

# REK, LEK, ROK and LOK



Elegant and clear lined supply air  
diffusers for suspended ceilings.

# REK, LEK, ROK and LOK

Stylish supply air diffusers REK, LEK, ROK and LOK are designed for suspended ceilings and form a horizontal throw pattern.

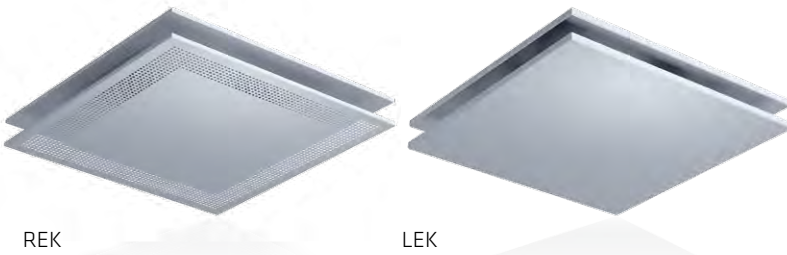
The serie includes perforated models REK and ROK, as well as the smooth-faced models LEK and LOK. Diffusers form a stylish package of T-profiles together with the ceiling. The upper part of the diffuser remains at the same level with the surface of the roof and the bottom panel of the diffuser descends below the surface of the ceiling causing the Coanda effect, which enables widespread throw pattern and good mixing ratio.

The characteristics of the diffusers also include very easy cleanability. The products are easy to open, allowing access to the balancing plenum box and the ductwork.

Due to their smooth surface, diffusers LEK and LOK are suitable also for exhaust air. Then the use of a PAK balancing plenum box is recommended.

# REK and LEK

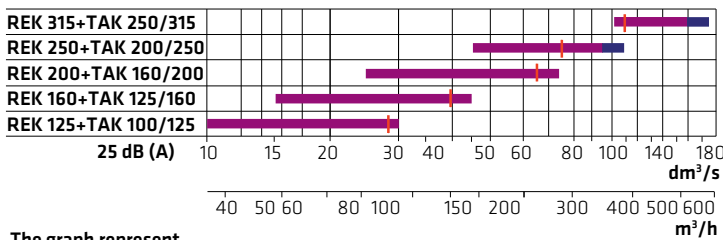
Rectangular ceiling diffusers **REK** and **LEK** are well suited for supply air diffusers of suspended ceilings. REK has a perforated bottom plate whereas LEK represents a modern smooth surface style. LEK is suitable also for exhaust air.



REK

LEK

## Quick guide REK and LEK

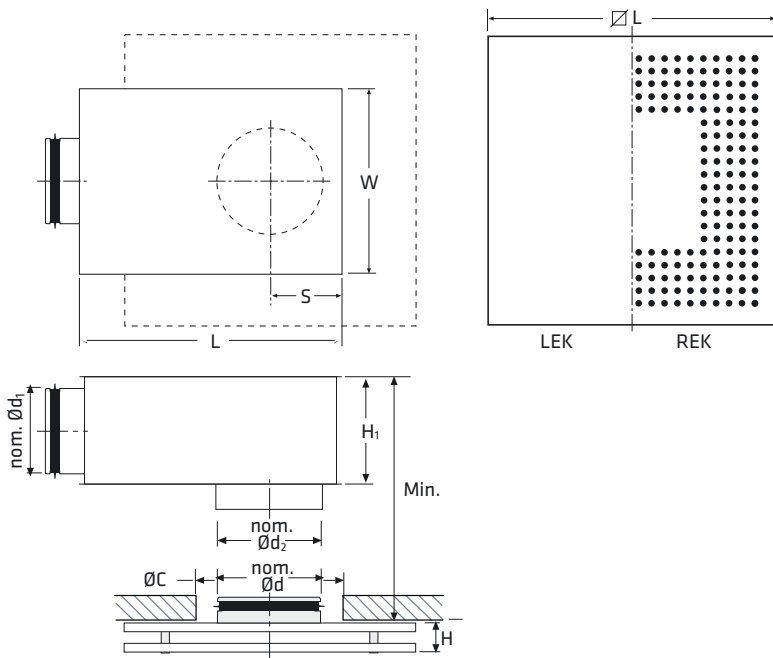


The graph represent

**<math><30</math>** = Noise level less than 30 dB(A)  
**>math>>30</math>** = Noise level over 30 dB(A)

qv min = pressure drop 30 Pa  
 qv max = pressure drop 50 Pa  
 | = by balancing plenum box 100 Pa can be constricted under 30 dB (A) noise level

## Dimensions



	nom. Ød	ØC	ØL	H	kg
REK/LEK-100	100	130	300	41	1,6
REK/LEK-125	125	170	300	41	1,6
REK/LEK-160	160	210	350	41	2,2
REK/LEK-200	200	250	450	44	3,3
REK/LEK-250	250	300	450	44	3,3
REK/LEK-315	315	365	595	47	5,6
REK/LEK-125-600	125	170	595	44	5,6
REK/LEK-160-600	160	210	595	44	5,6
REK/LEK-200-600	200	250	595	44	5,6

## Material and surface treatment

Ceiling diffuser is made of sheet steel, standard color white RAL 9016.

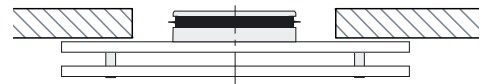
Upon request, the diffuser can be painted in a special color. Color options are shown in the color chart, RAL K1.

## Product code

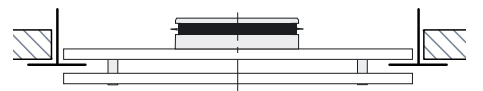
Ceiling diffuser REK - 125 + TAK 100 / 125  
 1 2 3 4 5

- 1 = Diffuser model: REK/LEK
- 2 = Diffuser size, 100 - 315 coffered ceiling application marked for example, REK-160-600 + TAK 125/160
- 3 = Balancing plenum box, TAK (removal PAK)
- 4 = Balancing plenum box duct size
- 5 = Balancing plenum box diffuser size

## REK/LEK installed on the roof opening



## REK/LEK installed on the T-profile



## Balancing plenum box TAK and PAK

	nom. Ød <sub>1</sub>	nom. Ød <sub>2</sub>	L <sub>1</sub>	H <sub>1</sub>	W	Min.	S	kg
TAK/PAK-100/125	100	125	440	140	250	185	92	3,7
TAK/PAK-125/160	125	160	440	165	250	210	110	4,0
TAK/PAK-160/200	160	200	490	200	320	245	130	5,3
TAK/PAK-200/250	200	250	560	240	380	305	155	7,4
TAK/PAK-250/315	250	315	690	290	430	355	187	10,2

# ROK and LOK

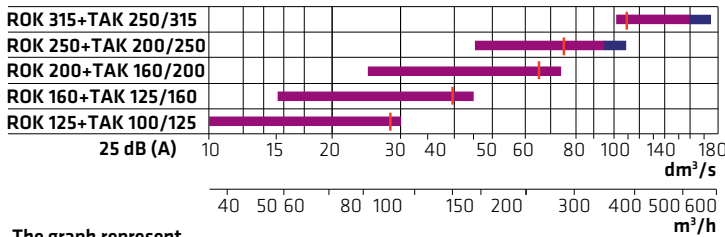
Round ceiling diffusers ROK and LOK are well suited for suspended ceiling supply diffusers. ROK has a perforated bottom plate whereas LOK represents a modern smooth surface style. LOK is suitable also for exhaust air.



ROK

LOK

## Quick guide ROK ja LOK



The graph represent

<30 = Noise level less than 30 dB(A)  
>30 = Noise level over 30 dB(A)

qv min = pressure drop 30 Pa  
qv max = pressure drop 50 Pa  
| = by balancing plenum box 100 Pa can be constricted under 30 dB (A) noise level

## Material and surface treatment

Ceiling diffuser is made of sheet steel, standard color white RAL 9016.

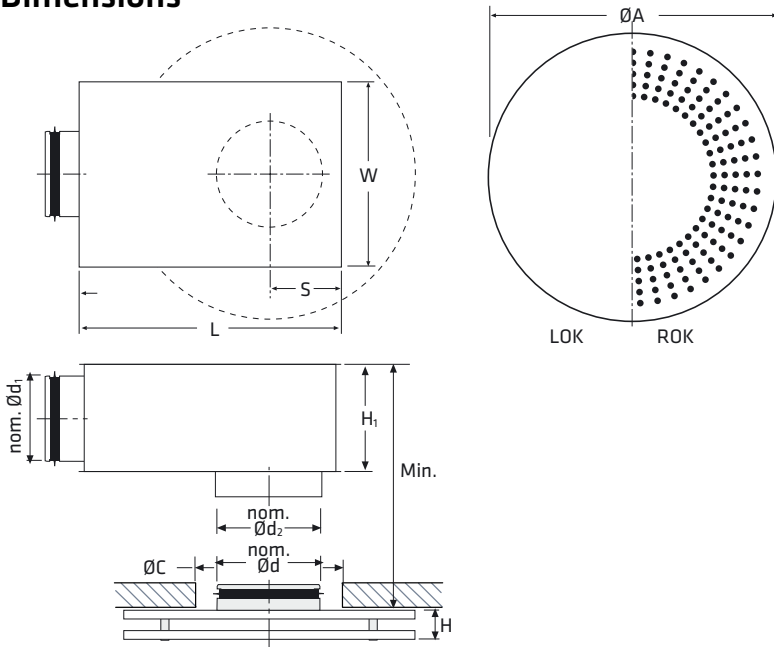
Upon request, the diffuser can be painted in a special color. Color options are shown in the color chart, RAL K1.

## Product code

Ceiling diffuser REK - 125 + TAK 100 / 125  
1 2 3 4 5

- 1 = Diffuser model: ROK/LOK
- 2 = Diffuser size
- 3 = Balancing plenum box, TAK (removal PAK)
- 4 = Balancing plenum box duct size
- 5 = Balancing plenum box diffuser size

## Dimensions



	nom. Ød	ØA	ØC	H	kg
ROK/LOK-100	100	294	130	41	1,6
ROK/LOK-125	125	294	170	41	1,6
ROK/LOK-160	160	386	210	41	2,2
ROK/LOK-200	200	386	250	44	3,3
ROK/LOK-250	250	475	300	44	3,3
ROK/LOK-315	315	580	365	47	5,6
ROK/LOK-125-600	125	-	170	44	5,6
ROK/LOK-160-600	160	-	210	44	5,6
ROK/LOK-200-600	200	-	250	44	5,6

## Balancing plenum box TAK and PAK

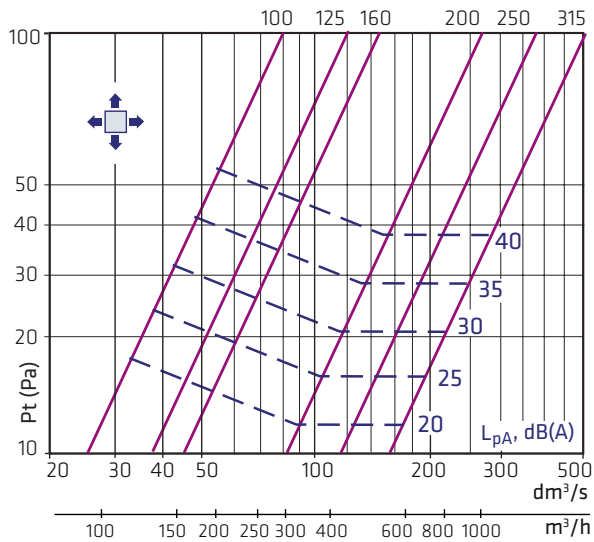
	nom. Ød <sub>1</sub>	nom. Ød <sub>2</sub>	L <sub>1</sub>	H <sub>1</sub>	W	Min.	S	kg
TAK/PAK-100/125	100	125	440	140	250	185	92	3,7
TAK/PAK-125/160	125	160	440	165	250	210	110	4,0
TAK/PAK-160/200	160	200	490	200	320	245	130	5,3
TAK/PAK-200/250	200	250	560	240	380	305	155	7,4
TAK/PAK-250/315	250	315	690	290	430	355	187	10,2

## Dimensioning

The graphs are not intended for commissioning.

### Airflow - pressure drop- sound level

Diffuser without a balancing plenum box in 4 directions.

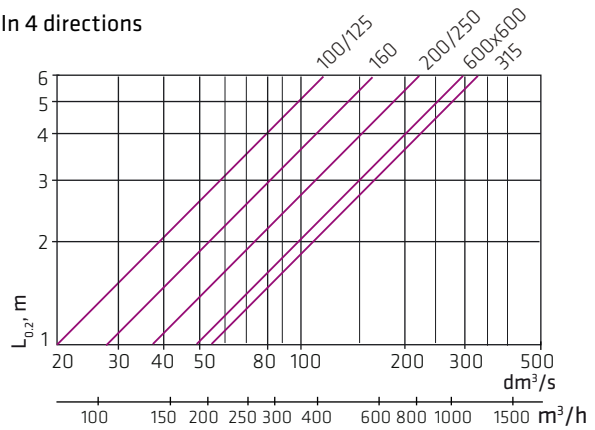


### Airflow - throw length - turbulent flow

Throw length values on isothermal supply air, blowing in 4 directions, installed against the roof, without a balancing plenum box

#### REK and LEK

In 4 directions



### Conversion factors

Air flow direction	Throw length $L_{0,2}$	Sound level dB(A)
3 directions	1,4 x	+2
2 directions	2,0 x	+5
1 directions	2,5 x	+7

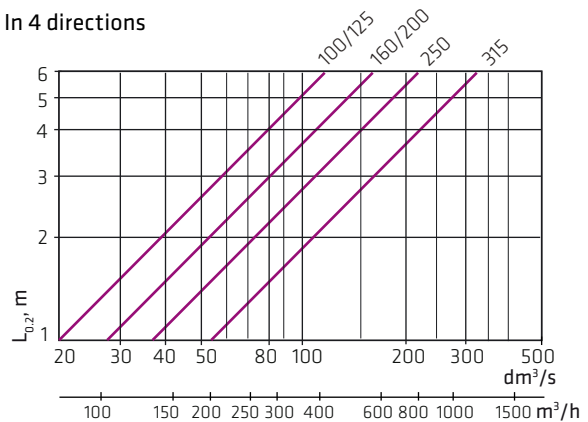
Diffuser appearance does not affect the performance. Air pattern is rotated and tilted in one, two, three or four directions.

REK and LEK diffusers are available in all sizes with outer dimensions 595x595 mm.

We recommend the use of balancing plenum box TAK.

#### ROK and LOK

In 4 directions



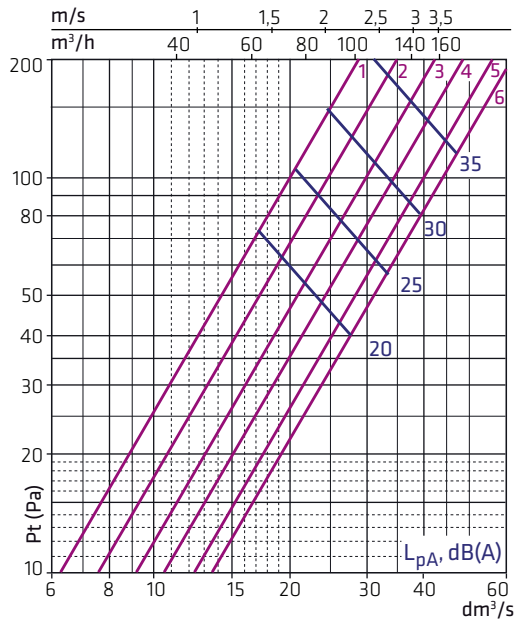
$L_{w,okt} = L_{pA10} + K$								
Ø	Hz	125	250	500	1k	2k	4k	8k
100		3	2	2	-1	-3	-10	-19
125		11	7	1	-1	-1	-14	-19
160		11	5	1	0	-9	-14	-19
200		8	4	2	0	-9	-14	-19
250		8	2	3	-1	-9	-14	-19
315		11	3	2	-2	-6	-14	-19

$\Delta L$ (dB)								
Ø	Hz	125	250	500	1k	2k	4k	8k
100		15	10	4	5	5	2	4
125		14	9	4	4	2	3	4
160		13	8	4	3	2	4	5
200		10	7	5	3	2	3	5
250		9	5	5	3	3	4	6
315		8	6	5	2	3	4	5

## Dimensioning as a ceiling diffuser

Diffusers with a blancing plenum box TAK (supply air). Balancing plenum box PAK (exhaust air) values on page 8. The diagrams are not intended for commissioning.

### Ceiling Diffuser 125 + TAK 100/125



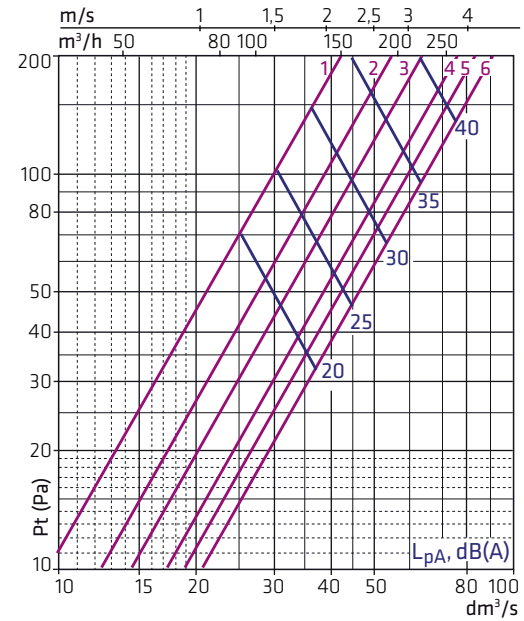
$$L_{w\text{okt}} = L_{pA10} + K$$

f, Hz	63	125	250	500	1k	2k	4k	8k
K <sub>okt</sub> , dB	7	10	9	3	-4	-9	-11	-13
tol, dB±	3	3	3	1	3	4	4	4

#### ΔL (dB)

f, Hz	63	125	250	500	1k	2k	4k	8k
Dt, dB	21	11	8	10	21	22	14	12

### Ceiling Diffuser 160 + TAK 125/160



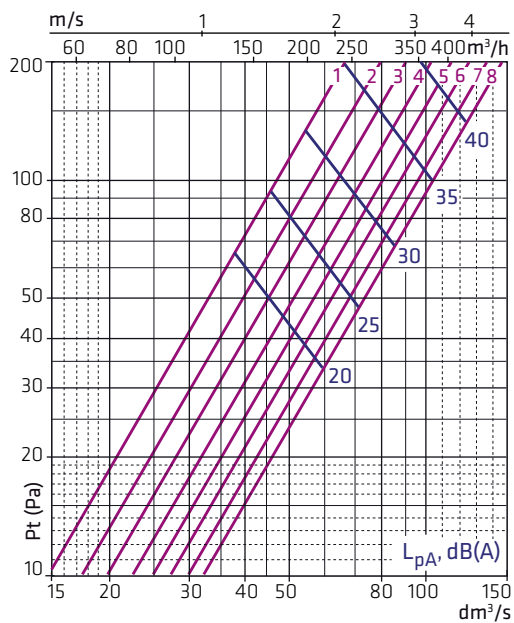
$$L_{w\text{okt}} = L_{pA10} + K$$

f, Hz	63	125	250	500	1k	2k	4k	8k
K <sub>okt</sub> , dB	7	9	7	1	-2	-8	-9	-12
tol, dB±	4	2	3	2	2	4	5	4

#### ΔL (dB)

f, Hz	63	125	250	500	1k	2k	4k	8k
Dt, dB	19	6	5	10	19	17	15	13

### Ceiling Diffuser 200 + TAK 160/200



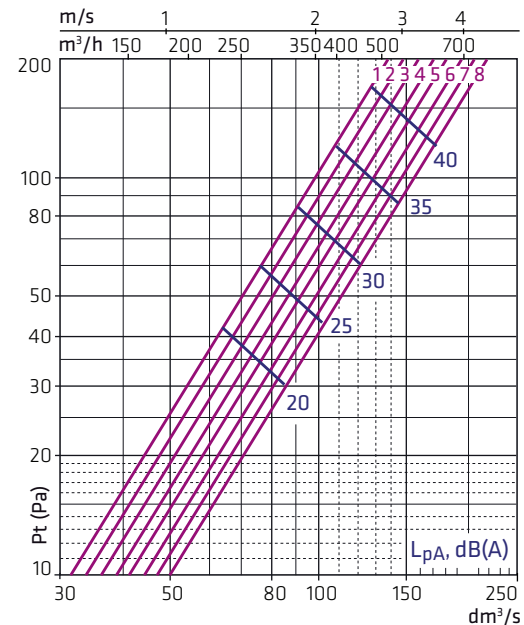
$$L_{w\text{okt}} = L_{pA10} + K$$

f, Hz	63	125	250	500	1k	2k	4k	8k
K <sub>okt</sub> , dB	10	12	7	1	-2	-8	-13	-15
tol, dB±	3	2	2	1	2	3	3	4

#### ΔL (dB)

f, Hz	63	125	250	500	1k	2k	4k	8k
Dt, dB	15	8	5	9	20	15	13	11

### Ceiling Diffuser 250 + TAK 200/250



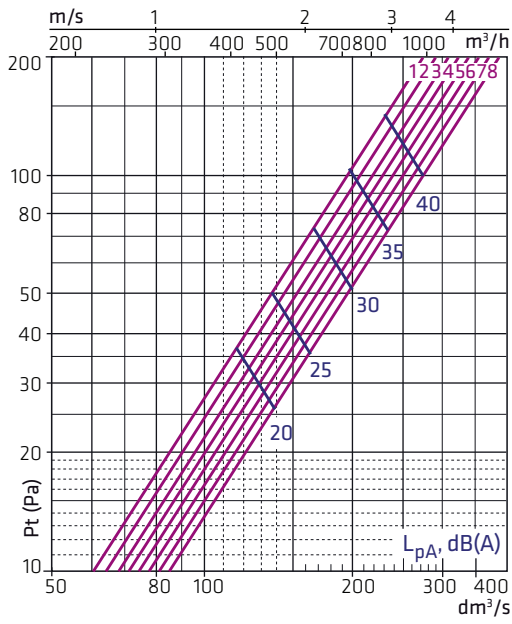
$$L_{w\text{okt}} = L_{pA10} + K$$

f, Hz	63	125	250	500	1k	2k	4k	8k
K <sub>okt</sub> , dB	7	10	6	1	-2	-7	-8	-13
tol, dB±	2	2	1	1	1	2	3	3

#### ΔL (dB)

f, Hz	63	125	250	500	1k	2k	4k	8k
Dt, dB	13	5	5	11	17	13	12	9

## Ceiling Diffuser 315 + TAK 250/315



**$L_{w\text{okt}} = L_{pA10} + K$**

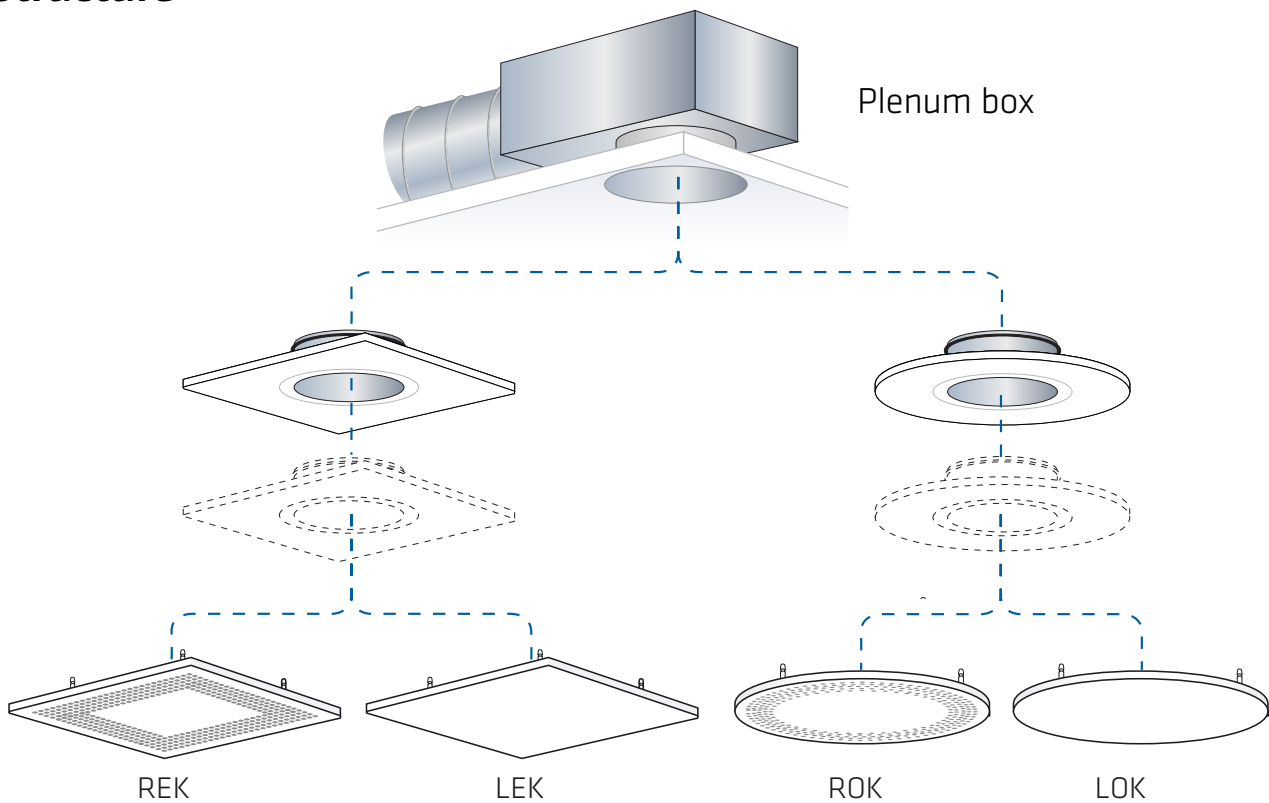
f, Hz	63	125	250	500	1k	2k	4k	8k
$K_{\text{okt}}$ , dB	10	9	5	3	-1	-9	-13	-18
tol, dB±	3	1	1	1	1	3	3	4

<b><math>\Delta L</math> (dB)</b>								
f, Hz	63	125	250	500	1k	2k	4k	8k
Dt, dB	14	5	4	13	12	13	12	11

Ceiling diffuser throw length values are shown on page 5.

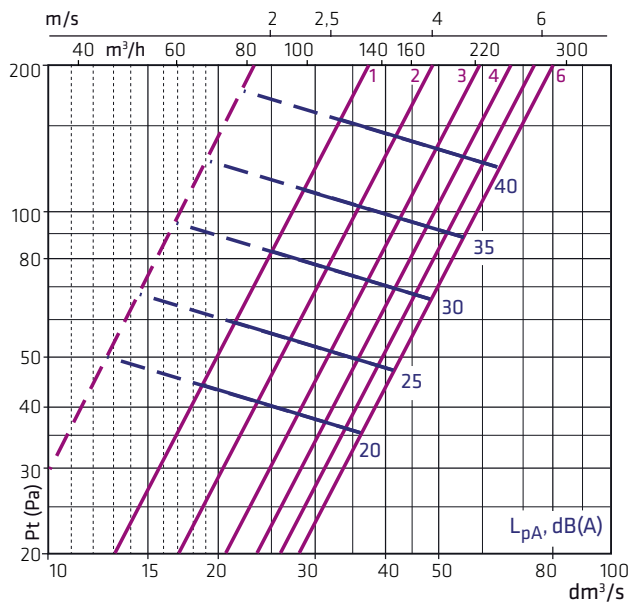
## Structure



## Dimensioning as an exhaust air device

Ceiling diffuser with a balancing plenum box PAK (for removal).

### The exhaust air device 125 + PAK-100/125



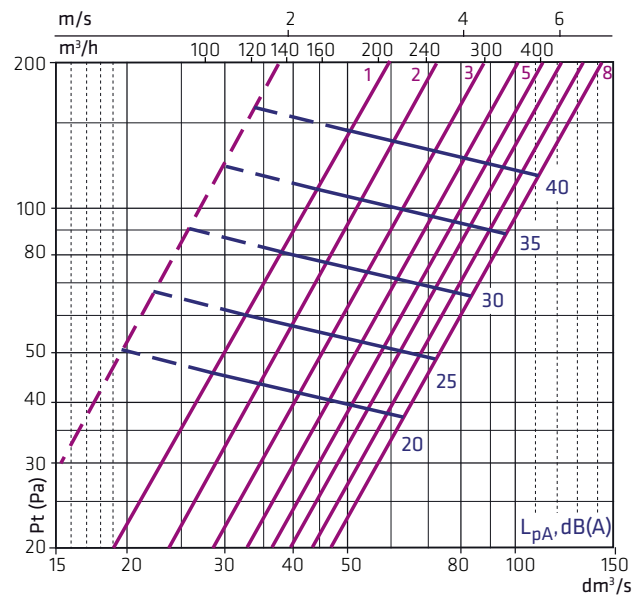
$$L_{w\text{okt}} = L_{pA10} + K$$

f, Hz	63	125	250	500	1k	2k	4k	8k
K <sub>okt</sub> , dB	0	6	7	3	-4	-8	-11	-13

#### ΔL (dB)

f, Hz	63	125	250	500	1k	2k	4k	8k
Dt, dB	19	12	9	13	20	13	15	12

### The exhaust air device 160 + PAK-125/160



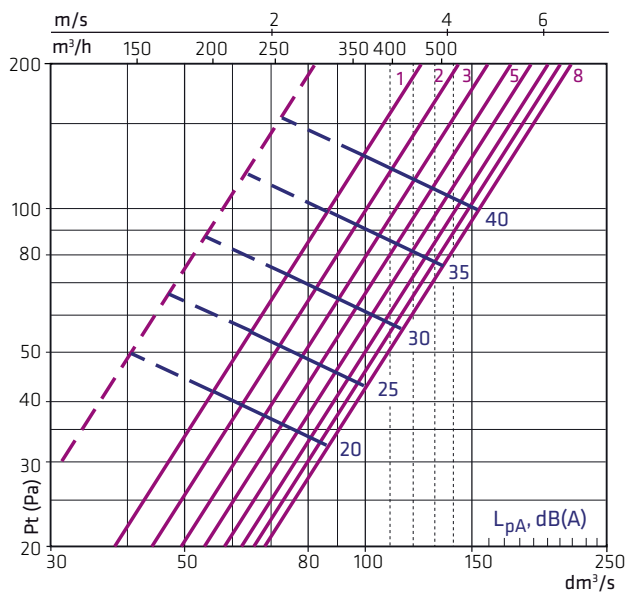
$$L_{w\text{okt}} = L_{pA10} + K$$

f, Hz	63	125	250	500	1k	2k	4k	8k
K <sub>okt</sub> , dB	3	7	8	2	-4	-7	-10	-13

#### ΔL (dB)

f, Hz	63	125	250	500	1k	2k	4k	8k
Dt, dB	18	4	8	13	20	12	16	5

### The exhaust air device 250 + PAK-200/250



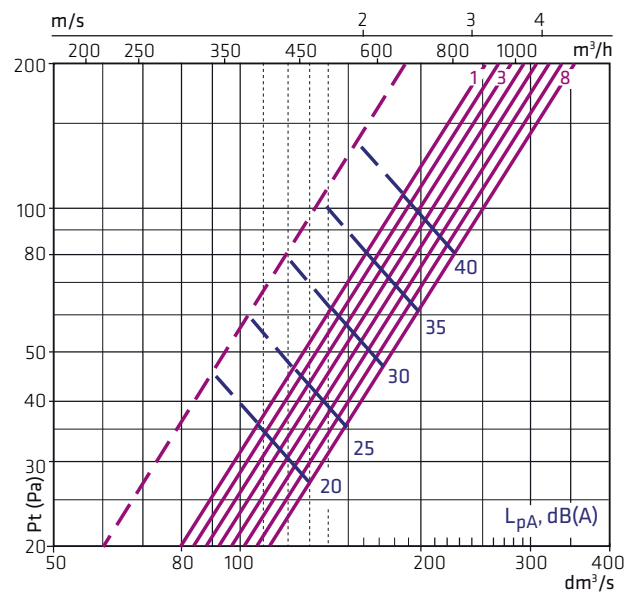
$$L_{w\text{okt}} = L_{pA10} + K$$

f, Hz	63	125	250	500	1k	2k	4k	8k
K <sub>okt</sub> , dB	a1	7	6	1	-2	-6	-11	-16

#### ΔL (dB)

f, Hz	63	125	250	500	1k	2k	4k	8k
Dt, dB	15	3	10	13	13	12	14	4

### The exhaust air device 315 + PAK-250/315



----- 16 nozzles open

$$L_{w\text{okt}} = L_{pA10} + K$$

f, Hz	63	125	250	500	1k	2k	4k	8k
K <sub>okt</sub> , dB	3	7	6	3	-2	-6	-9	-19

#### ΔL (dB)

f, Hz	63	125	250	500	1k	2k	4k	8k
Dt, dB	12	5	10	14	10	13	14	5



# Balancing plenum boxes TAK and PAK



The balancing plenum boxes TAK and PAK are an excellent choice for balancing plenum boxes as they fulfil the accuracy class 1 of the type approval requirements ( $\pm 5\%$ ) and feature an accurate measurement of the pressure difference over the adjustment element.

TAK and PAK fulfil the tightness class C requirements at a pressure difference of 1,000 Pa. TAK has an extremely low structural height and is easy to install. PAK, designed for exhaust air, opens easily for superior ease of cleaning, for example in connection with duct sweeping.

The TAK balancing plenum box ensures a constant, silent airflow to supply air diffusers. With TAK and PAK, you can adjust the airflow accurately, exactly to specification and at the same time efficiently dampening the sound from the ducts. The adjustment element can be locked, ensuring that the adjustment position will not change even if the adjustment element is removed, for example when cleaning the ducts.

## Materials and surface treatment

TAK and PAK are manufactured from galvanised sheet steel. Their robust construction ensures tightness and secure installation, combined with perfect performance even in difficult locations. Both products are delivered with galvanised steel surface as standard. By special order, TAK and PAK can be painted in any colour in the RAL K1 colour chart, and also with antibacterial paint.

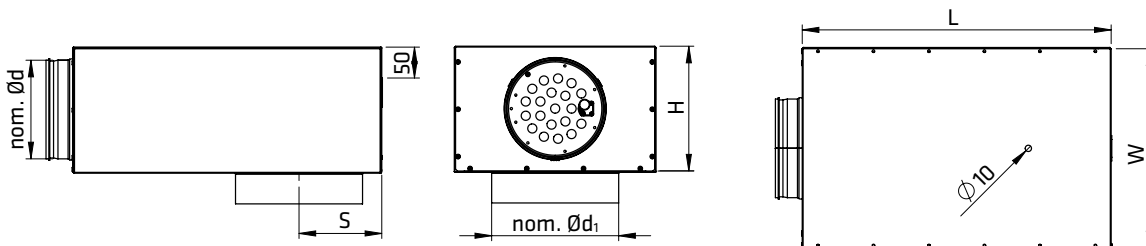
## Patented adjustment element

The balancing plenum boxes TAK and PAK are high-quality airflow measurement and adjustment devices with a patented adjustment element. The TAK ensures a constant airflow to supply air diffusers, while slowing down the airflow velocity accurately and silently and dampening the sound from the ducts. The standard dampening material is polyester fibre (Dacron) that does not emit loose fibres or particles. The performance values of the type-approved TAK and PAK have been measured according to standards ISO 5135 and EN 1751, and they meet D2 and E7 requirements.

## Why TAK or PAK?

- A good energy efficiency of a ventilation system is achieved through accurate, high-quality components
- Easy installation and adjustment
- Superior ease of cleaning
- Decades of manufacturing experience
- Type approved
- The choice of the professional

## Dimensions



	nom. Ød	nom. Ød <sub>1</sub>	L	H	W	S	kg
<b>TAK/PAK-100/125</b>	100	125	440	140	250	92	3,7
<b>TAK/PAK-125/160</b>	125	160	440	165	250	110	4,0
<b>TAK/PAK-160/200</b>	160	200	490	200	320	130	5,3
<b>TAK/PAK-200/250</b>	200	250	560	240	380	155	7,4
<b>TAK/PAK-250/315</b>	250	315	690	290	430	187	10,2

Minimum air volumes at measured pressure difference 15 Pa:

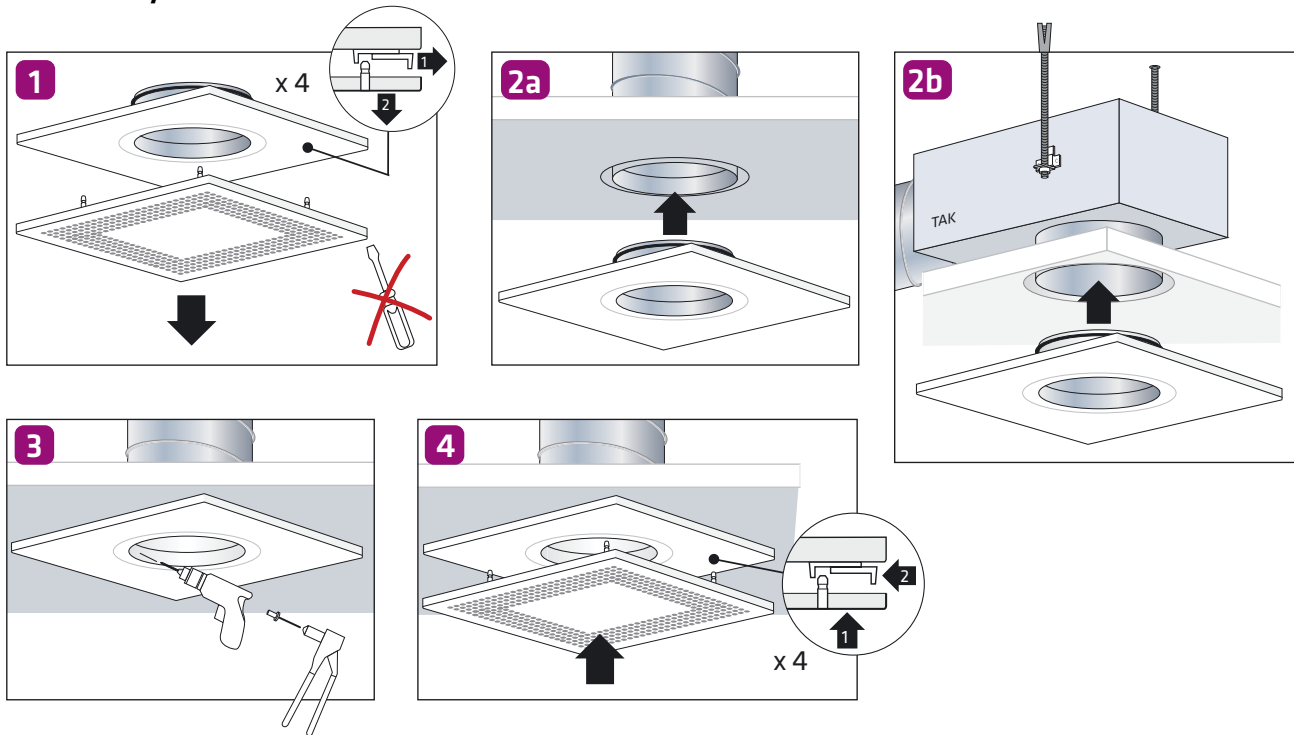
<b>TAK and PAK 100/125</b>	9 l/s
<b>TAK and PAK 125/160</b>	14 l/s
<b>TAK and PAK 160/200</b>	20 l/s
<b>TAK and PAK 200/250</b>	40 l/s
<b>TAK and PAK 250/315</b>	80 l/s

**NOTE!** The balancing plenum box for exhaust air is PAK. Dimensions the same as TAK.

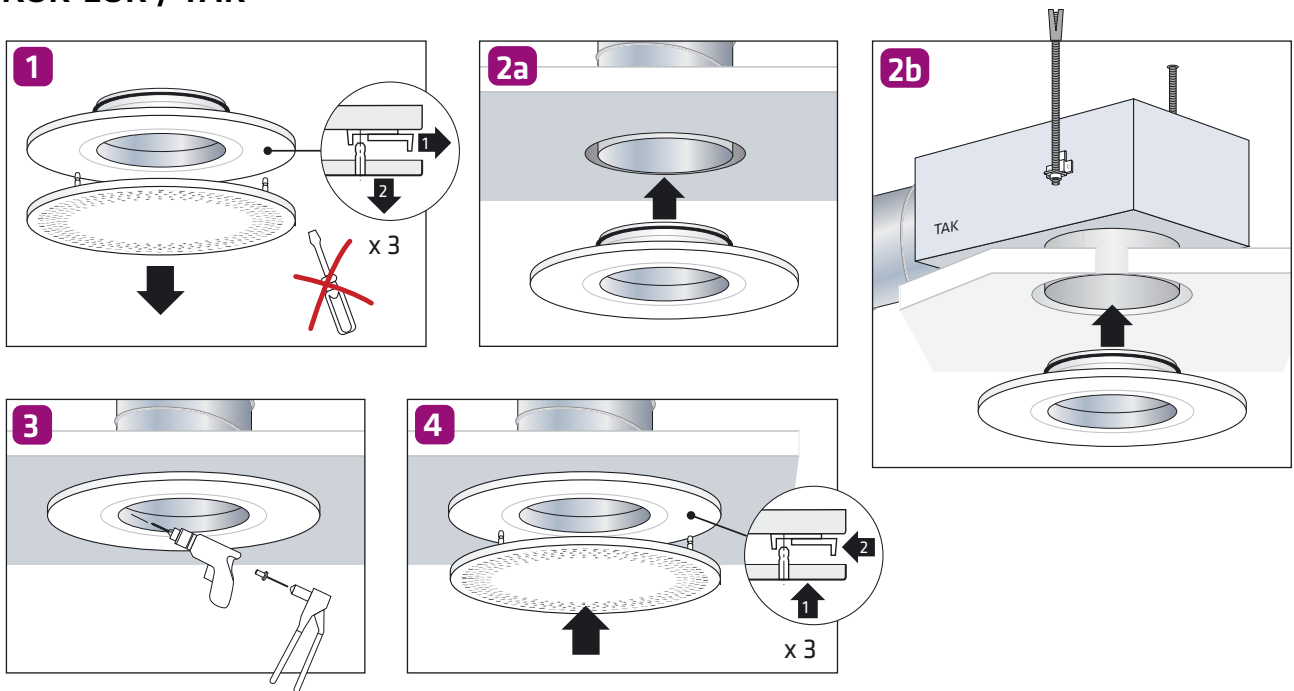
TAK 100/125  
 100 = Balancing plenum box duct size  
 125 = Size of the connected diffuser

# Installation

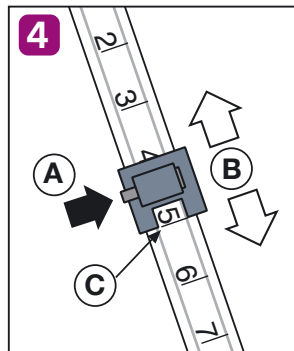
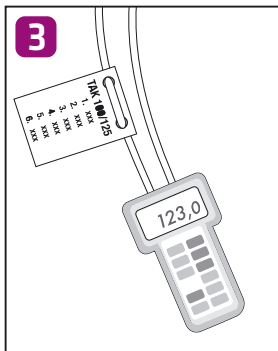
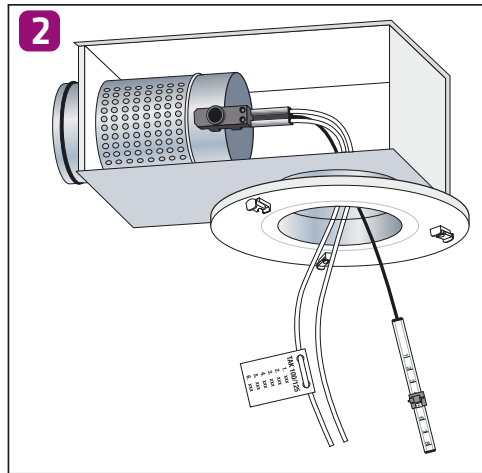
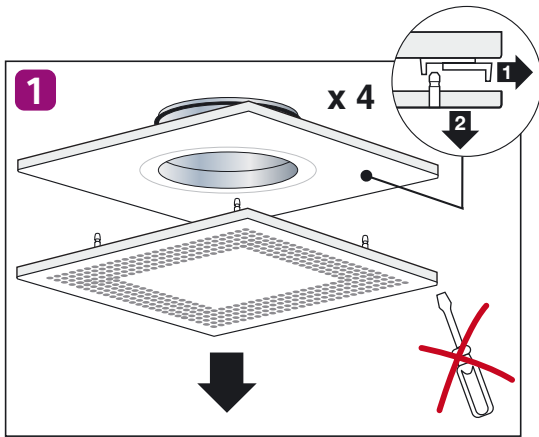
## REK-LEK / TAK



## ROK-LOK / TAK



## Airflow measurement and commissioning

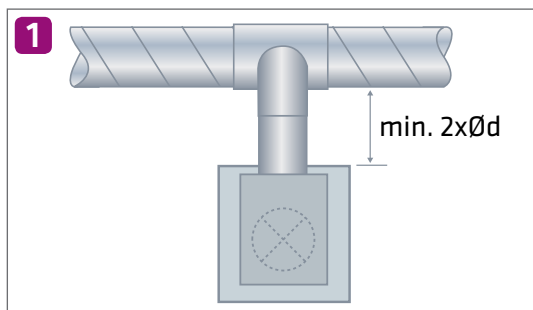


1. Open the bottom part lock
2. Pull out the commissioning part and the differential pressure measurement hoses out of the balancing plenum box
3. Measure the pressure differential
4. A Unlock  
B Adjust the air flow  
C Align the edge to the mark  
D Remember to lock the commissioning position

## Safety distances

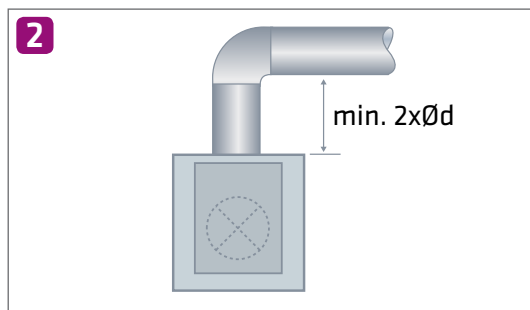


Safety distance affects the balancing plenum box noise level and flow measurement accuracy as follows:



### 1. After the T-branch

Airflow measurement accuracy class 1 ( $\pm 5\%$ ).  
Sound level will increase depending on the speed of the air, the safety distance and the T branch, balancing plenum box and terminal interaction, when the balancing plenum box is installed into the branching duct.



### 2. After the curve

Airflow measurement accuracy class 1 ( $\pm 5\%$ ).  
Sound level increase + 4 dB(A).