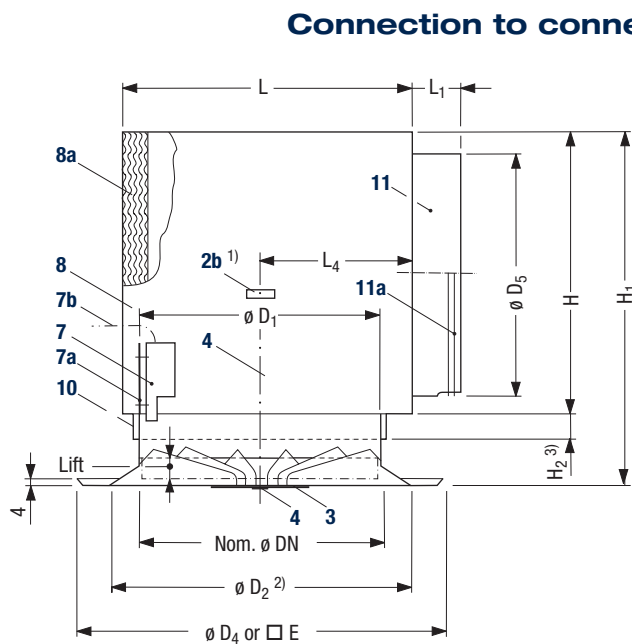
Connection to circular duct



Connection to air duct with spigot



Connection to connection box



| Nom. \varnothing DN | Dimensions in mm | | | | | | | | | | | | | | | | | | Weight in kg ⁴⁾ | |
|-----------------------|------------------|-----|-------------------|---------------------------|-----|-------|-------|-------|-------------------------|-------------------------|-------------------------|-------------------------|-------|------|-------------------|---------------------------------|-------------------|-----|----------------------------|------|
| | L | B | $\varnothing D_4$ | $\square E$ ⁵⁾ | H | L_1 | L_4 | H_1 | H_{2-M} ³⁾ | H_{2-E} ³⁾ | H_{5-M} ³⁾ | H_{5-E} ³⁾ | H_8 | Lift | $\varnothing D_1$ | $\varnothing D_2$ ²⁾ | $\varnothing D_5$ | ① | ② | |
| 200 | 265 | 280 | 300 | 595 | 250 | 40 | 140 | 325 | 59 | 29 | 105 | 125 | 250 | 16 | 199 | 242 | 199 | 1.4 | 5.4 | |
| 224 | 290 | 305 | 336 | | 275 | 40 | 152 | 355 | 62 | 31 | 110 | 130 | 300 | 18 | 223 | 271 | 223 | 1.5 | 6.1 | |
| 250 | 315 | 330 | 375 | | 300 | 60 | 165 | 386 | 66 | 33 | 116 | 136 | 350 | 20 | 249 | 302 | 249 | 2.1 | 7.3 | |
| 315 | 380 | 395 | 470 | | 620 | 365 | 60 | 197 | 463 | 74 | 37 | 128 | 148 | 450 | 24 | 314 | 380 | 314 | 3.1 | 10.7 |
| 355 | 420 | 435 | 530 | | 405 | 60 | 217 | 512 | 80 | 41 | 137 | 157 | 450 | 27 | 354 | 428 | 354 | 3.7 | 12.9 | |
| 400 | 465 | 480 | 600 | | 450 | 80 | 240 | 566 | 86 | 44 | 146 | 174 | 500 | 30 | 399 | 482 | 399 | 4.5 | 15.7 | |
| 500 | 565 | 580 | 750 | — | 550 | 80 | 290 | 686 | 100 | 49 | 166 | 186 | 500 | 36 | 499 | 602 | 499 | 7.8 | 17.2 | |

¹⁾ Standard for connection box, optional for duct connection

²⁾ Ceiling cutout

³⁾ Index 'M' with manual adjustment, 'E' with adjustment by electric servomotor

⁴⁾ Weight without servomotor; weight of servomotor 0.5 – 1.2 kg

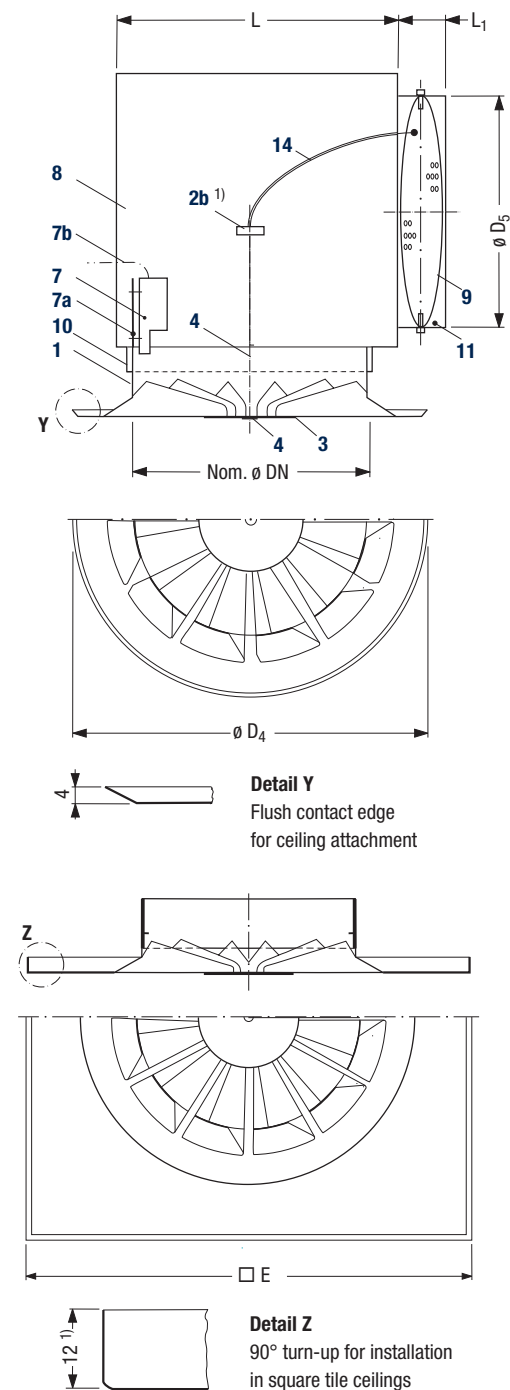
① air outlet; ② air outlet with connection box

⁵⁾ Standard dimensions, others on request (see also table on page 5)

Adjustable radial outlet

Connection types and data

Connection box with V damper in connection spigot, adjustable from room

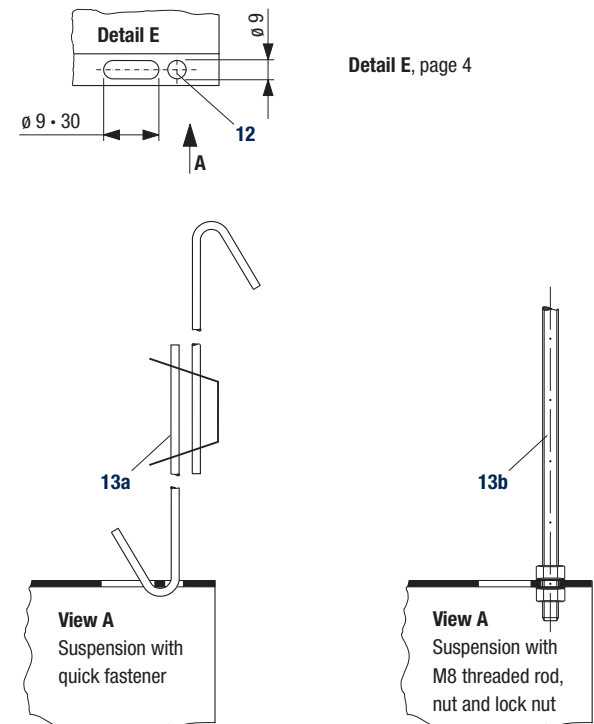


Dimensions in mm

| DN | Contact edge ²⁾ Detail Y | | 90° turn-up ²⁾ Detail Z | | Circular face Ø D ₄ |
|-----|--|----------|---------------------------------------|----------|-----------------------------------|
| | min. □ E | max. □ E | min. □ E | max. □ E | |
| 200 | 295 | 715 | 285 | 680 | 300 |
| 224 | 325 | | 320 | | 336 |
| 250 | 360 | | 350 | | 375 |
| 315 | 435 | | 425 | | 470 |
| 355 | 485 | | 475 | | 530 |
| 400 | 540 | | 540 | | 600 |
| 500 | 655 | | 655 | | 750 |

Possible external dimensions of outlet faces

Suspensions



Detail E, page 4

Key for all pages

- 1 Adjustable radial outlet
- 1a Outlet casing
- 1b Face
- 2a Screw or rivet fastener
- 2b Crossbeam for central fastening ³⁾
- 3 Disc
- 4 Fastening screw M6 for DN 200, M8 from DN 224 upwards
- 5 Guide ring
- 6 Cam for manual adjustment
- 7 Servomotor with cable (0.9 m)
- 7a Console
- 7b Cable bushing
- 8 Connection box
- 8a Acoustic lining (optional)
- 9 V damper (optional)
- 10 Sleeve at connection box
- 11 Connection spigot, smooth
- 11a Connection spigot with lip seal on request
- 12 Bore for suspension
- 13a Suspension with quick fastener ⁵⁾
- 13b Suspension with M8 threaded rod and nuts ⁵⁾
- 14 Adjustment device for V damper (optional)
- 15 Circular duct (by others)
- 16 Rectangular duct (by others)
- 17 Spigot for connection to rectangular duct (by others)

¹⁾ Turn-up with different height on request!

²⁾ Min. and max. dimensions for specific requirements on request

³⁾ Standard for connection box, optional for duct connection

⁵⁾ Suspension by others

Adjustable radial outlet

Comfort criteria

Sound power level and pressure drop

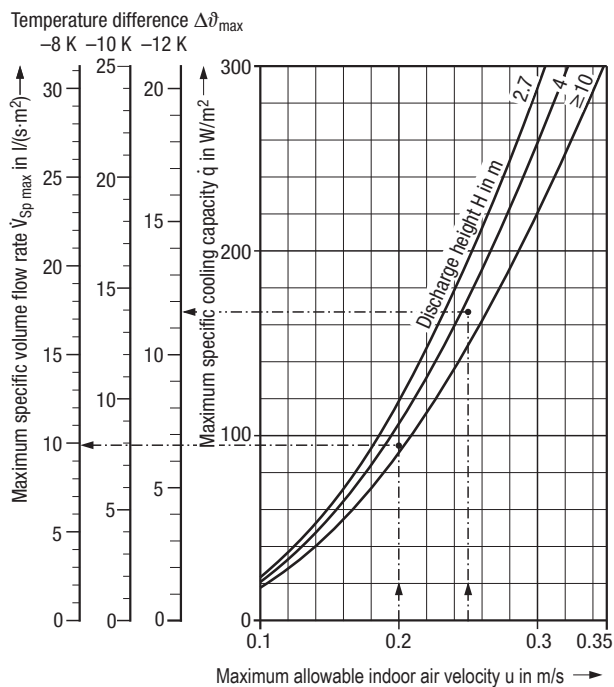
Sound power level and pressure drop are influenced by air volume flow rate, connection type and guide ring position. Values for sound power level and pressure drop can be read off the nomograms on pages 7 to 9. Sound power levels across octave band centre frequencies for all nominal sizes are tabulated on page 10.

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 height specific volume flow rate.

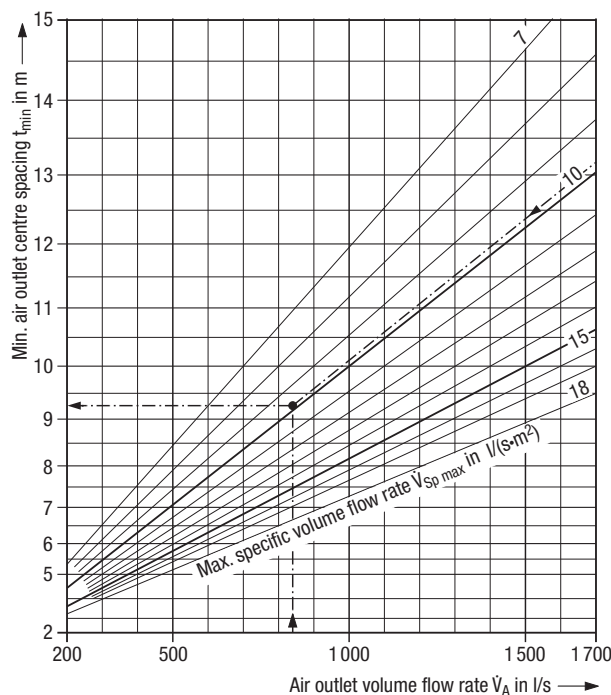
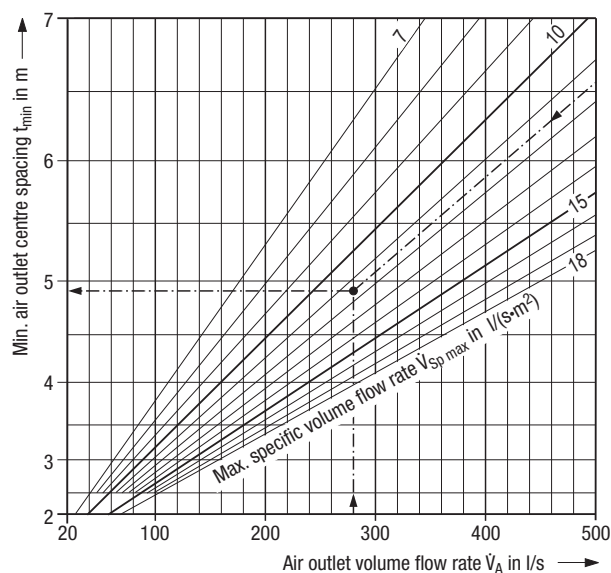


Graph 1: Maximum specific volume flow rate

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

Key for layout:

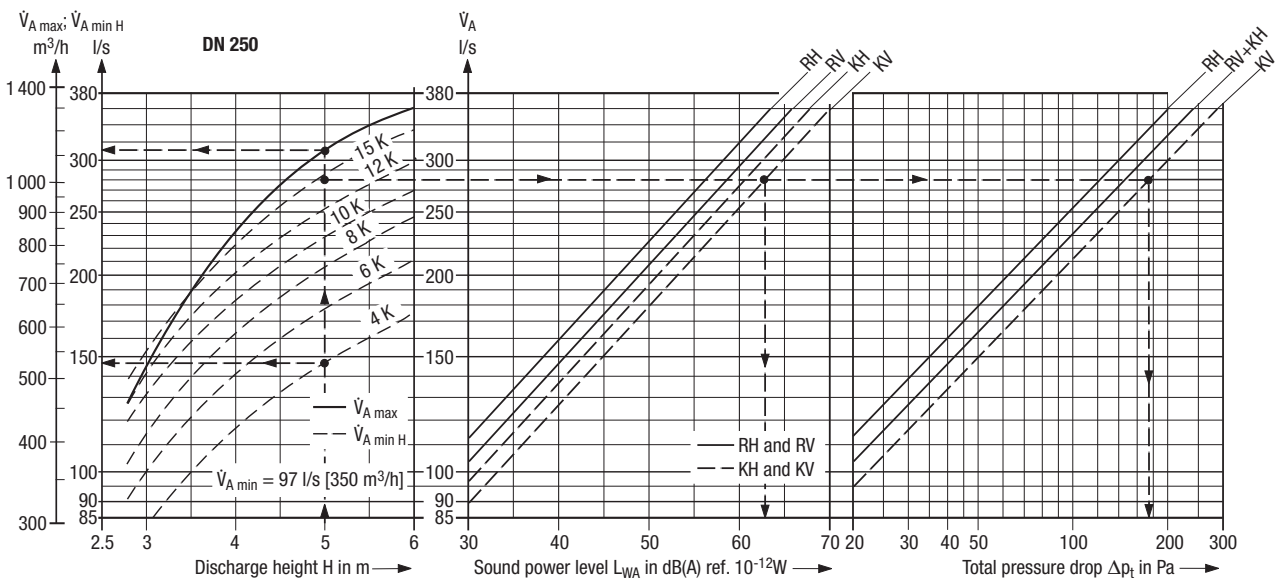
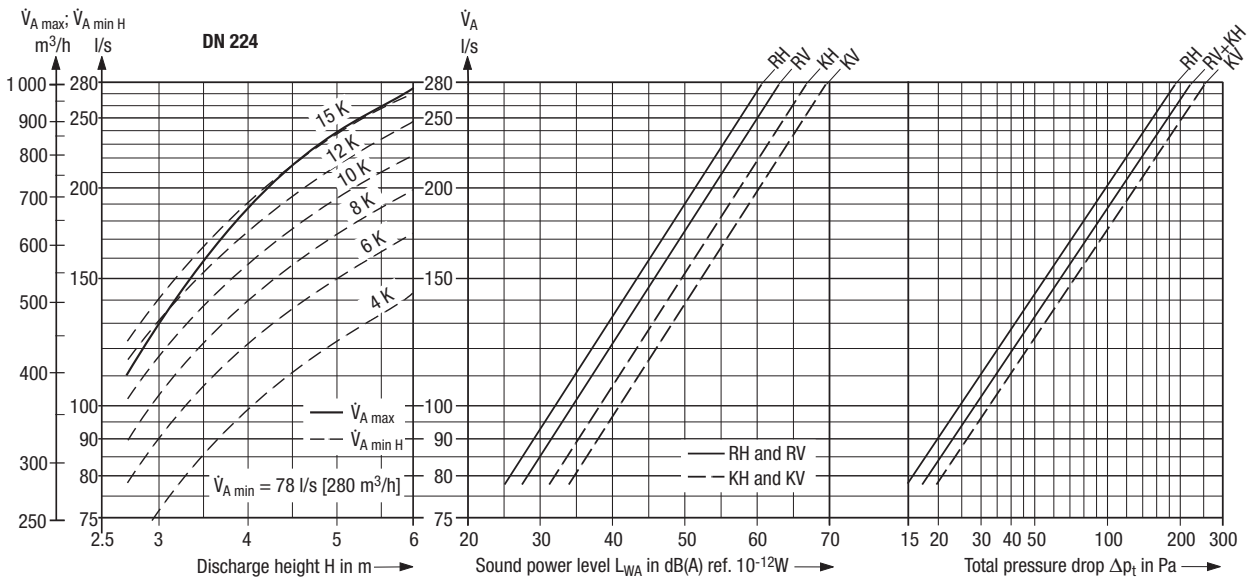
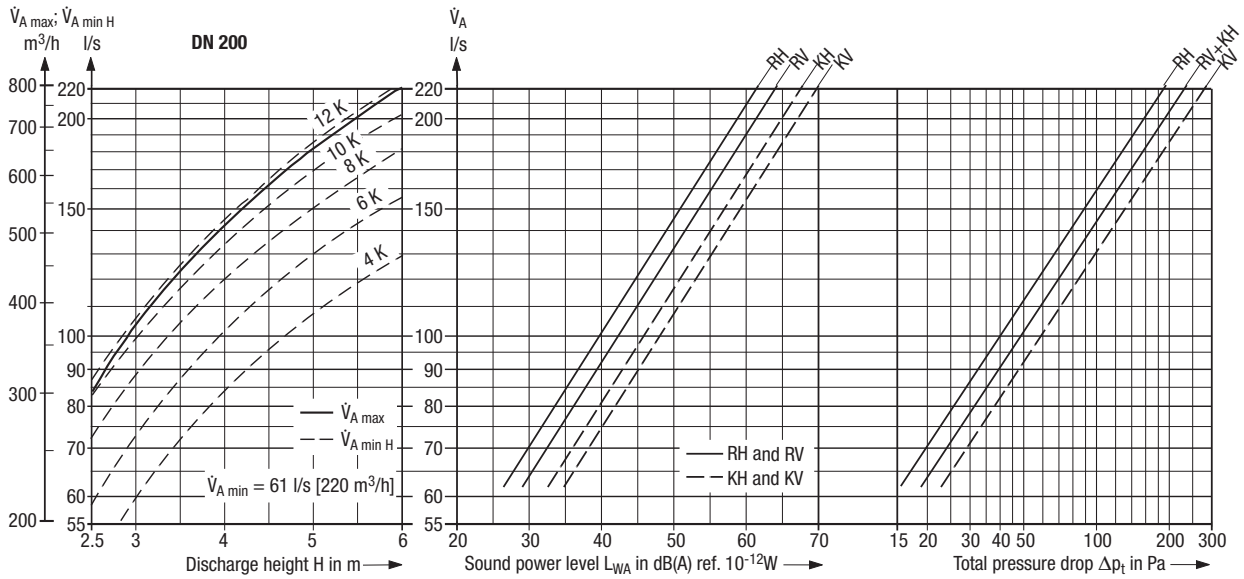
- \dot{V}_A = volume flow rate per air outlet in l/s
- $\dot{V}_{A\ max}$ = max. volume flow rate per air outlet when cooling in l/s
- $\dot{V}_{A\ min}$ = min. volume flow rate per air outlet when cooling in l/s
- $\dot{V}_{A\ min\ H}$ = min. volume flow rate per air outlet in l/s, when heating, with $\Delta\vartheta = \dots K$
- $\dot{V}_{Sp\ max}$ = max. specific volume flow rate per m^2 of floor area in $l/(s \cdot m^2)$
- $\dot{V}_{Sp\ tats}$ = actual specific volume flow rate per m^2 of floor area in $l/(s \cdot m^2)$
- u = max. allowable indoor air velocity in m/s
- \dot{q} = max. specific cooling capacity in W/m^2
- $\Delta\vartheta_{\max}$ = 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
- RV = Duct connection, vertical discharge
- RH = Duct connection, horizontal discharge
- KV = Connection box, vertical discharge
- KH = Connection box, horizontal discharge



Graph 2: Minimum air outlet centre spacing

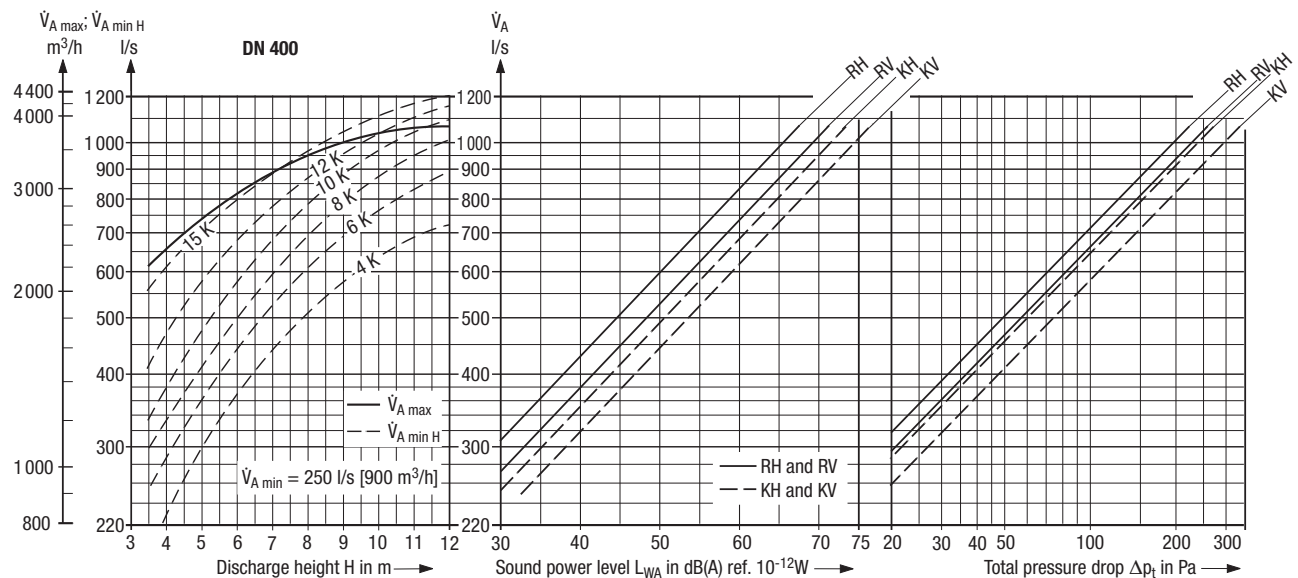
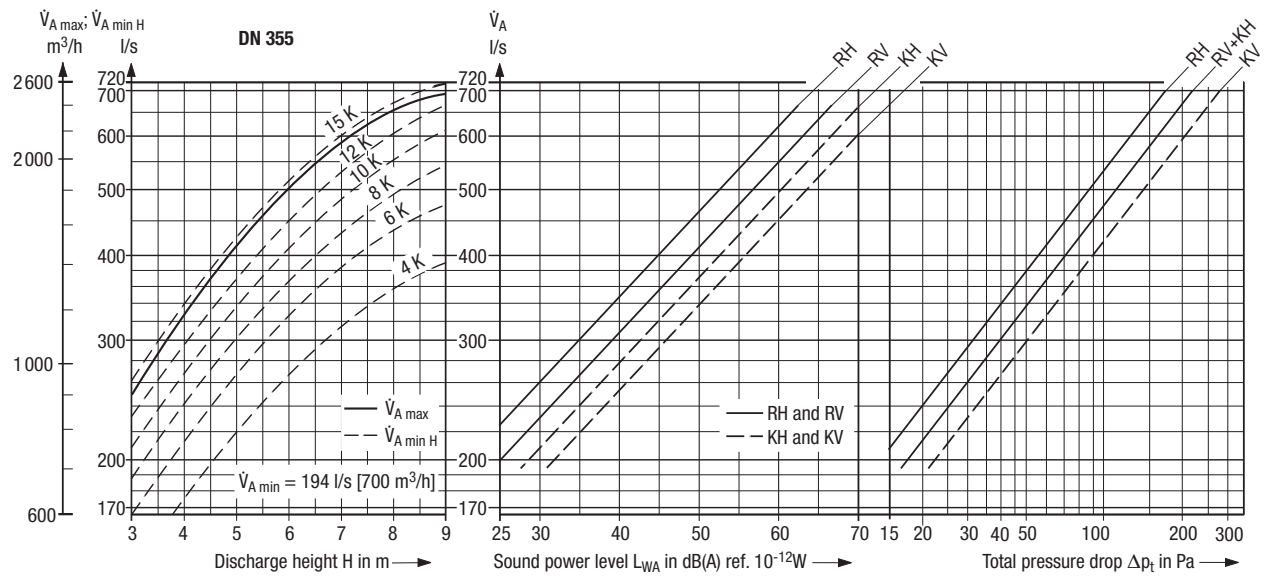
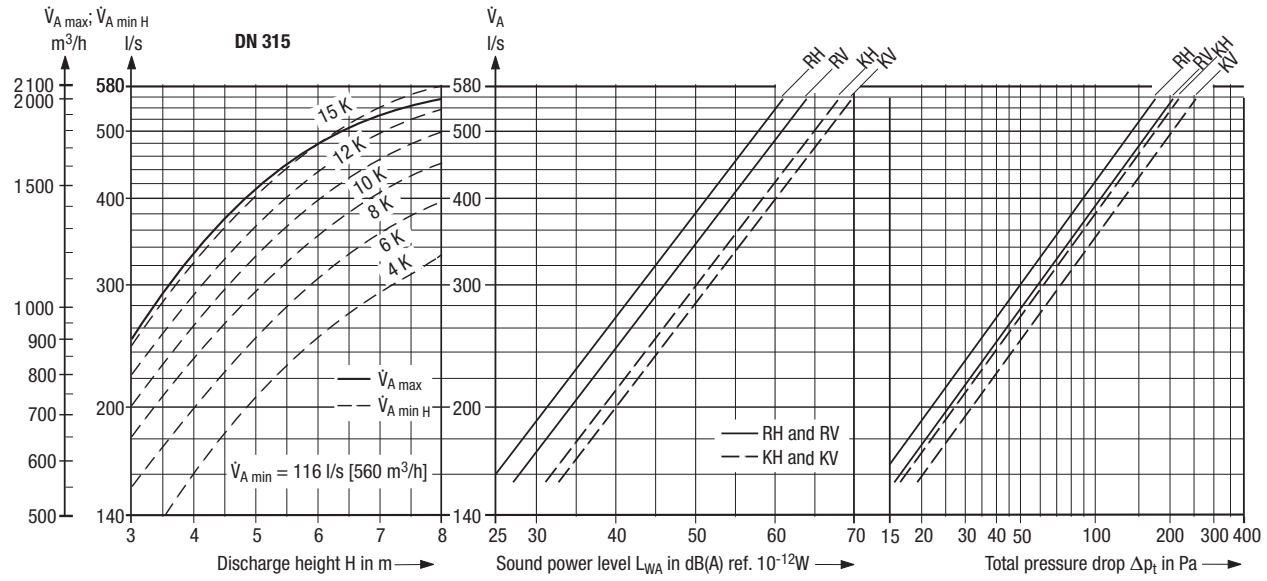
Adjustable radial outlet

Nomograms



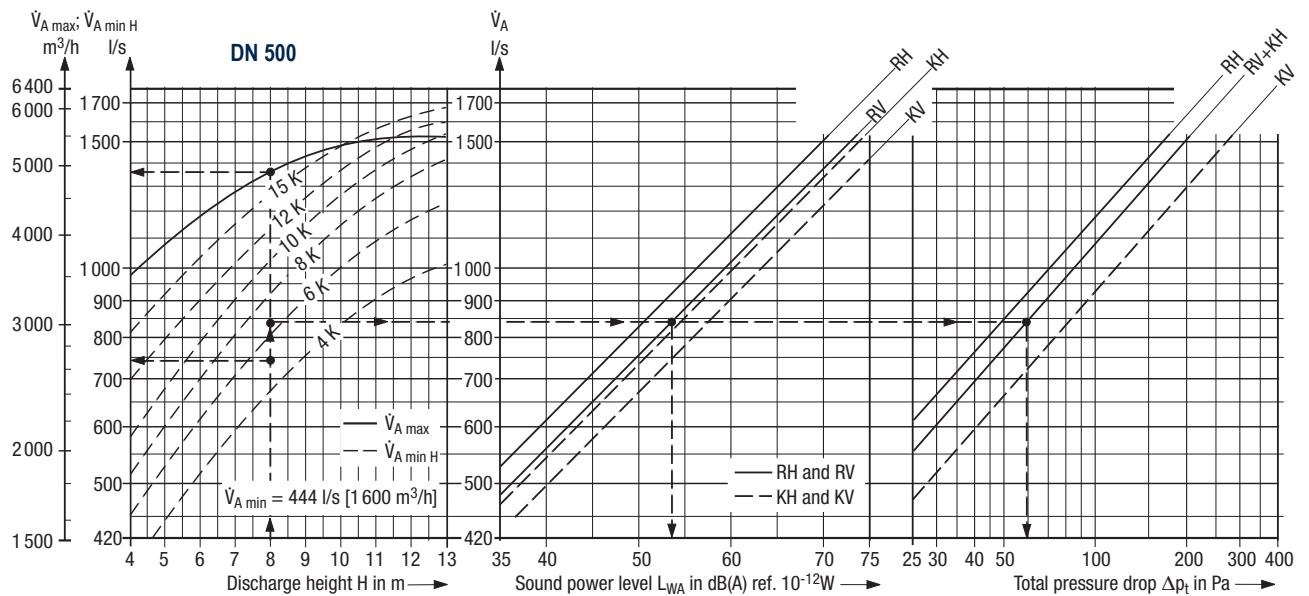
Adjustable radial outlet

Nomograms



Adjustable radial outlet

Nomogram



| Layout example for | | DN 250 | DN 500 |
|---|-------------------------------------|--|---|
| air outlet size: | | Connection box | Duct connection |
| Place of use: | | Shopping mall | Congress centre |
| 1 Supply air volume flow rate \dot{V} | | 5 600 l/s | 13 440 l/s |
| 2 Discharge height H | | 5 m | 8 m |
| 3 Floor area A | | 645 m^2 | 1 600 m^2 |
| 4 Max. allowable sound power level L_{WA} | | 65 dB(A) ref. 10^{-12}W | 55 dB(A) ref. 10^{-12}W |
| 5 Max. temperature difference supply air–return air | | | |
| – $\Delta\vartheta$ when cooling | | –12 K | –8 K |
| – $\Delta\vartheta$ when heating | | +4 K | +5 K |
| 6 Comfort criteria (see page 6) | | | |
| – Max. allowable indoor air velocity u | | Graph 1, p. 6 0.25 m/s | Graph 1, p. 6 0.2 m/s |
| – Max. specific volume flow rate $\dot{V}_{Sp \max}$ | | Graph 1, p. 6 11.6 $\text{l}/(\text{s}\cdot\text{m}^2)$ | Graph 1, p. 6 9.8 $\text{l}/(\text{s}\cdot\text{m}^2)$ |
| – Actual specific volume flow rate $\dot{V}_{Sp \text{ tats}}$ | | [from 1 : 3] 8.7 $\text{l}/(\text{s}\cdot\text{m}^2)$ | [from 1 : 3] 8.4 $\text{l}/(\text{s}\cdot\text{m}^2)$ |
| Criterion is met if $\dot{V}_{Sp \text{ tats}} < \dot{V}_{Sp \max}$ | | | |
| From nomogram | | Page 7, bottom | Page 9, top |
| 7 $\dot{V}_A \max$ | | 311 l/s | 1 333 l/s |
| 8 $\dot{V}_A \min H$ | | 147 l/s | 744 l/s |
| | at $\Delta\vartheta = +4 \text{ K}$ | | $\Delta\vartheta = +5 \text{ K}$ |
| 9 \dot{V}_A selected | | 280 l/s | 840 l/s |
| 10 Z [$\dot{V} : \dot{V}_A$] | | 20 units | 16 units |
| 11 $L_{WA \max}$ | | $\approx 62 \text{ dB(A)}$ ref. 10^{-12}W | 54 dB(A) ref. 10^{-12}W |
| 12 $\Delta p_t \max$ | | $\approx 174 \text{ Pa}$ | 60 Pa |
| 13 t_{\min} [Graph 2 on page 6] | | $\approx 4.9 \text{ m}$ | $\approx 9.3 \text{ m}$ |



Fig. 5: Adjustable radial outlet in the meeting room of a hotel

Adjustable radial outlet

Sound power level and total pressure drop

| Air outlet volume flow rate \dot{V} l/s m ³ /h | | Duct connection | Total pressure drop Δp_t Pa | Sound power level L_W in dB ref. 10 ⁻¹² W | | | | | | | | | | Box connection | Total pressure drop Δp_t Pa | Sound power level L_W in dB ref. 10 ⁻¹² W | | | | | | | | | |
|--|-------|-----------------|---|--|------------------------------------|-----|-----|-----|-----|-----|-----|-----|-------------------|----------------|---|--|-----|-----|-----|-----|-----|-----|-----|----|--|
| | | | | L_{WA} dB(A) | Octave band centre frequency in Hz | | | | | | | | L_{WA} dB(A) | | | Octave band centre frequency in Hz | | | | | | | | | |
| | | | | | 63 | 125 | 250 | 500 | 1 K | 2 K | 4 K | 8 K | | | | 63 | 125 | 250 | 500 | 1 K | 2 K | 4 K | 8 K | | |
| DN 200 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 83 | 300 | RH | 28 | 35 | 37 | 41 | 33 | 33 | 28 | 27 | 19 | — | KH | 33 | 41 | 36 | 47 | 43 | 35 | 36 | 32 | 24 | — | | |
| | | RV | 35 | 37 | 26 | 41 | 35 | 36 | 31 | 29 | 22 | — | KV | 40 | 43 | 33 | 49 | 45 | 38 | 38 | 35 | 27 | 15 | | |
| 153 | 550 | RH | 93 | 51 | 49 | 53 | 50 | 50 | 45 | 43 | 40 | 29 | KH | 112 | 57 | 49 | 61 | 59 | 51 | 52 | 50 | 44 | 33 | | |
| | | RV | 116 | 53 | 39 | 52 | 49 | 51 | 47 | 46 | 44 | 37 | KV | 136 | 59 | 47 | 61 | 59 | 53 | 54 | 52 | 48 | 41 | | |
| 222 | 800 | RH | 196 | 62 | 55 | 61 | 60 | 60 | 55 | 53 | 53 | 48 | KH | 237 | 68 | 57 | 69 | 68 | 62 | 62 | 60 | 57 | 50 | | |
| | | RV | 245 | 64 | 50 | 59 | 58 | 60 | 56 | 56 | 58 | 55 | KV | 287 | 69 | 55 | 68 | 67 | 62 | 63 | 62 | 61 | 58 | | |
| DN 224 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 111 | 400 | RH | 30 | 35 | 37 | 33 | 35 | 34 | 31 | 24 | 15 | — | KH | 35 | 41 | 47 | 44 | 42 | 37 | 36 | 31 | 20 | — | | |
| | | RV | 35 | 38 | 36 | 36 | 38 | 37 | 33 | 28 | 22 | — | KV | 41 | 43 | 45 | 44 | 43 | 40 | 39 | 33 | 26 | 14 | | |
| 194 | 700 | RH | 93 | 50 | 50 | 48 | 50 | 48 | 45 | 42 | 37 | 28 | KH | 106 | 57 | 59 | 58 | 57 | 52 | 52 | 50 | 44 | 35 | | |
| | | RV | 106 | 53 | 49 | 47 | 51 | 50 | 47 | 45 | 43 | 36 | KV | 125 | 59 | 58 | 57 | 57 | 54 | 54 | 52 | 48 | 41 | | |
| 278 | 1 000 | RH | 189 | 61 | 59 | 58 | 59 | 58 | 55 | 53 | 51 | 45 | KH | 217 | 68 | 66 | 67 | 66 | 62 | 62 | 61 | 58 | 52 | | |
| | | RV | 217 | 63 | 57 | 54 | 59 | 59 | 56 | 56 | 56 | 53 | KV | 255 | 70 | 67 | 66 | 65 | 63 | 64 | 64 | 63 | 63 | 58 | |
| DN 250 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 139 | 500 | RH | 30 | 36 | 38 | 33 | 35 | 36 | 31 | 24 | 15 | — | KH | 35 | 41 | 52 | 44 | 42 | 38 | 36 | 31 | 19 | — | | |
| | | RV | 36 | 39 | 33 | 33 | 37 | 38 | 33 | 28 | 22 | — | KV | 43 | 42 | 39 | 45 | 42 | 39 | 38 | 34 | 25 | 11 | | |
| 250 | 900 | RH | 96 | 52 | 55 | 50 | 50 | 51 | 47 | 44 | 39 | 30 | KH | 115 | 57 | 55 | 58 | 56 | 54 | 53 | 50 | 44 | 35 | | |
| | | RV | 117 | 55 | 47 | 48 | 51 | 53 | 49 | 47 | 47 | 39 | KV | 138 | 59 | 55 | 58 | 56 | 54 | 54 | 52 | 49 | 41 | | |
| 361 | 1 300 | RH | 201 | 63 | 66 | 61 | 60 | 61 | 57 | 56 | 54 | 47 | KH | 239 | 69 | 64 | 67 | 65 | 63 | 63 | 62 | 60 | 52 | | |
| | | RV | 244 | 67 | 56 | 56 | 60 | 62 | 58 | 59 | 62 | 58 | KV | 289 | 71 | 66 | 66 | 65 | 64 | 65 | 64 | 65 | 60 | | |
| DN 315 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 278 | 1 000 | RH | 43 | 41 | 46 | 42 | 39 | 39 | 37 | 32 | 24 | 10 | KH | 53 | 48 | 53 | 50 | 48 | 44 | 44 | 39 | 31 | 18 | | |
| | | RV | 50 | 43 | 46 | 43 | 42 | 41 | 39 | 34 | 29 | 14 | KV | 63 | 49 | 52 | 50 | 48 | 46 | 45 | 41 | 36 | 22 | | |
| 417 | 1 500 | RH | 98 | 52 | 57 | 53 | 50 | 49 | 48 | 45 | 40 | 29 | KH | 118 | 60 | 64 | 59 | 59 | 55 | 55 | 52 | 47 | 38 | | |
| | | RV | 113 | 56 | 54 | 51 | 53 | 52 | 50 | 48 | 47 | 37 | KV | 142 | 61 | 62 | 60 | 60 | 57 | 56 | 54 | 52 | 43 | | |
| 556 | 2 000 | RH | 173 | 61 | 65 | 61 | 57 | 56 | 56 | 55 | 51 | 43 | KH | 211 | 69 | 71 | 66 | 66 | 63 | 64 | 62 | 59 | 52 | | |
| | | RV | 201 | 65 | 59 | 57 | 60 | 60 | 58 | 58 | 59 | 53 | KV | 253 | 71 | 69 | 67 | 68 | 64 | 65 | 64 | 63 | 58 | | |
| DN 355 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 333 | 1 200 | RH | 38 | 39 | 40 | 40 | 38 | 38 | 34 | 30 | 27 | 16 | KH | 50 | 47 | 50 | 51 | 45 | 45 | 43 | 38 | 29 | 16 | | |
| | | RV | 48 | 43 | 33 | 42 | 40 | 40 | 38 | 34 | 30 | 23 | KV | 63 | 50 | 49 | 52 | 46 | 46 | 46 | 41 | 35 | 20 | | |
| 500 | 1 800 | RH | 87 | 52 | 54 | 52 | 49 | 50 | 47 | 44 | 40 | 30 | KH | 112 | 60 | 60 | 60 | 55 | 56 | 56 | 54 | 47 | 37 | | |
| | | RV | 109 | 56 | 46 | 51 | 51 | 51 | 50 | 50 | 49 | 39 | KV | 141 | 63 | 57 | 62 | 56 | 57 | 57 | 56 | 55 | 42 | | |
| 667 | 2 400 | RH | 154 | 61 | 63 | 60 | 57 | 57 | 55 | 54 | 50 | 40 | KH | 199 | 70 | 67 | 66 | 63 | 63 | 65 | 66 | 60 | 52 | | |
| | | RV | 193 | 66 | 56 | 58 | 59 | 59 | 58 | 60 | 62 | 50 | KV | 250 | 73 | 63 | 70 | 63 | 64 | 65 | 67 | 69 | 57 | | |
| DN 400 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 444 | 1 600 | RH | 38 | 41 | 42 | 42 | 40 | 40 | 35 | 31 | 23 | 13 | KH | 47 | 47 | 50 | 49 | 45 | 45 | 43 | 38 | 29 | 18 | | |
| | | RV | 45 | 45 | 43 | 44 | 42 | 43 | 40 | 36 | 30 | 15 | KV | 59 | 50 | 50 | 51 | 46 | 47 | 45 | 42 | 37 | 24 | | |
| 667 | 2 400 | RH | 86 | 53 | 56 | 53 | 51 | 51 | 48 | 45 | 40 | 31 | KH | 105 | 59 | 60 | 59 | 56 | 56 | 55 | 52 | 46 | 36 | | |
| | | RV | 102 | 57 | 58 | 54 | 53 | 53 | 51 | 51 | 48 | 37 | KV | 133 | 62 | 61 | 61 | 57 | 58 | 57 | 56 | 53 | 42 | | |
| 889 | 3 200 | RH | 153 | 62 | 66 | 61 | 58 | 59 | 57 | 56 | 52 | 44 | KH | 187 | 68 | 67 | 67 | 64 | 64 | 64 | 62 | 58 | 49 | | |
| | | RV | 181 | 66 | 69 | 61 | 62 | 60 | 59 | 60 | 60 | 52 | KV | 236 | 71 | 68 | 68 | 64 | 65 | 65 | 66 | 64 | 54 | | |
| DN 500 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 556 | 2 000 | RH | 22 | 37 | 44 | 43 | 37 | 35 | 32 | 24 | 14 | — | KH | 27 | 41 | 51 | 47 | 39 | 39 | 36 | 29 | 19 | — | | |
| | | RV | 27 | 40 | 43 | 44 | 38 | 38 | 35 | 30 | 20 | — | KV | 36 | 44 | 52 | 47 | 41 | 41 | 40 | 36 | 26 | 12 | | |
| 833 | 3 000 | RH | 49 | 50 | 55 | 53 | 48 | 47 | 45 | 41 | 33 | 22 | KH | 60 | 54 | 62 | 56 | 51 | 51 | 50 | 45 | 37 | 26 | | |
| | | RV | 61 | 53 | 58 | 54 | 49 | 49 | 48 | 47 | 40 | 28 | KV | 81 | 57 | 62 | 58 | 52 | 52 | 52 | 51 | 44 | 34 | | |
| 1 111 | 4 000 | RH | 87 | 60 | 63 | 60 | 55 | 56 | 54 | 54 | 46 | 37 | KH | 106 | 64 | 69 | 63 | 59 | 60 | 60 | 56 | 50 | 41 | | |
| | | RV | 108 | 63 | 68 | 61 | 56 | 57 | 57 | 59 | 53 | 43 | KV | 144 | 67 | 69 | 65 | 60 | 60 | 61 | 62 | 57 | 50 | | |

RH = Duct connection, horizontal discharge
RV = Duct connection, vertical discharge

KH = Connection box, horizontal discharge
KV = Connection box, vertical discharge

Adjustable radial outlet



Fig. 6: Vertical discharge when heating, discharge from great height



Fig. 7: Adjustable radial outlet in the ceiling of a restaurant, sectional view

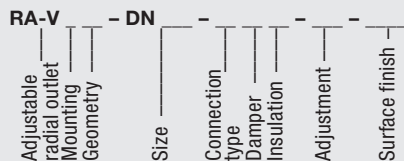
Main features

- Turbulent mixing air flow
- Discharge direction steplessly adjustable from horizontal to vertical (downwards)
- Stable supply air jets, also at minimum volume flow rate
- Discharge heights of 2.5 m to 13 m, depending on nominal diameter and volume flow rate
- Jet penetration depth adaptable to room height and heat load
- Adjustment either manually or with servomotor
- Radial vanes flush with face
- For installation flush with suspended ceilings or free-hanging from the ceiling
- 7 sizes from DN 200 to DN 500
- Volume flow rate range from 61 to 1 530 l/s [220 to 5 500 m³/h]
- Max. temperature difference supply air–indoor air: –12 K when cooling, +15 K when heating
- Radial outlet easily removable from the bottom
- Connection either to a circular duct to EN 1506 or to the rectangular air duct via a spigot, or to a connection box with connection spigot; connection box optionally available with acoustic lining
- \dot{V} damper optionally available for type with connection box, adjustable from room
- Spigot of connection box either smooth or with lip seal (on request)
- Available as standard with circular or square face
- Radial outlet made of painted sheet metal; connection box made of galvanized sheet metal

Adjustable radial outlet

Type code and tender text

Type code



Mounting

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

Geometry

- RS = round face
- Q1 = square face for square tile ceiling 600 mm x 600 mm ¹⁾
- Q2 = square face for square tile ceiling 625 mm x 625 mm ¹⁾

Size

- 200 = DN 200 355 = DN 355
- 224 = DN 224 400 = DN 400
- 250 = DN 250 500 = DN 500
- 315 = DN 315

Connection type

- O = no connection piece (only discharge element)
- R = duct connection with rivet or screw connection
- T = duct connection with central fastening screw and cross bar
- K = connection box

Damper

- O = no volume flow damper
- R = with volume flow damper adjustable from room

Insulation

- O = without acoustic lining
- I = with acoustic lining

Adjustment

| | DN 200 – DN 400 | DN 500 |
|--|-----------------|--------|
| MA = manual | • | • |
| E1 = „Siemens servomotor, 0 – 10 V modulation“, rotation drive type GDB161.1E | • | |
| E2 = „Siemens servomotor, 3-point type, 24 V“, rotation drive type GDB131.1E | • | |
| E3 = „Siemens servomotor, 3-point type, 230 V“, rotation drive type GDB331.1E | • | |
| E4 = „Belimo servomotor, 0 – 10 V modulation“, rotation drive type LM24A-SR | • | |
| E5 = „Belimo servomotor, 3-point type, 24 V“, rotation drive type LM24A | • | |
| E6 = „Belimo servomotor, 3-point type, 230 V“, rotation drive type LM230A | • | |
| E7 = „Belimo servomotor, 0 – 10 V modulation“, rotation drive type NM24A-SR | | • |
| E8 = „Belimo servomotor, 3-point drive, 24 V“, rotation drive type NM24A | | • |
| E9 = „Belimo servomotor, 3-point drive, 230 V“, rotation drive type NM230A | | • |
| E13 = „Siemens servomotor, 0 – 10 V modulation“, rotation drive type GLB161.1E | | • |
| E14 = „Siemens servomotor, 3-point type, 24 V“, rotation drive type GLB131.1E | | • |
| E15 = „Siemens servomotor, 3-point type, 230 V“, rotation drive type GLB331.1E | | • |

Surface finish

- 9010 = face painted to RAL 9010, semi-matt
- = face painted to RAL

Tender text

..... units

Adjustable radial outlet for air distribution at large discharge heights and generation of high-quality indoor air flow with high-induction radial air jets, discharge direction steplessly adjustable from horizontal to vertical (downwards),

consisting of:

- low outlet element with circular casing, moulded face and radial vanes – vane underside flush with surrounding face –, either with circular face for flush mounting or with square face with turn-up for installation in square tile ceiling, vertically mobile guide ring for adjustment of discharge direction from nearly horizontal to vertical, manually or by electric servomotor, disc with central fastening screw;
- optionally designed for connection to the duct system, directly to a circular duct or via a spigot; fastening either with surrounding riveting or screwing (by others) or with central fastening screw for crossbeam ²⁾ to be provided with the radial outlet.

- optional flat connection box with lateral spigot, bottom sleeve to accommodate the radial outlet, and internal crossbeam for central fastening of outlet, including bores in upper box flanges, for suspension, optionally fitted with:

- volume flow damper adjustable from room,
- acoustic lining.

Mounting flush with ceiling or freely suspended.

Material:

- Radial outlet element made of galvanized sheet metal, visible air outlet parts painted to RAL
- Connection box made of galvanized sheet metal.

Make: KRANTZ KOMPONENTEN
 Type: RA-V __ - DN __ - - - - -

Subject to technical alterations.

¹⁾ Square face only up to DN 400

²⁾ Best used for placement of radial outlets in false ceilings

Krantz GmbH

Uersfeld 24, 52072 Aachen, Germany
 Phone: +49 241 441-1
 Fax: +49 241 441-555
 info@krantz.de | www.krantz.de

