

**Puri-Drall PDK....**  
**Puri-Clean PCK....**  
**Puri-Inlet PEK....**

HEPA filter air outlet with pull-down outlet element

# Puri-Drall / Puri-Clean / Puri-Inlet

## HEPA filter air outlet

### Preliminary remarks

As a rule, turbulent mixing ventilation is used in cleanrooms to comply with air cleanliness levels of classes 6 to 8 to EN ISO 14644-1 and grade C and D to EU GMP. With this type of ventilation, the clean supply air is mixed with the room air by induction as intensively as possible in order to dilute the pollutants emitted in the room. The more uniform the dilution process, the higher the air cleanliness level.

Cleanrooms basically require air outlets whose induction effect brings about a good mixing of the supply air with the room air.

Based on a modular design, KRANTZ KOMponenten uses the tried and tested HEPA filter air outlets for supply air and exhaust air. This means, a standard filter housing for the volume flow rate range from 69 to 236 l/s [250 to 850 m³/h] is used. The filter housing can be combined with different air outlets and inlets that are designed as pull-down elements. Having a volume flow rate of 222 to 389 l/s [800 to 1 400 m³/h], a separate filter housing is available upon request.

### Application

Fields of application for the HEPA filter air outlets are all branches of industry, research and medicine as well as hospital areas where air cleanliness is demanded according to the above-mentioned levels.

### Construction design and function

Essentially the HEPA filter air outlet consists of the connection housing, the filter housing, the built-in HEPA filter and the pull-down outlet element. The pull-down air outlet element is available in three designs.

#### Puri-Drall PDK for supply air

The air outlet Puri-Drall consists of a twist outlet with twelve vanes in stellate arrangement. The vane underside is flush with the surrounding air outlet face. As a result, a radial horizontal dispersion of supply air is achieved.

#### Puri-Clean PCK for supply air

As a standard the Puri-Clean air outlet has round perforation and a diagonal pitch. The perforated faceplate causes the supply air to flow out horizontally in a radial and uniform pattern. This supply air flow forms an air cushion below the perforated faceplate which prevents the induced room air from touching the face of the air outlet. Thus, the accumulation of dirty air laden with released particles on the ceiling is made nearly impossible.

#### Puri-Inlet PEK for exhaust air

The air inlet element consists of a perforated faceplate and is optimized for the use as exhaust air inlet.

### Materials and designs

Connection housing made of galvanized sheet metal.

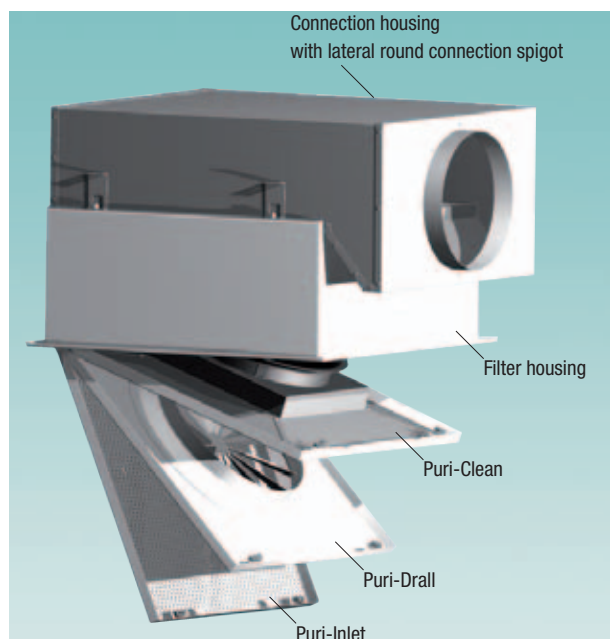
Filter housing and sealing frame made of galvanized sheet metal, coated on both sides with disinfectant-proof epoxy polyester resin, coloured to RAL 9010 (pure white) or as required.

HEPA filter cell class H13 or H14 (EN 1822-1), filter cell frame made of aluminium.

Contact pressure fixture made of galvanized sheet metal.

Air distribution element made of galvanized sheet metal, powder-coated to RAL 9005 (jet black, matt); finish with disinfectant-proof epoxy polyester resin.

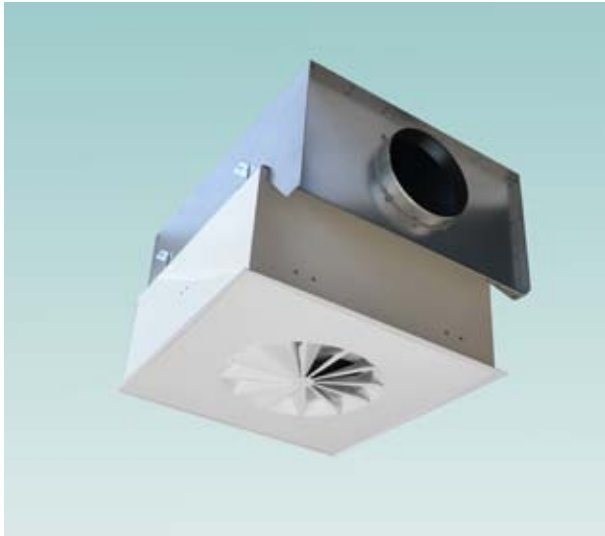
Air outlets made of galvanized sheet metal; coated with disinfectant-proof epoxy polyester resin, coloured to RAL 9010 (pure white) or another RAL colour to be stated by the client.



Design of the modular HEPA filter air outlet, shown with the three variants of the pull-down element

# Puri-Drill / Puri-Clean / Puri-Inlet

## HEPA filter air outlet



Puri-Drill with lateral round connection spigot



Puri-Drill with lateral rectangular connection spigot



Puri-Clean or Puri-Inlet with lateral round connection spigot



Puri-Clean or Puri-Inlet with lateral rectangular connection spigot



Air flow pattern of the PDK and PCK

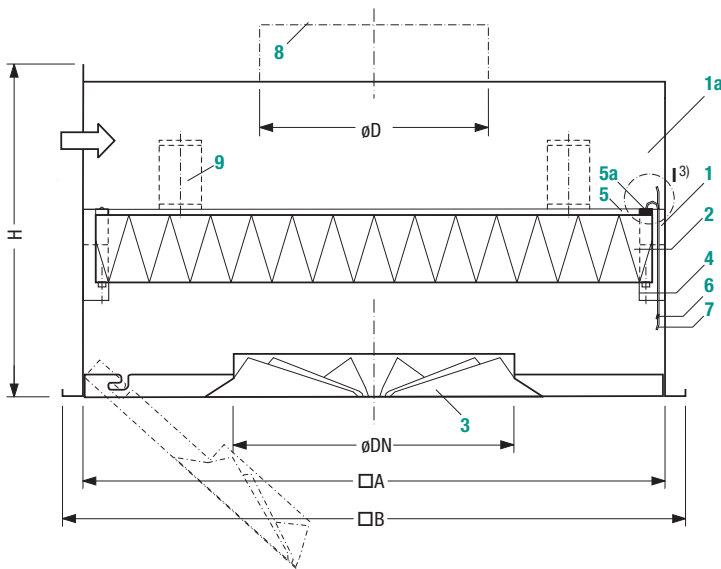


Connection housing with round connection spigot on top

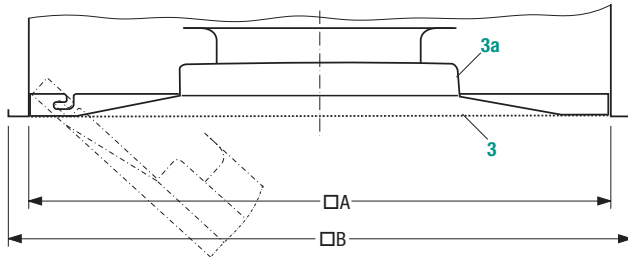
# Puri-Drall / Puri-Clean / Puri-Inlet

## HEPA filter air outlet

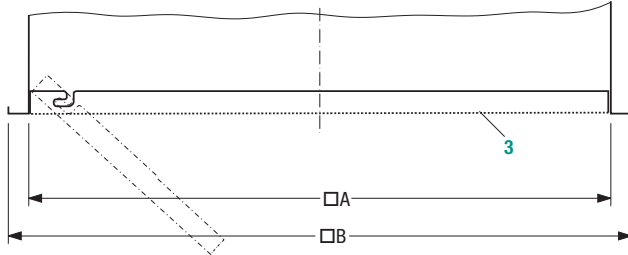
Puri-Drall PDK with dry seal and test groove



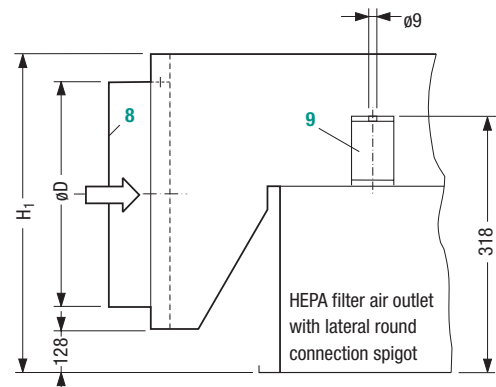
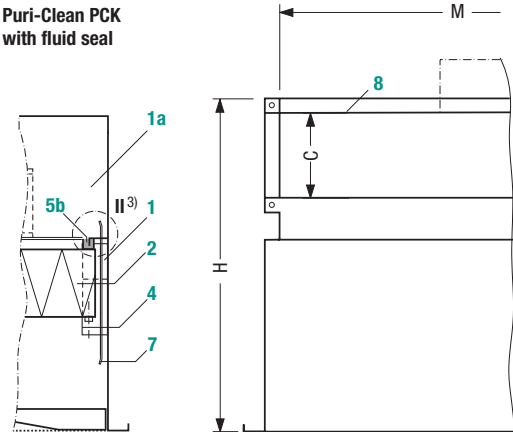
Puri-Clean PCK



Puri-Inlet PEK



Puri-Clean PCK with fluid seal



### Key:

- |    |                          |    |                         |
|----|--------------------------|----|-------------------------|
| 1  | Filter housing           | 5  | Sealing frame           |
| 1a | Connection housing       | 5a | Test groove             |
| 2  | HEPA filter cell         | 5b | Immersion edge          |
| 2a | Dry seal                 | 6  | Leakage test point      |
| 2b | Fluid seal               | 7  | Pressure gauge point    |
| 3  | Air outlet               | 8  | Connection spigot       |
| 3a | Air distribution element |    | (either lateral or top) |
| 4  | Contact pressure fixture | 9  | L-fastener for ceiling  |
|    | (releasable)             |    | suspension              |

Type	Volume flow rate range						HEPA filter cell		Twist outlet DN	Air discharge element 3a DN	Dimensions							Weight G kg
		$\dot{V}_A \text{ max}$ l/s	$\dot{V}_A \text{ max}$ m <sup>3</sup> /h	$\dot{V}_A \text{ min}$ l/s	$\dot{V}_A \text{ min}$ m <sup>3</sup> /h	$\dot{V}_{\text{nenn}}$ l/s	$\dot{V}_{\text{nenn}}$ m <sup>3</sup> /h	L · W · H mm			A mm	B mm	H mm	H <sub>1</sub> mm	Ø D mm	C mm	M mm	
PDK	V1 <sup>2)</sup>	125	450	69	250	111	400	545 · 545 · 66	250	—	570	623	391	432	249	80	540	21
PCK									—	200								
PEK									—	—								
PDK	V2 <sup>2)</sup>	201	600	83	300	139	500	545 · 545 · 66	315	—								
PCK									—	250								
PEK									—	—								
PDK	V3 <sup>2)</sup>	194	700	83	300	167	600	545 · 545 · 90	315	—								
PCK									—	250								
PDK									—	—								
PDK	V4 <sup>2)</sup>	236	850	89	320	194	700	545 · 545 · 90	400	—								
PCK									—	280								
PEK									—	—								
PCK <sup>1)</sup>	V5	389	1 400	222	800	333	1 200	1 170 · 545 · 90	—	450 · 224	1 195 · 570	1 250 · 623	391	432	249	80	500	40

<sup>1)</sup> Air outlet, special size, rectangular design only with perforated metal sheet and air distribution element, air connection round or rectangular

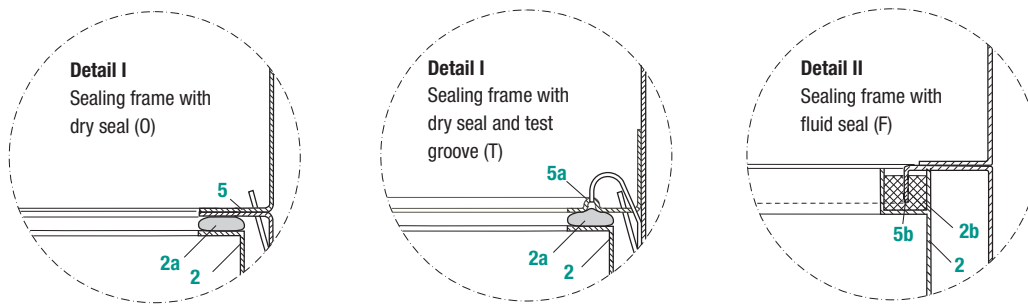
<sup>2)</sup> Design with dry seal without test groove, immediately available (in stock)

<sup>3)</sup> Details see page 5

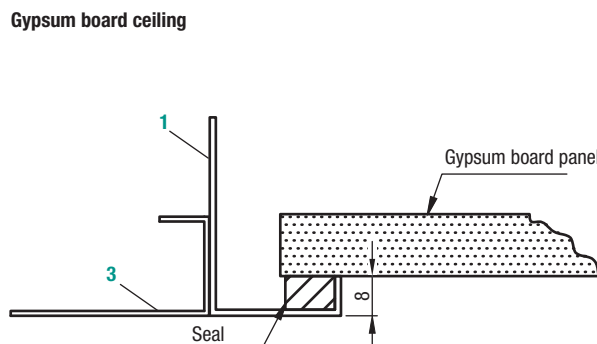
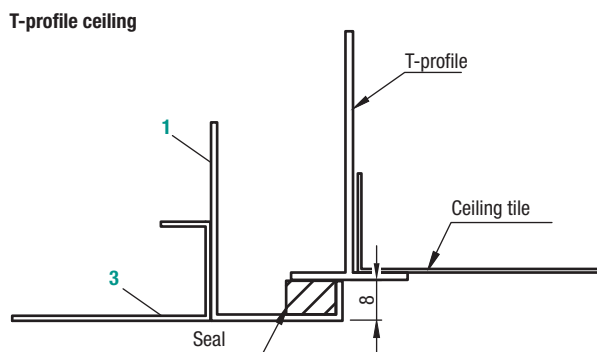
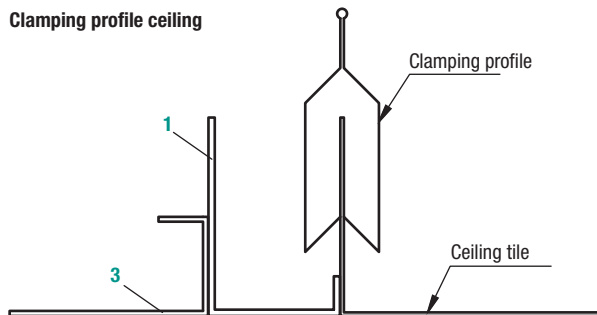
# Puri-Drill / Puri-Clean / Puri-Inlet

## HEPA filter air outlet

Details to page 4



## Installation options for various ceiling systems



## Available designs

		Volume flow rate range			
		V1 <sup>2)</sup>	V2 <sup>2)</sup>	V3 <sup>2)</sup>	V4 <sup>2)</sup>
	l/s	69 – 125	83 – 166	83 – 194	89 – 236
	m <sup>3</sup> /h	250 – 450	300 – 600	300 – 700	320 – 850
Connection box					
– Round connection, lateral		•	•	•	•
– Rectangular connection, lateral		•	•	•	•
– Round connection, on top		•	•	•	•
Filter housing					
– Dry seal without test groove <sup>2)</sup>		•	•	•	•
– Dry seal with test groove		•	•	•	•
– Fluid seal		•	•	•	•
Air outlet (PDK)					
– DN 250		•			
– DN 315			•	•	
– DN 400					•
Air outlet (PCK) with air distribution element					
– DN 200		•			
– DN 250			•	•	
– DN 280					•
Air outlet (PEK)		•	•	•	•
Shut-off damper <sup>1)</sup>					
– electrical adjustment		•	•	•	•
– manual adjustment		•	•	•	•
		Volume flow rate range			
		V5			
		222 – 389 l/s			
		800 – 1 400 m <sup>3</sup> /h			
Filter housing (rectangular)		•			

<sup>1)</sup> Upon request

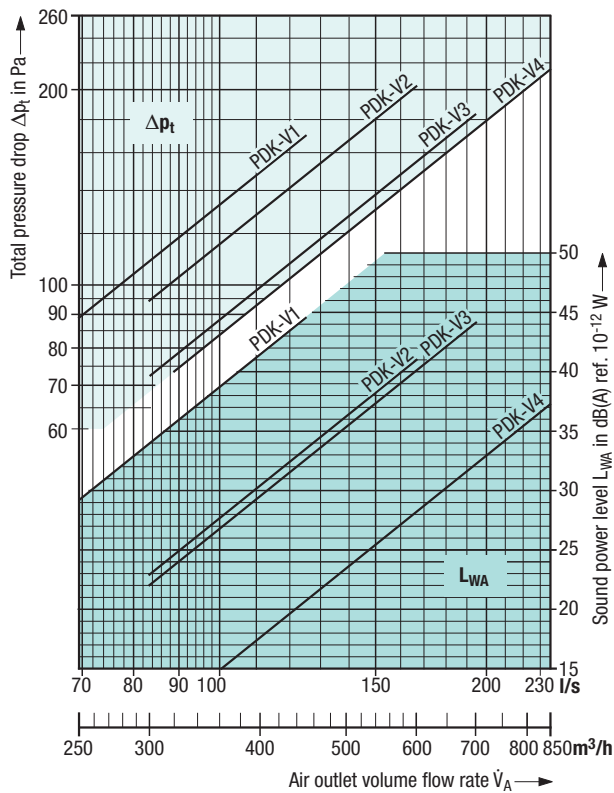
<sup>2)</sup> Design with dry seal without test groove, immediately available (in stock)

# Puri-Drall / Puri-Clean / Puri-Inlet

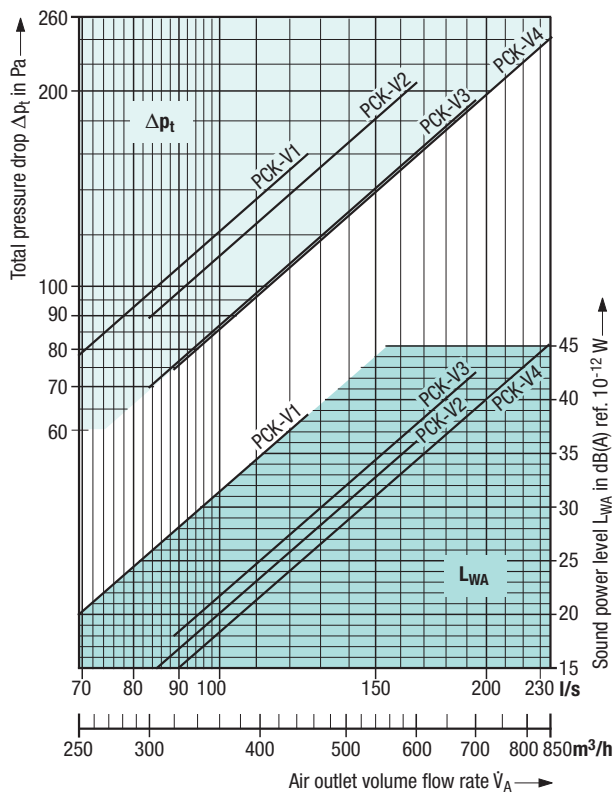
## HEPA filter air outlet

### Sound power level and pressure drop including HEPA filter cell H14

Puri-Drall PDK



Puri-Clean PCK



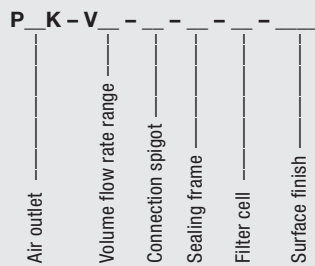
### Features

- Suited for cleanliness levels 6 to 8 to EN ISO 14644-1, and C and D to EU GMP
- The pull-down design of the air outlet elements enables to save time on filter scan tests
- No additional sealing of the air outlets after the fitting or the replacement of the filter
- Modular design – one standard housing for the volume flow rate ranges 69 to 236 l/s [250 to 850  $m^3/h$ ] (V1 to V4)
- Designs for HEPA filter air outlet with dry sealing (with or without test groove) or fluid sealing
- Unobtrusive integration into the suspended ceiling thanks to square faceplate with round perforations
- Stable radial air discharge flow with strong induction of supply air and room air with the PDK and the PCK
- No or extremely low dirt accumulation on the ceiling thanks to the formation of a supply air cushion below the air outlet with the PCK
- Connection for differential pressure measurement; optional connections for leakage test and test aerosol
- Short recovery times achieved in recovery test to EN ISO 14644-3

# Puri-Drall / Puri-Clean / Puri-Inlet

## HEPA filter air outlet

### Type code



#### Air outlet

- PDK = Puri-Drall with pull-down element (supply air)  
PCK = Puri-Clean with pull-down element (supply air)  
PEK = Puri-Inlet with pull-down element (exhaust air)

#### Volume flow rate range <sup>1)</sup>

- V1 = 69 – 125 l/s [250 – 450 m<sup>3</sup>/h]  
V2 = 83 – 166 l/s [300 – 600 m<sup>3</sup>/h]  
V3 = 83 – 197 l/s [300 – 700 m<sup>3</sup>/h]  
V4 = 89 – 236 l/s [320 – 850 m<sup>3</sup>/h]  
V5 = 222 – 389 l/s [800 – 1 400 m<sup>3</sup>/h]

#### Connection spigot

- ES = rectangular, lateral  
RS = round, lateral  
RO = round, on top

#### Sealing frame

- O = for dry seal, without test groove  
T = for dry seal, with test groove  
F = for fluid seal

#### Filter cell

- O = no filter cell  
H13 = filter class H13 to EN 1822-1  
H14 = filter class H14 to EN 1822-1

#### Surface finish

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

### Tender text

..... units

- **Puri-Drall**, HEPA filter air outlet for cleanrooms with pull-down twist outlet element to generate turbulent mixing ventilation, with strong induction of supply air and room air, no sealing of the air outlet after mounting or replacement of the filter
- **Puri-Clean**, HEPA filter air outlet for cleanrooms with pull-down outlet element in perforated design, with integrated air distribution element to generate turbulent mixing ventilation, with good induction of supply air and room air and formation of an even supply air cushion below the faceplate, accumulation of dirt is avoided, no sealing of the air outlet after mounting or replacement of the filter
- **Puri-Inlet**, HEPA filter air outlet for filtering exhaust air from cleanrooms directly at the extract point, with pull-down perforated air outlet element for air inlet, no sealing of the air outlet after fitting or replacement of the filter

Suited for cleanliness levels 6 to 8 to EN ISO 14644-1, and grade C and D to EU GMP.

consisting of separately packed:

- connection housing,
- airtight filter housing with contact pressure fixture for the filter cell, for filter change from below,
- sealing frame with either dry seal (with or without test groove) or fluid seal with connection for differential pressure measurement and particle sampling on the unfiltered air side,
- HEPA filter cell,
- air outlet (PDK, PCK or PEK).

Material:

- connection housing made of galvanized sheet metal without coating
- filter housing, sealing frame and air outlet made of galvanized sheet metal, powder-coated to RAL 9010 (pure white); finish made with epoxy polyester resin, disinfectant-proof
- HEPA filter cell class H13 or H14 with filter cell frame made of aluminium
- contact pressure fixture made of galvanized sheet metal
- air distribution element made of galvanized sheet metal, powder-coated to RAL 9005 (jet black, matt), finish made of epoxy polyester resin, disinfectant-proof
- air outlet elements made of galvanized sheet metal, coating with disinfectant-proof epoxy polyester resin, colour to RAL 9010 (pure white) or another RAL colour to be stated by the client

Make:

KRANTZ

Type:

P\_K - V\_ \_ \_ \_ \_

Subject to technical alteration.

<sup>1)</sup> Design with V1 to V4 with dry seal without test groove, immediately available (in stock)



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