

Krantz

Adjustable floor outlet BA-V....

Air distribution systems

Krantz

Adjustable floor outlet

Construction design

Preliminary remarks

The adjustable floor outlet is a further development of the tried and tested floor twist outlet for commercial rooms from Krantz. A built-in adjustment device enables it to be used as a floor twist outlet with high-turbulence vertical flow or as a floor displacement outlet with low-turbulence, circular, horizontal supply air dispersion. Patent rights have been issued.

Construction design and function

The adjustable floor outlet consists of the circular discharge element **1** with 12 outer discharge slots **1a**, 6 inner discharge slots **1b** and an adjustment disk **1c**.

When the adjustment disk is in upper position, the inner slots are closed. The air outlet operates as a **floor twist outlet**. The supply air flows solely through the outer slots (Figure 1, above). A vertical upflow with single twisted, high-turbulence jets is formed with a good induction effect. This results in a turbulent mixing air flow with rapid velocity reduction and fast equalization of supply air temperature and indoor air temperature.

If the adjustment disk is in the lower position, the supply air is discharged through the inner and outer slots. The air outlet operates as a **floor displacement outlet**. The special shape of the discharge slots deflects the air jets, which slide along the floor (Figure 1, below). The result is a low-turbulence, horizontal, radial supply air flow at low velocity.

It is easy to switch locally by hand from floor twist outlet operation to floor displacement outlet operation. Due to the jet pattern of both modes of operation maximum indoor air velocities at the seats are well below the permissible levels to EN ISO 7730.

The adjustable floor twist outlet accessory is the distributor basket **2** for even air supply. There are two types to choose from:

- Standard distributor basket with optional throttle device for reduction of air outlet volume flow rates.
- Short distributor basket, best for low raised floors, without throttle device.

The adjustable floor twist outlet is inserted in the stepped bore of conventional raised floor systems. A clamp insert is available for installation in the through bore. This can be fastened with a clamp nut **5a** or claw fastener **5b** to the floor tile ¹⁾.

Air is supplied either directly from the cavity floor or via a connection box with flexible tubing.

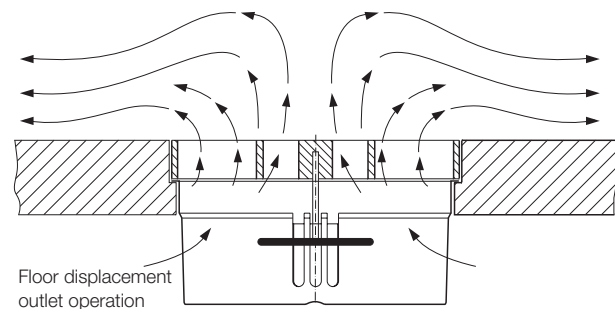
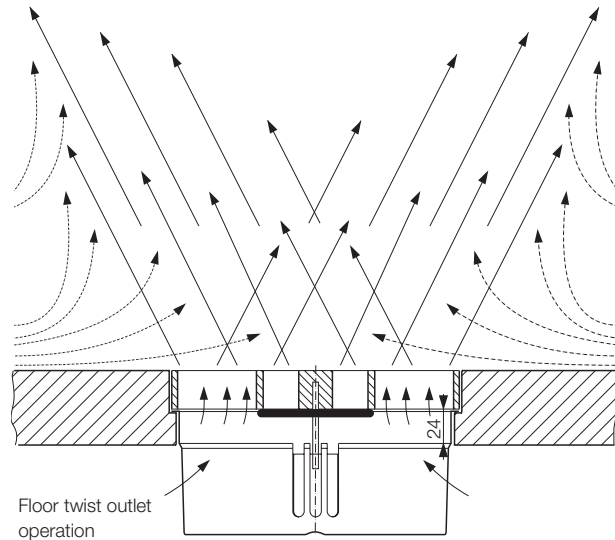
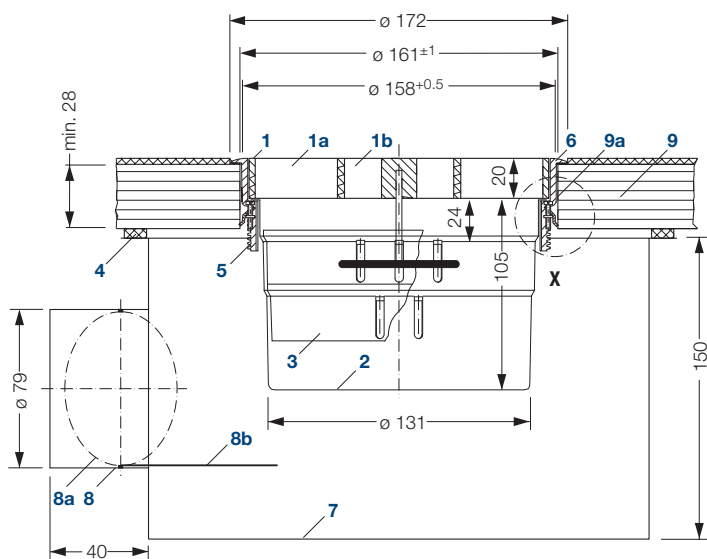


Figure 1: Jet pattern in different modes of operation; air outlet in the stepped bore of a floor tile, shown with short distributor basket

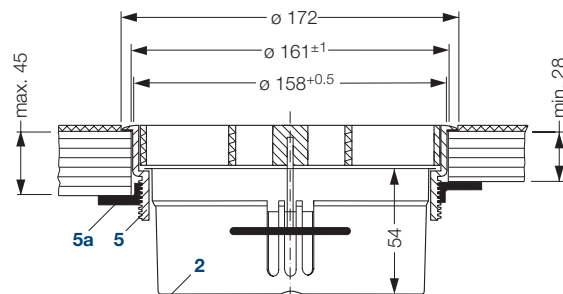
¹⁾ For the required air outlet type (kind, material, etc.) or possible combination of individual components see table 3 on page 5, "Types available"

Adjustable floor outlet

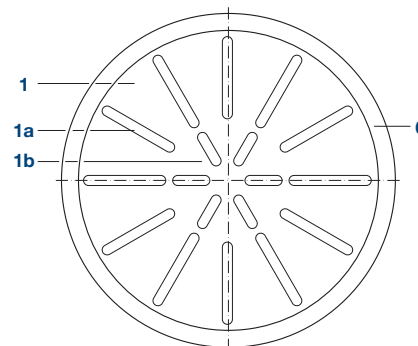
Installation options and dimensions



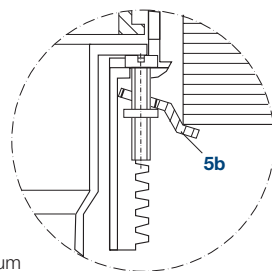
with clamp insert and claw fastener, VSD distributor basket



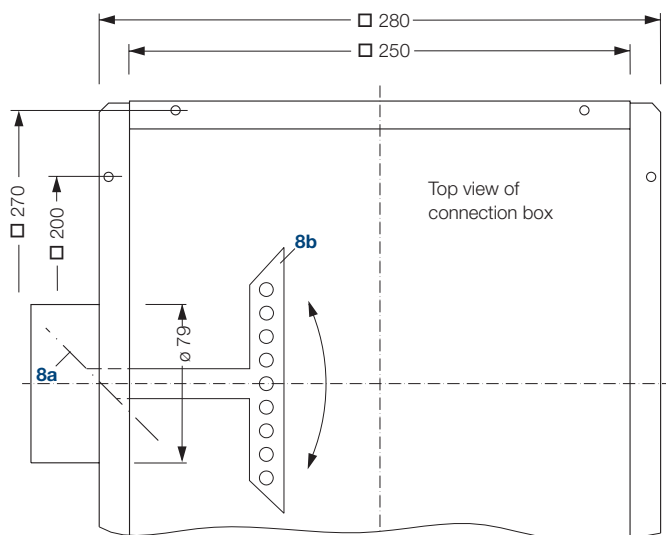
with clamp insert and clamp nut, VK distributor basket



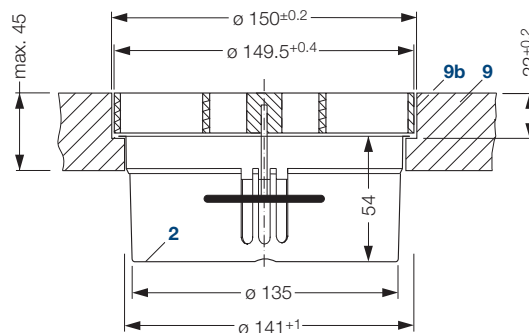
Top view of installation with clamp insert



Detail X
with minimum
tile thickness



Top view of
connection box



Installation in through bore, VK distributor basket



Top view of installation with stepped bore

- Key:**
- | | | |
|-----------------------------|----------------------------|---|
| 1 Air outlet element | 4 Sealing (on site) | 8a Volume flow damper (optional) |
| 1a Air slots | 5 Clamp insert | 8b Slide ¹⁾ |
| 1b Air outlet centre | 5a Clamp nut | |
| 1c Adjustment disk | 5b Claw fastener | |
| 2 Distributor basket | 6 Protective collar | 9 Floor tile |
| 3 Throttle device | 7 Connection box | 9a Through bore |
| | 8 Connection spigot | 9b Stepped bore |

¹⁾ The slide **8b** of the volume flow damper is adjustable from the room

Adjustable floor outlet

Sound power level and pressure drop ¹⁾

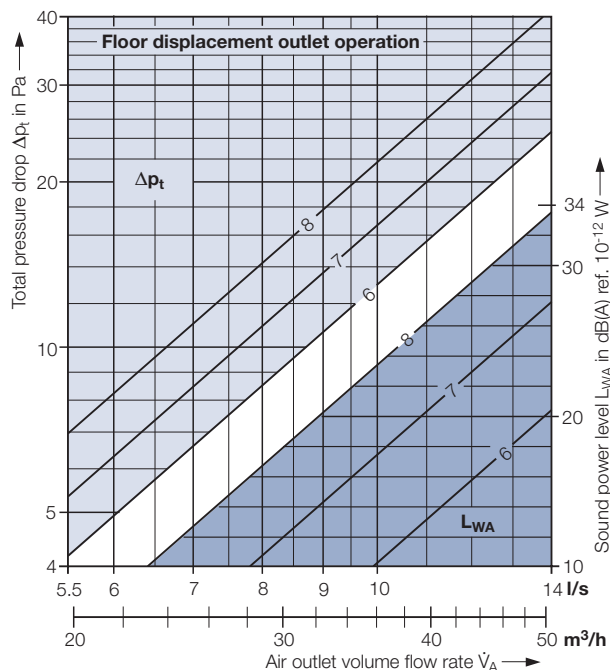
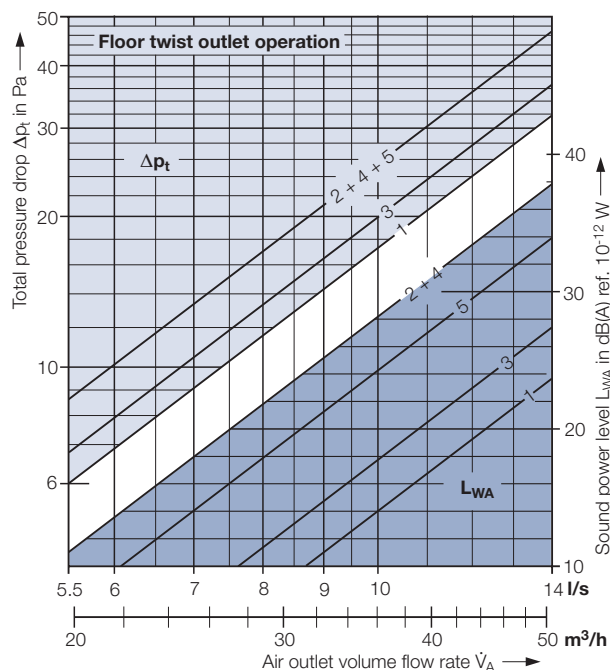
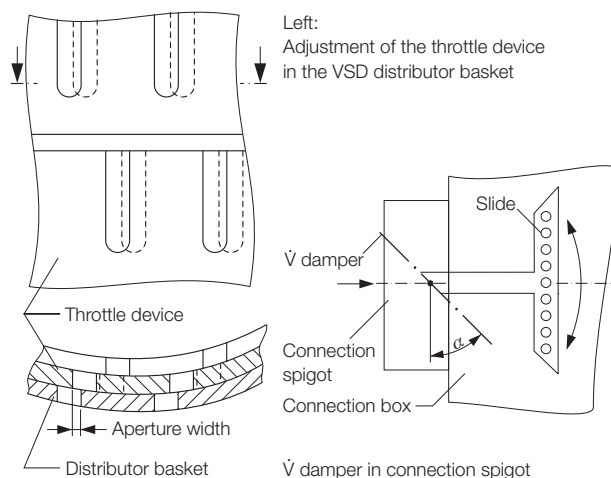


Table 1: Key to graphs

No.	Size	Distributor basket			Volume flow damper in connection spigot Damper angle α
		Type	Throttle device ²⁾ % open	Aperture width mm	
Operation as floor twist outlet					
1	DN 150	VSD	100	5.0	— ³⁾
2			50	2.5	— ³⁾
3			100	5.0	90° open
4			50	2.5	90° open
5			100	5.0	45°
Operation as floor displacement outlet					
6	DN 150	VSD	100	5.0	— ³⁾
7			100	5.0	90° open
8			100	5.0	45°



¹⁾ The sound power level and pressure drop pertain to the use of the VSD distributor basket. Pressure drop and sound power level for the VK distributor basket are approximately the same or remain within the permissible measuring tolerance
²⁾ The throttle device in the VSD distributor basket enables continuous reduction of air volume rate, preferably up to 50% as well as full shutoff
³⁾ Without connection box

No.	Air outlet volume flow rate \dot{V}_A		Total pressure drop Δp_t Pa	Sound power level L_{WA} in dB ref. 10^{-12} W							
	l/s	m ³ /h		L_{WA} dB(A)	Octave band centre frequency in Hz						
				63	125	250	500	1 K	2 K	4 K	
Operation as floor twist outlet											
1	8	30	12	9	19	15	11	—	—	—	—
	11	40	20	17	27	23	19	14	12	—	—
	14	50	31	23	33	29	25	20	18	10	—
2	8	30	18	23	19	16	19	17	22	—	—
	11	40	31	31	27	24	27	25	30	12	—
	14	50	46	37	33	30	33	31	36	18	—
3	8	30	14	13	24	17	17	11	—	—	—
	11	40	24	21	32	25	25	19	15	—	—
	14	50	36	27	38	31	31	25	21	12	—
4	8	30	18	23	22	19	23	18	21	—	—
	11	40	31	31	30	27	31	26	29	14	—
	14	50	46	37	36	33	37	32	35	20	—
5	8	30	18	19	25	22	22	16	15	—	—
	11	40	31	27	33	30	30	24	23	10	—
	14	50	46	33	39	36	36	30	29	16	—
Operation as floor displacement outlet											
6	8	30	9	6	20	13	10	—	—	—	—
	11	40	16	13	27	20	17	—	—	—	—
	14	50	24	20	34	27	24	16	13	—	—
7	8	30	12	12	17	17	17	—	—	—	—
	11	40	20	21	26	26	26	18	15	—	—
	14	50	31	27	32	32	32	24	21	—	—
8	8	30	15	18	21	22	21	15	14	—	—
	11	40	26	26	29	30	29	23	22	—	—
	14	50	40	33	36	37	36	30	29	14	—

Size	Insertion loss in dB								Mean value	
	Octave band centre frequency in Hz									
	63	125	250	500	1 K	2 K	4 K	8 K		
Operation as floor twist outlet										
DN 150	7	1	0	2	3	7	9	8	5	
DN 150	1	6	2	5	2	7	8	7	5	
Operation as floor displacement outlet										
DN 150	7	1	1	1	3	8	8	8	5	
DN 150	2	5	2	5	3	6	9	7	5	

□ Without connection box ▒ With connection box

Adjustable floor outlet

Data, types available, features

Table 2: Technical data

General	
Air volume flow rate:	5.5 – 14 l/s [20 – 50 m ³ /h]
Nominal diameter:	DN 150
Min. seat spacing:	1 m
Breaking load air outlet ¹⁾ :	7.5 kN
Mode of operation as	
– Floor twist outlet	
Max. temperature difference supply air–return air:	±10 K
Min. air outlet centre spacing:	approx. 0.3 m
Supply air temperature:	18 – 30 °C
– Floor displacement outlet	
Max. temperature difference	
Supply air–indoor air (at a height of 1.2 m):	–1 K to –4 K
Supply air temperature:	≥ 20 °C
Coverage radius:	4 – 5 m

Table 3: Types available

Adjustable floor outlet	Material ²⁾	
	PC	St
Component		
Air outlet element DN 150	•	
For installation in through bore:		
Lamp insert		
– with clamp collar SR	4)	
– with claw fastener SK	•	
– with clamp nut SM	•	
For installation in through bore and stepped bore:		
Distributor basket		
– Standard type VS	•	
– with throttle device VSD	•	
– Short type VK	•	
Connection box		
– without volume flow damper in connection spigot		•
– with volume flow damper in connection spigot ³⁾		•

• available

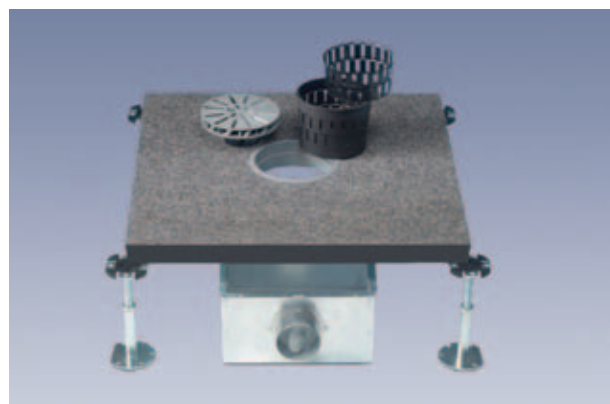


Figure 2: Adjustable floor outlet, installation example with clamp insert in floor tile, VSD distributor basket and connection box

Features

- Suitable for turbulent mixing air flow and displacement ventilation, respective jet pattern locally manual adjustable
- Installation in conventional raised floor systems
- Air supply direct from the pressurized plenum or via connection box with flexible tubing
- Stable jet pattern at volume flow rate of 5.5 to 14 l/s [20 bis 50 m³/h]
- Can be used as a floor twist outlet for temperature differences between supply air and return air of up to ± 10 K and as a floor displacement outlet for temperature differences between supply air and indoor air of –1 to –4 K
- Low sound power level
- Min. distance between air outlet and seat approx. 1 m
- Floor installation by insertion in a stepped bore or installation with a clamp insert in a through bore of floor tile
- Fastening of clamp insert to floor tile either with claw fastener or clamp nut
- Different distributor baskets available
- Air outlet element, clamp insert and distributor baskets made of polycarbonate, connection box made of galvanized sheet metal
- Can be walked over, driven over and can support a wheelchair

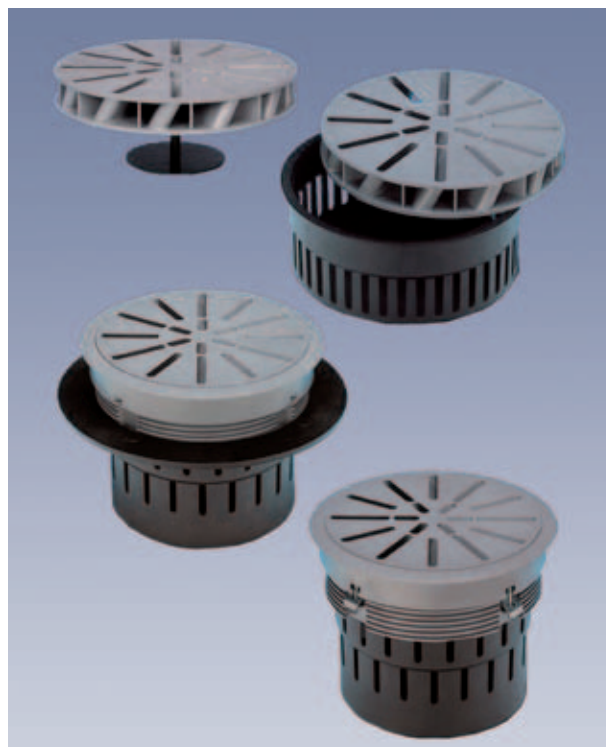


Figure 3: Adjustable floor outlet with:

- Adjustment disk in floor displacement outlet position (above left)
- Short distributor basket VK (above right)
- Standard distributor basket VSD and clamp insert with clamp nut SM (below left) and claw fastener SK (below right)

¹⁾ Load category to EN 13264: 'heavy'; point load applied centrally with a steel cube with 25 mm edge length and 2 mm corner radius

²⁾ PC = polycarbonate; St = galvanized sheet metal

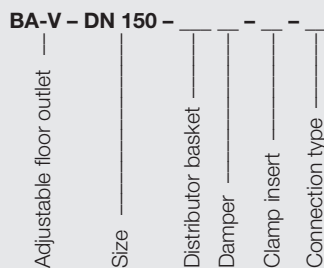
³⁾ Volume flow damper unnecessary for distributor basket with throttle device

⁴⁾ On request

Adjustable floor outlet

Tender text

Type code



Distributor basket

- VS = standard type
- VK = short type

Damper

- O = no volume flow damper
- D = with throttle device

Clamp insert

- SO = no clamp insert
- SM = clamp nut
- SK = claw fastener

Connection type

- P = floor plenum
- K = connection box

Tender text 1)

..... unit

Adjustable floor outlet, suitable as floor twist outlet for generating high-turbulence vertical flow or as a floor displacement outlet for low-turbulence, radial horizontal flow, installed in conventional raised floor systems, Air outlet can be walked over, driven over and can support a wheelchair

consisting of:

- Discharge element with radial discharge slots and built-in adjustment device for mode selection from floor twist outlet to floor displacement outlet operation and vice versa, structured surface,
- optional “Standard distributor basket” with surrounding slots in basket casing, optional including throttle device or „Short distributor basket” with surrounding slots in basket casing, best for low raised floors; without throttle device,
- Clamp insert for installation in through bore of floor tile, optional with clamp nut or with claw fastener,
- Connection box for direct connection of air outlet unit to a flexible tube, optional with V damper, adjustable from room.

Material:

- Air outlet element made of polycarbonate, colour of visible air outlet parts coloured similar to RAL 7037, dust grey ²⁾
- Clamp insert made of polycarbonate, colour of visible air outlet parts coloured similar to RAL 7037, dust grey ²⁾
- Distributor basket made of polycarbonate
- Connection box made of galvanized sheet metal

Make:

Krantz

Type:

BA-V – DN 150 – _ _ – _ – _

Subject to technical alterations.

¹⁾ For the required air outlet type (kind, material, etc.) or possible combination of individual components see [table on page 5](#), “Types available”

²⁾ other colours on request



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