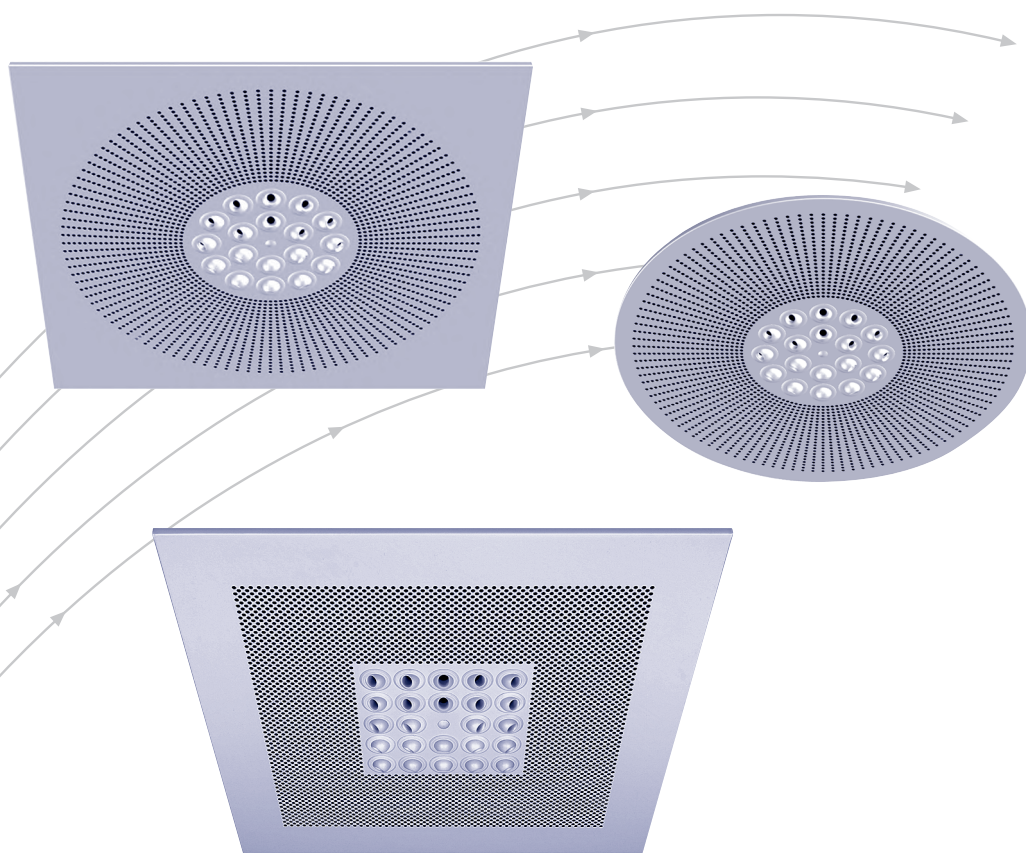


# Ceiling air diffuser PASSCLEAN

Type PASS

square and circular, highly inductive, but very clean



Int. mod. prot. reg.

**TROX**® **TECHNIK**



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# Contents · Application · Safety instructions · Supply air characteristics · Realisation

## Contents

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## 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

## 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.

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.

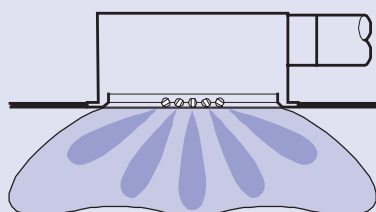
## The following executions are available

square		type PASSQ
circular/square		type PASSRQ
circular		type PASSR

The executions square and circular/square replace a ceiling plate by grid ceilings of 600x600 or 625x625 mm.

## 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.

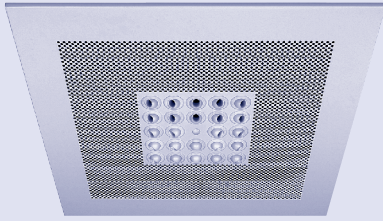
## Remark

The PASSCLEAN replaces a ceiling plate.

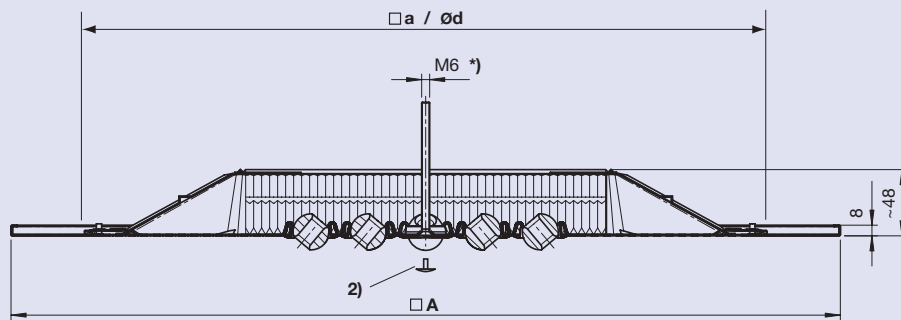
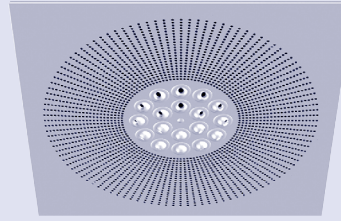
# Realisation · Dimensions

## 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		

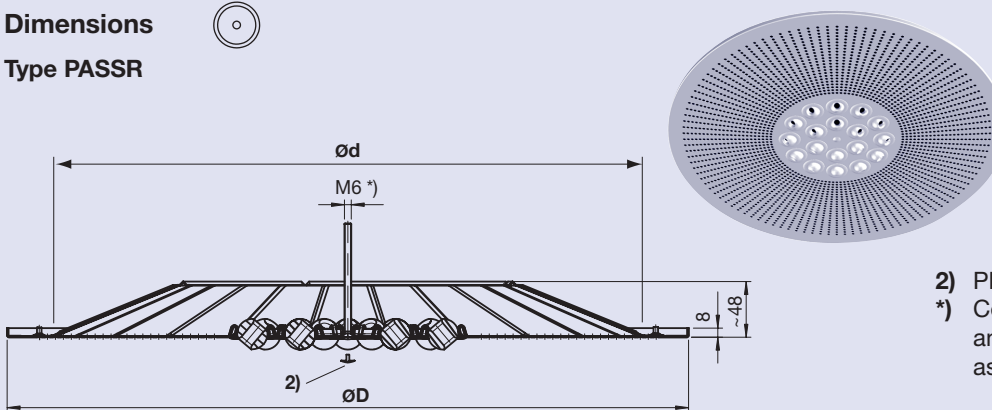
## Realisation Type PASSR

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 surrounded 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



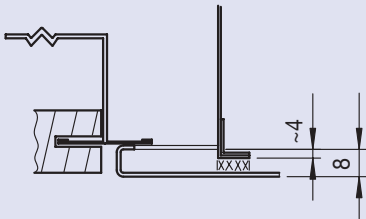
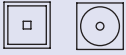
- 2) Plastic plug
- \*) Central screw M6×100 mm and plastic plug are delivered as a loose part

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

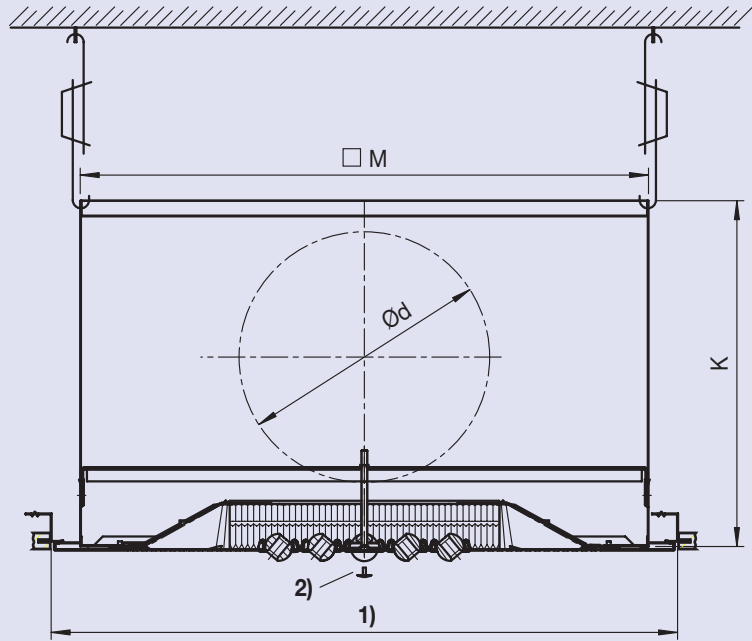
# Installation

## Type PASSQ / PASSRQ

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

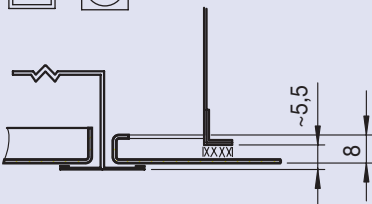
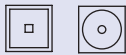


- 1) Grid dimension
- 2) Plastic plug

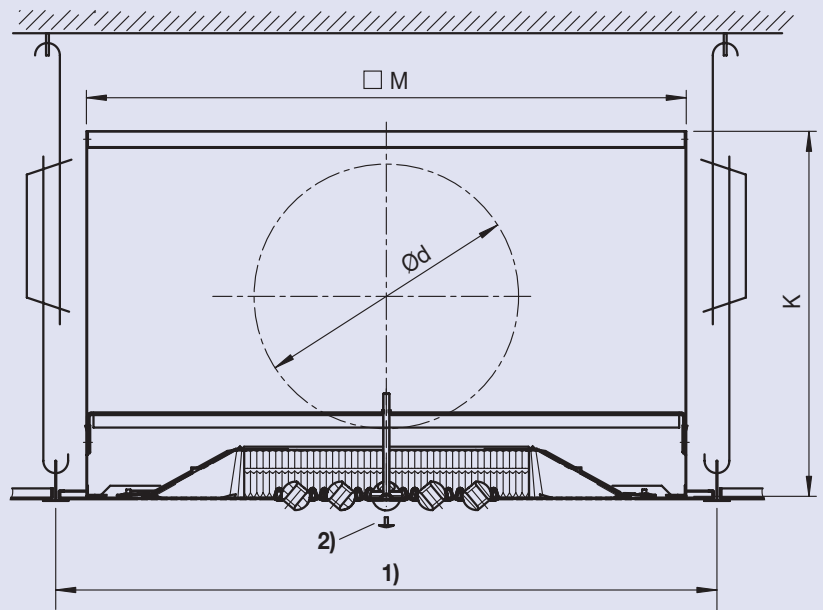




## Type PASSQ / PASSRQ

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



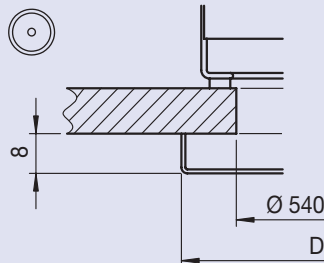
- 1) Grid dimension
- 2) Plastic plug



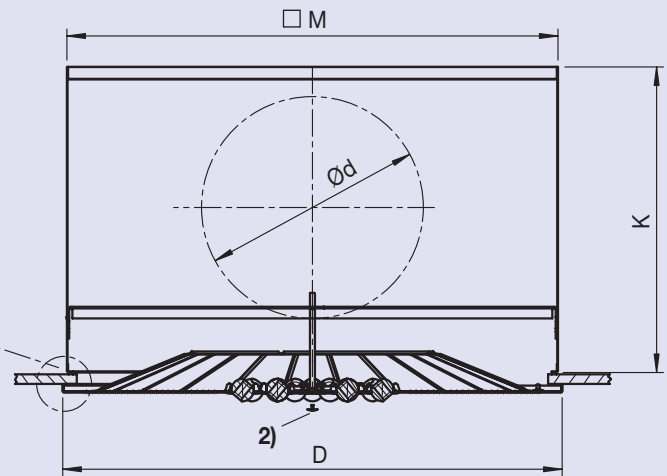
Type	ND	Grid dimension [mm]	Plenum box Details see prospect L-04-1-31e (TROX HESCO) or 2/16.4/... (TROX)			
			K	$\square$ M	$\varnothing$ d	Type
 <b>PASSQ</b>	598x500	600x600	345	567	1 x 248	<b>AKH04 ZL M0 (TROX HESCO)</b> AK004 ZL M0 (TROX)
	623x500	625x625				
 <b>PASSRQ</b>	598x500	600x600				
	623x500	625x625				

## Type PASSR

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

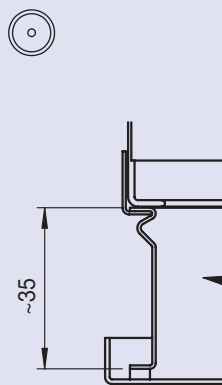


- 1) Recess
- 2) Plastic plug

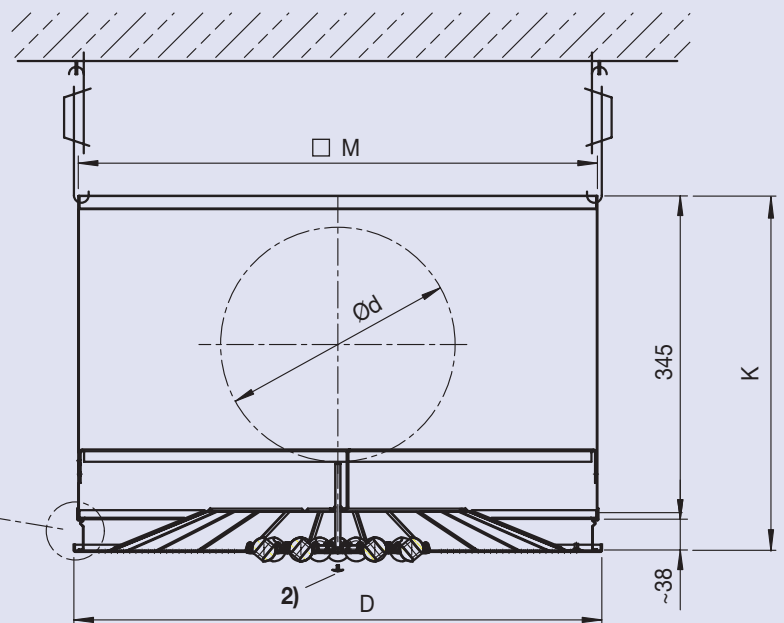



## Type PASSR

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



- 2) Plastic plug



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

# Quick selection · Definitions

## Quick selection



ND	A <sub>eff</sub> [m <sup>2</sup> ]	$\dot{V}$ [m <sup>3</sup> /h]	p <sub>s</sub> [Pa]	L <sub>w</sub> [dB(A)]	D <sub>min</sub> [m]	V <sub>max/m<sup>2</sup></sub> [m <sup>3</sup> /h,m <sup>2</sup> ]	v <sub>1.0</sub> [m/s]	v <sub>2.0</sub> [m/s]	v <sub>3.0</sub> [m/s]	v <sub>4.0</sub> [m/s]
 598x500 623x500	0.0766 m <sup>2</sup> 0.0485 m <sup>2</sup>	400	15	31	2.5	64	0.50	0.25		
		<b>600 nominal</b>	33	44	3.2	59	0.84	0.55	0.36	
 600x500		800	58	53	3.6	62		0.88	0.58	0.44

### Key

$\dot{V}$	m <sup>3</sup> /h	Air flow rate	$\dot{V}_{\max/m^2}$	m <sup>3</sup> /h,m <sup>2</sup>	Max. air flow rate per m <sup>2</sup>
$\Delta p_s$	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 <sub>w</sub>	dB(A)	Assessed sound power level			
D <sub>min</sub>	m	Minimum distance			

$\dot{V}$	m <sup>3</sup> /h	Air flow rate	$\Delta p_s$	Pa	Static pressure drop
$\dot{V}_{\max/m^2}$	m <sup>3</sup> /h, m <sup>2</sup>	Max. air flow rate per m <sup>2</sup>	RH	m	Room Height
L <sub>w</sub>	dB(A)	Assessed sound power level	D <sub>min</sub>	m	Minimum distance
L <sub>wokt</sub>	dB	Sound power level in octave-centre frequencies	M	m	Mixing zone height
f	Hz	Frequency	Dh	m	Horizontal distance
$\Delta T$	K	Difference in temperature (- or +)			

### Correction factor for other $\Delta T$

$\Delta T$	-10	-5	0	+5	+10	+15	[K]
f	1.00	0.90	0.79	0.69 <sup>1)</sup>	0.58 <sup>2)</sup>	0.48 <sup>3)</sup>	[-]

$$\text{Velocity}_x [K] = \text{Velocity}_{-10} [K] * f$$

### 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

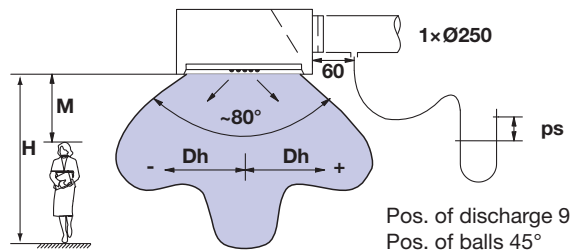
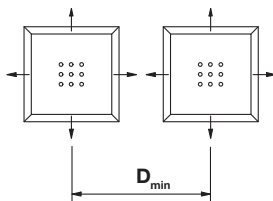
### Insertion attenuation (incl. end reflection)



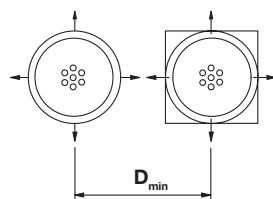
Interior of box not insulated

f	125	250	500	1k	2k	4k	8k	[Hz]
$\Delta L$	11	6	4	5	8	10	9	[dB]

**Type PASSQ**  
598x500  
623x500



**Type PASSR**  
600 x 500



**Type PASSRQ**  
598x500  
623x500

**Table 1 valid for spigot 1 × Ø250**

**Air velocity for other ΔT, see table page 7**

<b>V:</b> 400 [m³/h]	<b>D<sub>min</sub> =</b> 2.5 [m]	<b>L<sub>W</sub> =</b> 31 [dB(A)]						<b>ps = 15</b> [Pa]					
<b>T:</b> -10 [K]	<b>V<sub>max</sub>/m² =</b> 64 [m³/h, m²]	<b>f</b>	125	250	500	1k	2k	4k	8k	[Hz]			
		<b>L<sub>W</sub>okt</b>	36	30	31	26	19	16	15	[dB]			
Vertical distance <b>M</b> [m]	Horizontal distance Dh [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]	<b>0.00</b> [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	<b>0.50</b>	0.22	0.35	0.36	<0.15		
1.25			<0.15	0.35	0.26	0.27	<b>0.51</b>	0.27	0.26	0.35	<0.15		
1.50			<0.15	0.29	0.19	0.25	<b>0.43</b>	0.25	0.19	0.29	<0.15		
1.75		<0.15	0.17	0.25	<0.15	0.25	<b>0.33</b>	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**

<b>V:</b> 600 [m³/h]	<b>D<sub>min</sub> =</b> 3.20 [m]	<b>L<sub>W</sub> =</b> 44 [dB(A)]						<b>Δps = 33</b> [Pa]					
<b>ΔT:</b> -10 [K]	<b>V<sub>max</sub>/m² =</b> 59 [m³/h, m²]	<b>f</b>	125	250	500	1k	2k	4k	8k	[Hz]			
		<b>L<sub>W</sub>okt</b>	39	39	40	42	35	25	18	[dB]			
Vertical distance <b>M</b> [m]	Horizontal distance Dh [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]	<b>0.00</b> [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	<b>0.84</b>	0.44	0.23	0.57	0.35	<0.15	
1.25	<0.15	0.24	0.52	0.32	0.19	0.52	<b>0.86</b>	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	<b>0.93</b>	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	<b>0.65</b>	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	<b>0.55</b>	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	<b>0.43</b>	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	<b>0.36</b>	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	<b>0.31</b>	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	<b>0.27</b>	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	<b>0.24</b>	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	<b>0.22</b>	0.21	0.18	<0.15	<0.15	0.19	0.19

**Table 3 valid for spigot 1 × Ø250**

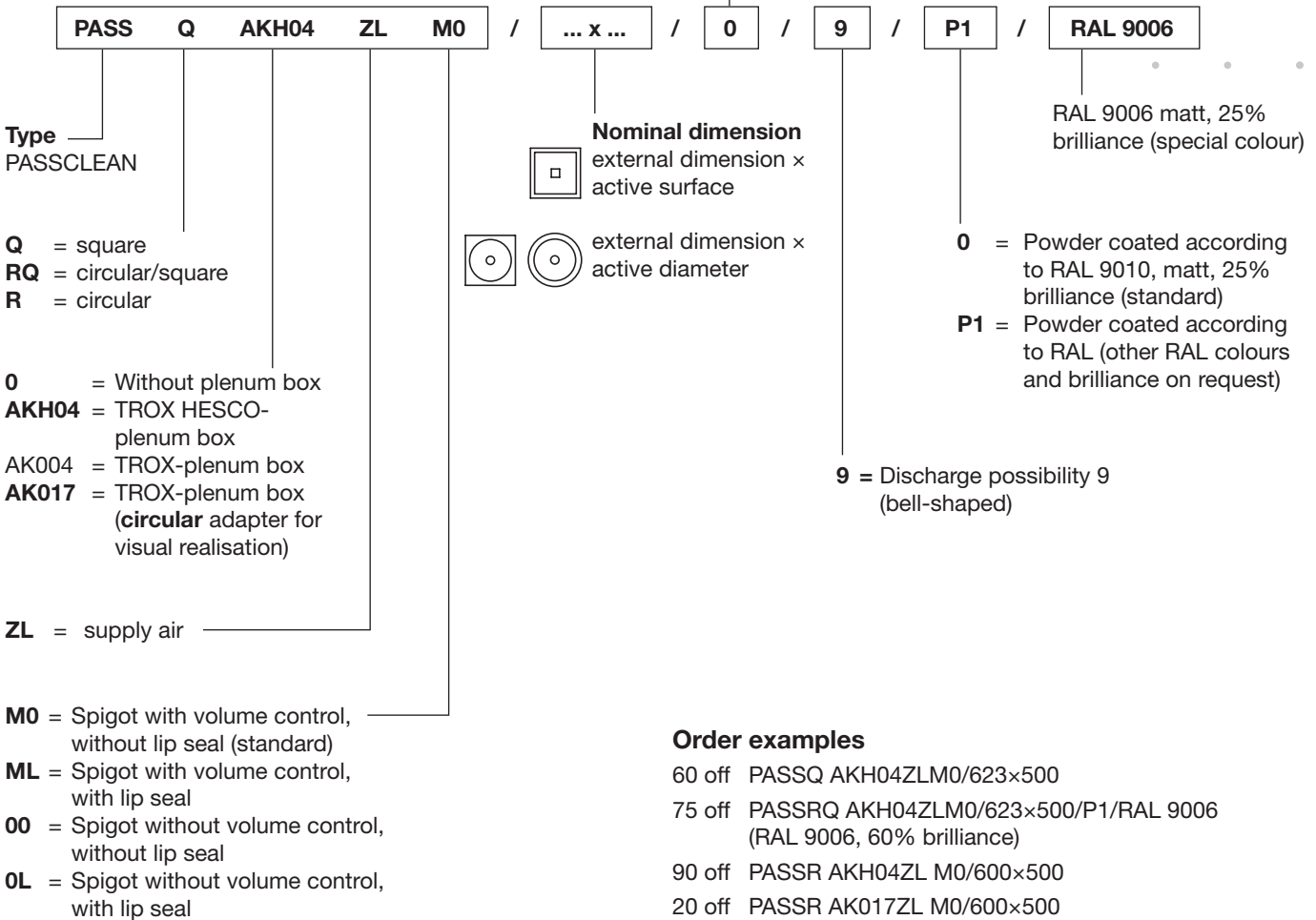
**Air velocity for other ΔT, see table page 7**

<b>V:</b> 800 [m³/h]	<b>D<sub>min</sub> =</b> 3.60 [m]	<b>L<sub>W</sub> =</b> 53 [dB(A)]						<b>ps = 58</b> [Pa]					
<b>T:</b> -10 [K]	<b>V<sub>max</sub>/m² =</b> 62 [m³/h, m²]	<b>f</b>	125	250	500	1k	2k	4k	8k	[Hz]			
		<b>L<sub>W</sub>okt</b>	49	49	48	50	46	36	25	[dB]			
Vertical distance <b>M</b> [m]	Horizontal distance Dh [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]	<b>0.00</b> [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	<b>0.97</b>	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	<b>0.98</b>	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	<b>1.14</b>	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	<b>0.97</b>	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	<b>0.88</b>	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	<b>0.70</b>	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	<b>0.58</b>	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	<b>0.50</b>	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	<b>0.44</b>	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	<b>0.38</b>	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	<b>0.35</b>	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	<b>0.32</b>	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	<b>0.28</b>	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	<b>0.27</b>	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	<b>0.25</b>	0.25	0.23	<0.15	<0.15	0.23	0.25

# Order details

## Order code

No details for standard products



## Order examples

- 60 off PASSQ AKH04ZLM0/623x500
- 75 off PASSRQ AKH04ZLM0/623x500/P1/RAL 9006 (RAL 9006, 60% brilliance)
- 90 off PASSR AKH04ZL M0/600x500
- 20 off PASSR AK017ZL M0/600x500

## Text for tendering purposes

Ceiling air diffuser PASSCLEAN with two-jets of air, in the center via all-circular swiveling ball jets, in the peripheral 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