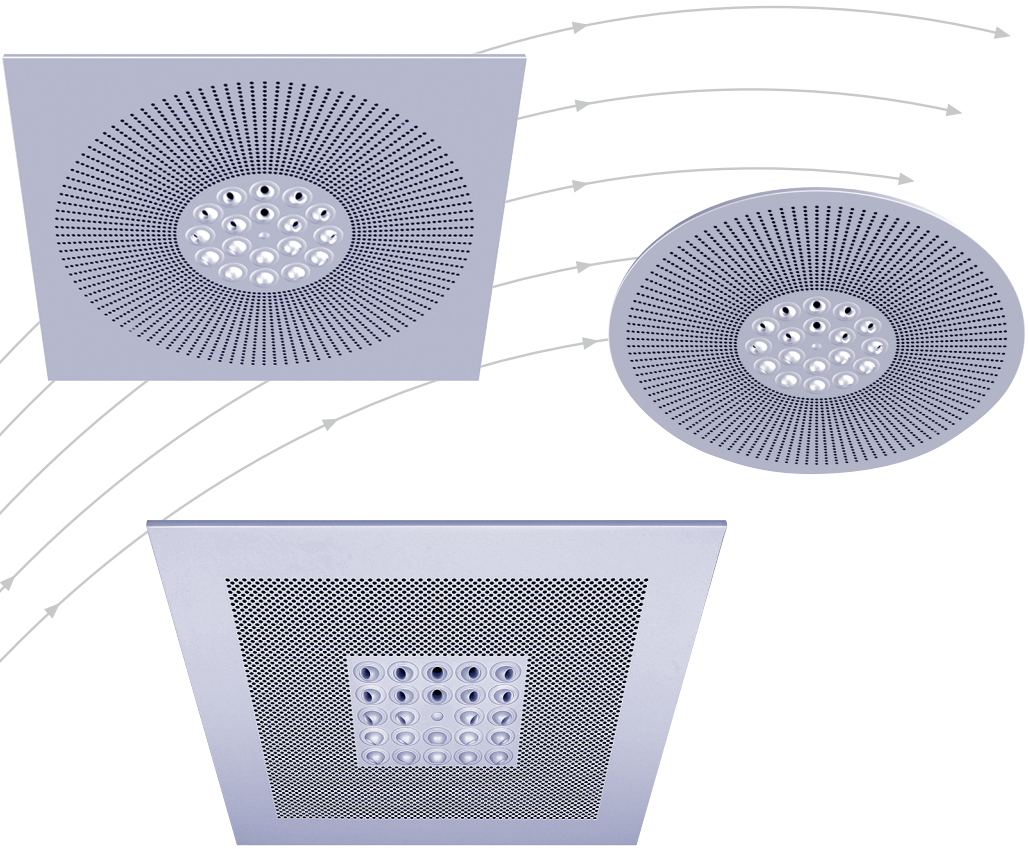
Ceiling air diffuser PASSCLEAN

Type PASS

square and circular, highly inductive, but very clean



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Contents

Application

The PASSCLEAN ceiling air diffusers are designed for applications in areas frequented by a large number of persons. Despite optimum secondary air induction, the PASSCLEAN only contaminates the ceiling to a very minor degree.

Areas of application
– Passage zones in airports, exhibition buildings
– Shopping centres, booking halls
– Foyers, corridors

The air diffusers can be fitted harmoniously in mineral fibre and/or metal plate ceilings.
The PASSCLEAN can also be used for visual realisation, i.e. freely suspended.

The following executions are available

square		type PASSQ
circular/square		type PASSRQ
circular		type PASSR

The executions square and circular/square replace a ceiling plate by grid ceilings of 600×600 or 625×625 mm.

Safety instructions

CAUTION!

Damage to the product due to improper handling. Check the device for damage and contamination prior to operation!

Improper handling may lead to considerable material damage of the product.
– Do not use any acid or abrasive cleaning agents.
– Adhesives from sticky tape may lead to colour damage.
– Excessive moisture may lead to colour damage and corrosion.
– Use only cleaning agents, greases and oils that are expressly specified.

CAUTION!

Risk of injury from sharp edges and corners, ridges and thin-walled sheet metal parts!

– Proceed carefully with all work.
– Wear protective gloves, safety shoes and protective helmet.

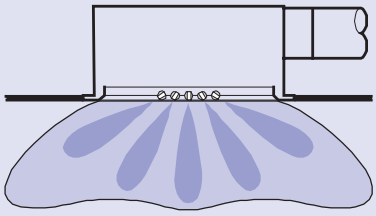
WARNING!

Danger from incorrect use. Misuse of the product may lead to dangerous situations.

The product must not be used:
– in areas subject to explosion hazards;
– in the open air without sufficient protection against weather effects;
– in atmospheres that may have a damaging and/or corrosive effect on the product due to scheduled or unscheduled chemical reactions.

Supply air characteristics

Position of supply air 9



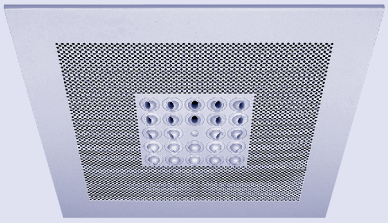
Realisation Type PASSQ / PASSRQ

The PASSCLEAN ceiling air diffuser is made of steel plate, powder coated. A series of ball jets are arranged as a square in the middle of the plate. The ball jets are surrounded by a perforated plate. Colour RAL 9010, matt finish, 25% brilliance.
The standard plenum box is made of galvanised steel plate and designed for use with PASSCLEAN ceiling air diffuser, type PASSQ.
Informations about the plenum box see pages 5 and 6.

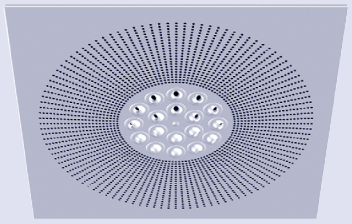
Remark
The PASSCLEAN replaces a ceiling plate.

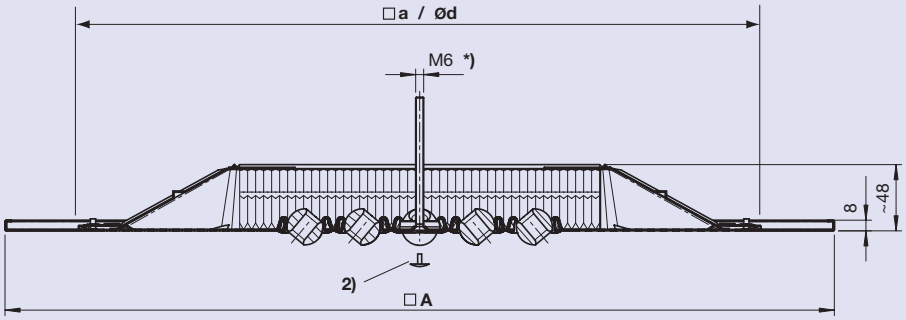
Dimensions

Type PASSQ



Type PASSRQ





2) Plastic plug
***)** Central screw M6×100 mm and plastic plug are delivered as a loose part

Type	ND	□A [mm]	□a [mm]	Ød [mm]	Grid dimension [mm]	Number of ball jets	
						□	○
PASSQ	598×500	598	474	-	600×600	24	18
	623×500	623	474	-	625×625		
PASSRQ	598×500	598	-	548	600×600	24	18
	623×500	623	-	548	625×625		

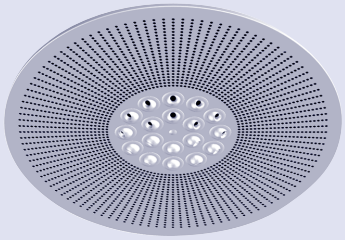
Realisation Type PASSR

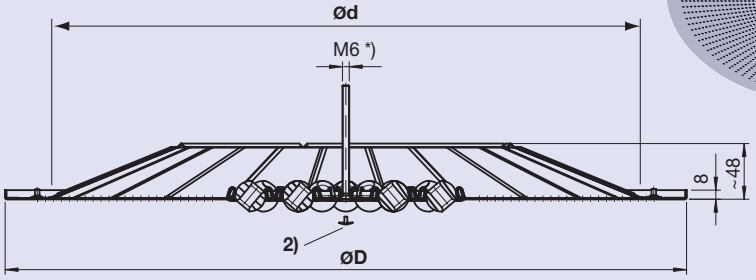
The PASSCLEAN ceiling air diffuser is made of steel plate, powder coated. A series of ball jets are arranged circularly and countersunk in the middle of the plate. The ball jets are suttounded by a perforated plate. Colour RAL 9010, matt finish, 25% brilliance.

The **square** standard plenum box is made of galvanised steel plate and designed for use with PASSCLEAN type PASSR (needs a panel of a false ceiling with a recess of D – 25 mm). Informations about the plenum box see page 6. The **square** standard plenum box with a **circular** adapter are necessary for the visual realisation, i. e. freely suspended.

Dimensions

Type PASSR





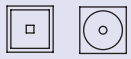
2) Plastic plug
***)** Central screw M6×100 mm and plastic plug are delivered as a loose part

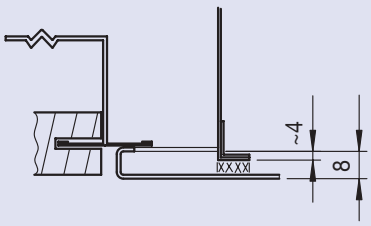
Type	ND	ØD [mm]	Ød [mm]	Number of ball jets
○ PASSR	600×500	600	548	18

Installation

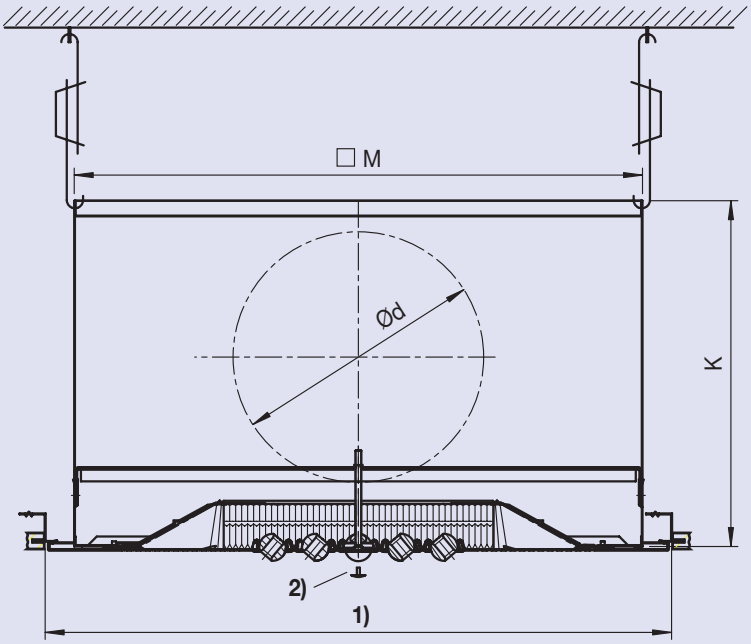
Type PASSQ / PASSRQ

for grid dimensions ☐ 600 or ☐ 625 mm
pressed onto ceiling profile **from below,**
with **square** plenum box.



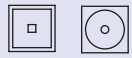


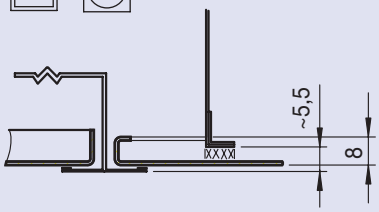
1) Grid dimension
2) Plastic plug



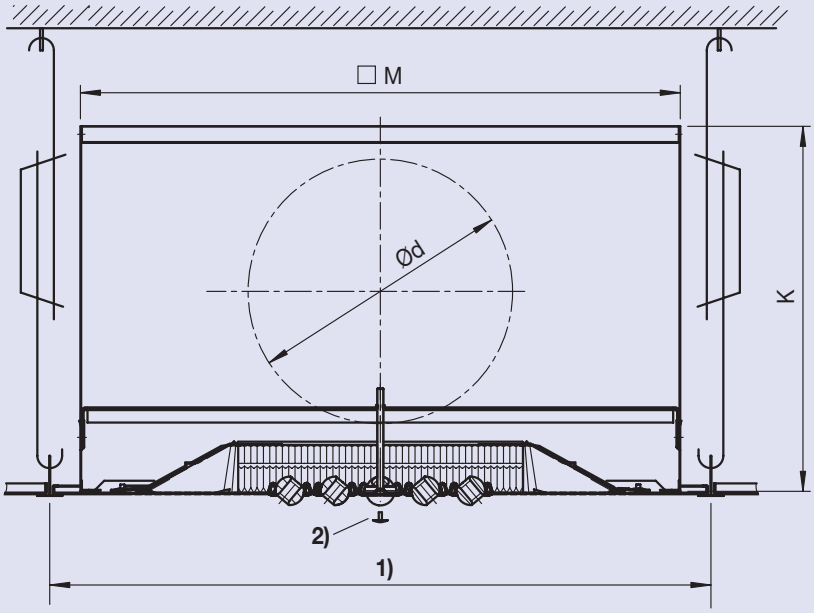
Type PASSQ / PASSRQ

for grid dimensions ☐ 600 or ☐ 625 mm
inserted in ceiling profile **from above**
with **square** plenum box.





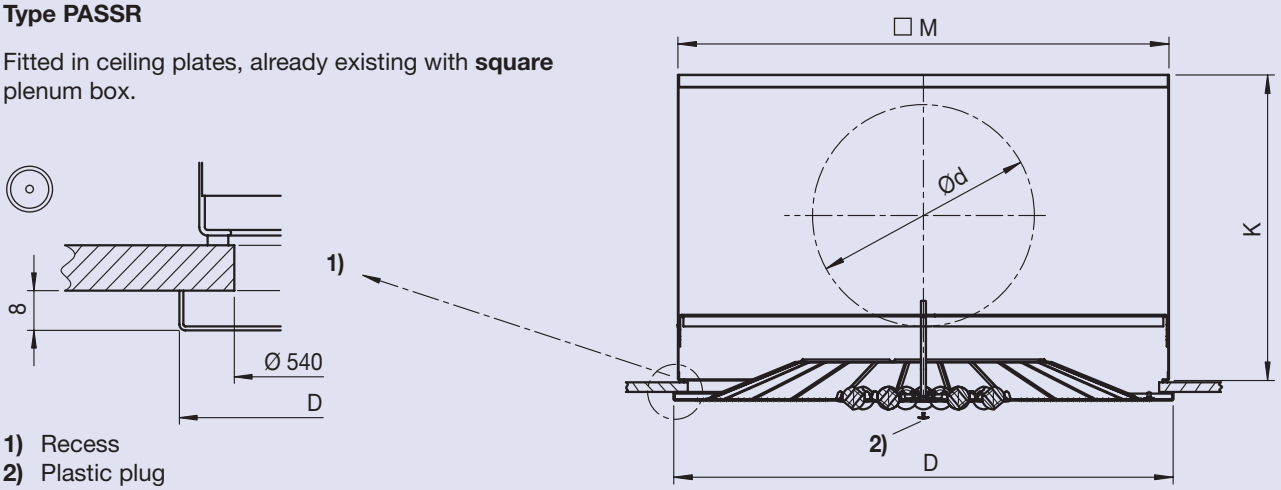
1) Grid dimension
2) Plastic plug



Type	ND	Grid dimension [mm]	Plenum box Details see prospect L-04-1-31e (TROX HESCO) or 2/16.4/… (TROX)			
			K	☐ M	Ød	Type
PASSQ	598×500	600×600	345	567	1 x 248	**AKH04 ZL M0 (TROX HESCO)** AK004 ZL M0 (TROX)
	623×500	625×625				
PASSRQ	598×500	600×600				
	623×500	625×625				

Type PASSR

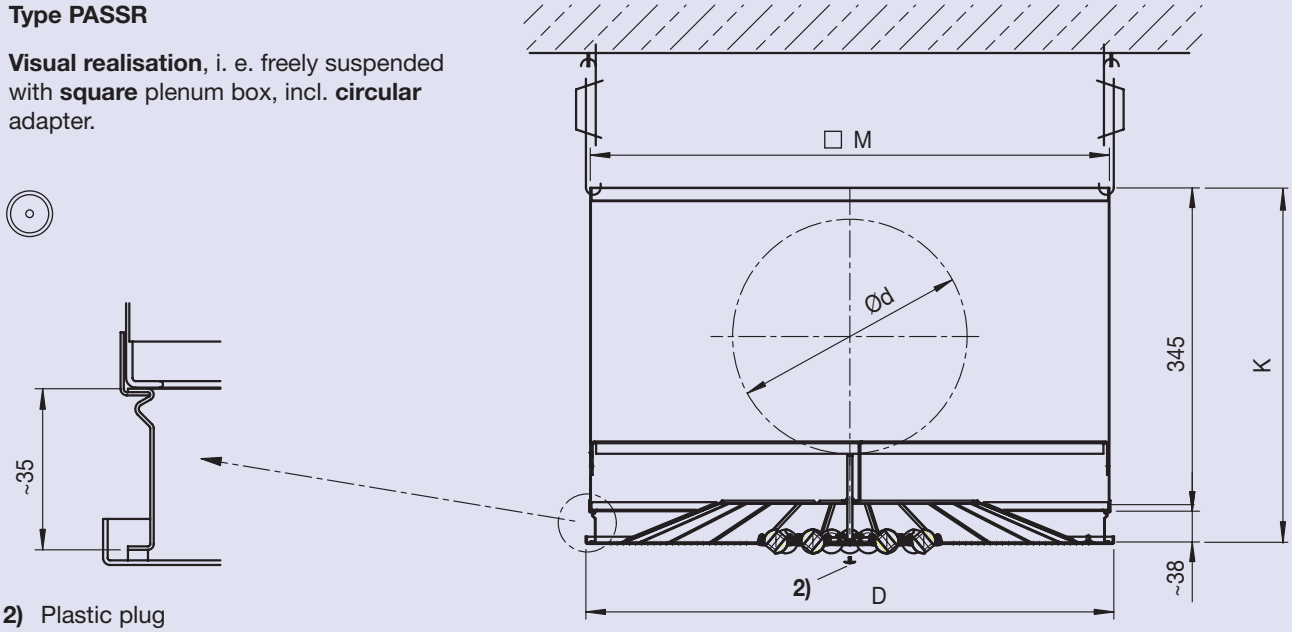
Fitted in ceiling plates, already existing with **square** plenum box.



1) Recess
2) Plastic plug

Type PASSR

Visual realisation, i. e. freely suspended with **square** plenum box, incl. **circular** adapter.



2) Plastic plug

Type	ND	Plenum box Details see prospect L-04-1-31e (TROX HESCO) or 2/16.4/… (TROX)			
		K	☐ M	Ød	Typ
PASSR	600×500	345	567	1 × 248	**AKH04 ZL M0 (TROX HESCO)** AK004 ZL M0 (TROX)

Quick selection · Definitions

Quick selection

ND	A_{eff} [m²]	V̇ [m³/h]	ps [Pa]	L_w [dB(A)]	D_{min} [m]	$V_{max/m²}$ [m³/h,m²]	$v_{1.0}$ [m/s]	$v_{2.0}$ [m/s]	$v_{3.0}$ [m/s]	$v_{4.0}$ [m/s]
598×500 623×500	0.0766 m²	**400**	15	31	2.5	64	0.50	0.25		
		600 **nominal**	33	44	3.2	59	0.84	0.55	0.36	
600×500	0.0485 m²	**800**	58	53	3.6	62		0.88	0.58	0.44

Key

V̇	m³/h	Air flow rate	$V̇_{max/m²}$	m³/h,m²	Max. air flow rate per m²
Δp_s	Pa	Static pressure drop	v	m/s	Velocity of the air jet after the distances of 1.0, 2.0, 3.0, 4.0 m
L_w	dB(A)	Assessed sound power level			
D_{min}	m	Minimum distance			

V̇	m³/h	Air flow rate	Δps	Pa	Static pressure drop
$V̇_{max/m²}$	m³/h, m²	Max. air flow rate per m²	RH	m	Room Height
L_W	dB(A)	Assessed sound power level	D_{min}	m	Minimum distance
L_{Wokt}	dB	Sound power level in octave-centre frequencies	M	m	Mixing zone height
			Dh	m	Horizontal distance
f	Hz	Frequency			
ΔT	K	Difference in temperature (- or +)			

Correction factor for other ΔT

ΔT	-10	-5	0	+5	+10	+15	**[K]**
f	1.00	0.90	0.79	0.69 **1)**	0.58 **2)**	0.48 **3)**	**[-]**

Velocity $_{x\,[K]}$ = Velocity $_{-10\,[K]}$ * f

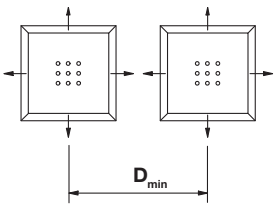
Explanations

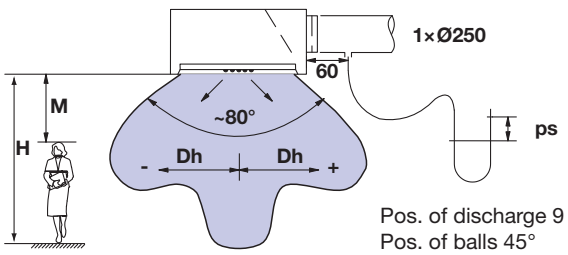
1) min. air velocity v = 0.3 m/s, according to table value
2) min. air velocity v = 0.5 m/s, according to table value
3) min. air velocity v = 0.8 m/s, according to table value

Insertion attenuation (incl. end reflection)
Interior of box not insulated

f	125	250	500	1k	2k	4k	8k	**[Hz]**
ΔL	11	6	4	5	8	10	9	**[dB]**

Type PASSQ
598×500
623×500





Pos. of discharge 9
Pos. of balls 45°

Type PASSR
600 × 500

Type PASSRQ
598×500
623×500

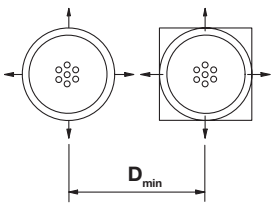


Table 1 valid for spigot 1 × Ø250 — **Air velocity for other ΔT, see table page 7**

V: 400 [m³/h]	D_{min} =	2.5	[m]	L_W =			31 [dB(A)]		ps = 15			[Pa]
T: -10 [K]	V_{max/m^2} =	64	[m³/h, m²]	f	125	250	500	1k	2k	4k	8k	[Hz]
				L_{Wokt}	36	30	31	26	19	16	15	[dB]

Vertical distance	Horizontal distance Dh [m]												
M [m]	-1.50 [m/s]	-1.25 [m/s]	-1.00 [m/s]	-0.75 [m/s]	-0.50 [m/s]	-0.25 [m/s]	**0.00 [m/s]**	0.25 [m/s]	0.50 [m/s]	0.75 [m/s]	1.00 [m/s]	1.25 [m/s]	1.50 [m/s]
1.00			<0.15	0.36	0.35	0.22	**0.50**	0.22	0.35	0.36	<0.15		
1.25			<0.15	0.35	0.26	0.27	**0.51**	0.27	0.26	0.35	<0.15		
1.50			<0.15	0.29	0.19	0.25	**0.43**	0.25	0.19	0.29	<0.15		
1.75		<0.15	0.17	0.25	<0.15	0.25	**0.33**	0.25	<0.15	0.25	0.17	<0.15	
2.00													

Table 2 valid for spigot 1 × Ø250 — **Air velocity for other ΔT, see table page 7**

V: 600 [m³/h]	D_{min} =	3.20	[m]	L_W =			44 [dB(A)]		Δps = 33			[Pa]
ΔT: -10 [K]	V_{max/m^2} =	59	[m³/h, m²]	f	125	250	500	1k	2k	4k	8k	[Hz]
				L_{Wokt}	39	39	40	42	35	25	18	[dB]

Vertical distance	Horizontal distance Dh [m]												
M [m]	-1.50 [m/s]	-1.25 [m/s]	-1.00 [m/s]	-0.75 [m/s]	-0.50 [m/s]	-0.25 [m/s]	**0.00 [m/s]**	0.25 [m/s]	0.50 [m/s]	0.75 [m/s]	1.00 [m/s]	1.25 [m/s]	1.50 [m/s]
1.00		<0.15	0.35	0.57	0.23	0.44	**0.84**	0.44	0.23	0.57	0.35	<0.15	
1.25	<0.15	0.24	0.52	0.32	0.19	0.52	**0.86**	0.52	0.19	0.32	0.52	0.24	<0.15
1.50	<0.15	0.25	0.40	0.32	<0.15	0.49	**0.93**	0.49	<0.15	0.32	0.40	0.25	<0.15
1.75	0.24	0.26	0.17	<0.15	<0.15	0.35	**0.65**	0.35	<0.15	<0.15	0.17	0.26	0.24
2.00	0.24	0.25	0.16	<0.15	<0.15	0.33	**0.55**	0.33	<0.15	<0.15	0.16	0.25	0.24
2.50	0.23	0.24	0.15	<0.15	<0.15	0.31	**0.43**	0.31	<0.15	<0.15	0.15	0.24	0.23
3.00	0.23	0.23	<0.15	<0.15	0.26	0.29	**0.36**	0.29	0.26	<0.15	<0.15	0.23	0.23
3.50	0.22	0.22	<0.15	<0.15	0.24	0.27	**0.31**	0.27	0.24	<0.15	<0.15	0.22	0.22
4.00	0.21	0.21	<0.15	<0.15	0.22	0.25	**0.27**	0.25	0.22	<0.15	<0.15	0.21	0.21
4.50	0.20	0.20	<0.15	<0.15	0.20	0.23	**0.24**	0.23	0.20	<0.15	<0.15	0.20	0.20
5.00	0.19	0.19	<0.15	<0.15	0.18	0.21	**0.22**	0.21	0.18	<0.15	<0.15	0.19	0.19

Table 3 valid for spigot 1 × Ø250 — **Air velocity for other ΔT, see table page 7**

V: 800 [m³/h]	D_{min} =	3.60	[m]	L_W =			53 [dB(A)]		ps = 58			[Pa]
T: -10 [K]	V_{max/m^2} =	62	[m³/h, m²]	f	125	250	500	1k	2k	4k	8k	[Hz]
				L_{Wokt}	49	49	48	50	46	36	25	[dB]

Vertical distance	Horizontal distance Dh [m]												
M [m]	-1.50 [m/s]	-1.25 [m/s]	-1.00 [m/s]	-0.75 [m/s]	-0.50 [m/s]	-0.25 [m/s]	**0.00 [m/s]**	0.25 [m/s]	0.50 [m/s]	0.75 [m/s]	1.00 [m/s]	1.25 [m/s]	1.50 [m/s]
1.00	<0.15	0.38	0.72	0.39	0.25	0.50	**0.97**	0.50	0.25	0.39	0.72	0.38	<0.15
1.25	<0.15	0.53	0.48	0.30	0.20	0.81	**0.98**	0.81	0.20	0.30	0.48	0.35	<0.15
1.50	0.16	0.52	0.62	0.43	0.21	0.85	**1.14**	0.85	0.21	0.43	0.63	0.52	0.16
1.75	0.52	0.40	0.24	<0.15	<0.15	0.57	**0.97**	0.57	<0.15	<0.15	0.24	0.40	0.52
2.00	0.49	0.38	0.23	<0.15	<0.15	0.55	**0.88**	0.55	<0.15	<0.15	0.23	0.38	0.49
2.50	0.46	0.44	0.21	<0.15	<0.15	0.52	**0.70**	0.52	<0.15	<0.15	0.21	0.44	0.46
3.00	0.44	0.42	0.19	<0.15	<0.15	0.50	**0.58**	0.50	<0.15	<0.15	0.19	0.42	0.44
3.50	0.42	0.40	<0.15	<0.15	0.40	0.47	**0.50**	0.47	0.40	<0.15	<0.15	0.40	0.42
4.00	0.40	0.38	<0.15	<0.15	0.38	0.44	**0.44**	0.44	0.38	<0.15	<0.15	0.38	0.40
4.50	0.38	0.36	<0.15	<0.15	0.35	0.38	**0.38**	0.38	0.35	<0.15	<0.15	0.36	0.38
5.00	0.36	0.34	<0.15	<0.15	0.32	0.35	**0.35**	0.35	0.32	<0.15	<0.15	0.34	0.36
5.50	0.34	0.31	<0.15	<0.15	0.28	0.32	**0.32**	0.32	0.28	<0.15	<0.15	0.31	0.34
6.00	0.31	0.28	<0.15	<0.15	0.27	0.28	**0.28**	0.28	0.27	<0.15	<0.15	0.28	0.31
6.50	0.28	0.25	<0.15	<0.15	0.25	0.27	**0.27**	0.27	0.25	<0.15	<0.15	0.25	0.28
7.00	0.25	0.23	<0.15	<0.15	0.23	0.25	**0.25**	0.25	0.23	<0.15	<0.15	0.23	0.25

Order details

Order code

No details for standard products

PASS	Q	AKH04	ZL	M0	/	... x ...	/	0	/	9	/	P1	/	RAL 9006

Type
PASSCLEAN

Nominal dimension
external dimension × active surface

external dimension × active diameter

RAL 9006 matt, 25% brilliance (special colour)

Q = square
RQ = circular/square
R = circular

0 = Without plenum box
AKH04 = TROX HESCO-plenum box
AK004 = TROX-plenum box
AK017 = TROX-plenum box (**circular** adapter for visual realisation)

ZL = supply air

M0 = Spigot with volume control, without lip seal (standard)
ML = Spigot with volume control, with lip seal
00 = Spigot without volume control, without lip seal
0L = Spigot without volume control, with lip seal

9 = Discharge possibility 9 (bell-shaped)

0 = Powder coated according to RAL 9010, matt, 25% brilliance (standard)
P1 = Powder coated according to RAL (other RAL colours and brilliance on request)

Order examples

60 off PASSQ AKH04ZLM0/623×500

75 off PASSRQ AKH04ZLM0/623×500/P1/RAL 9006 (RAL 9006, 60% brilliance)

90 off PASSR AKH04ZL M0/600×500

20 off PASSR AK017ZL M0/600×500

Text for tendering purposes

Ceiling air diffuser PASSCLEAN with two-jets of air , in the center via all-circular swiveling ball jets, in the peripheal zone via perforated plate openings. Attachment by means of central screw. Central screw will be delivered separately.

A standard plenum box of galvanised steel, with integrated cross bar for the M6 central screw, for quick and simple installation of the ceiling panel air diffuser. A connection with volume control for connecting a coiled tube or hose is included; the inlet box also contains an air distributor element.

Material

Ceiling air diffuser:	steel, colour RAL 9010, matt, 25% brilliance, ball jets of plastic material, RAL 9010
Plenum box:	galvanised steel plate

Details for the plenum box see pages 5 and 6.

The square standard plenum box, incl. **circular** adapter, is necessary for visual realisation, i. e. freely suspended.

Option
- Other RAL colours
- Quadratic cover plate with circular recess (in different
- dimensions) on request