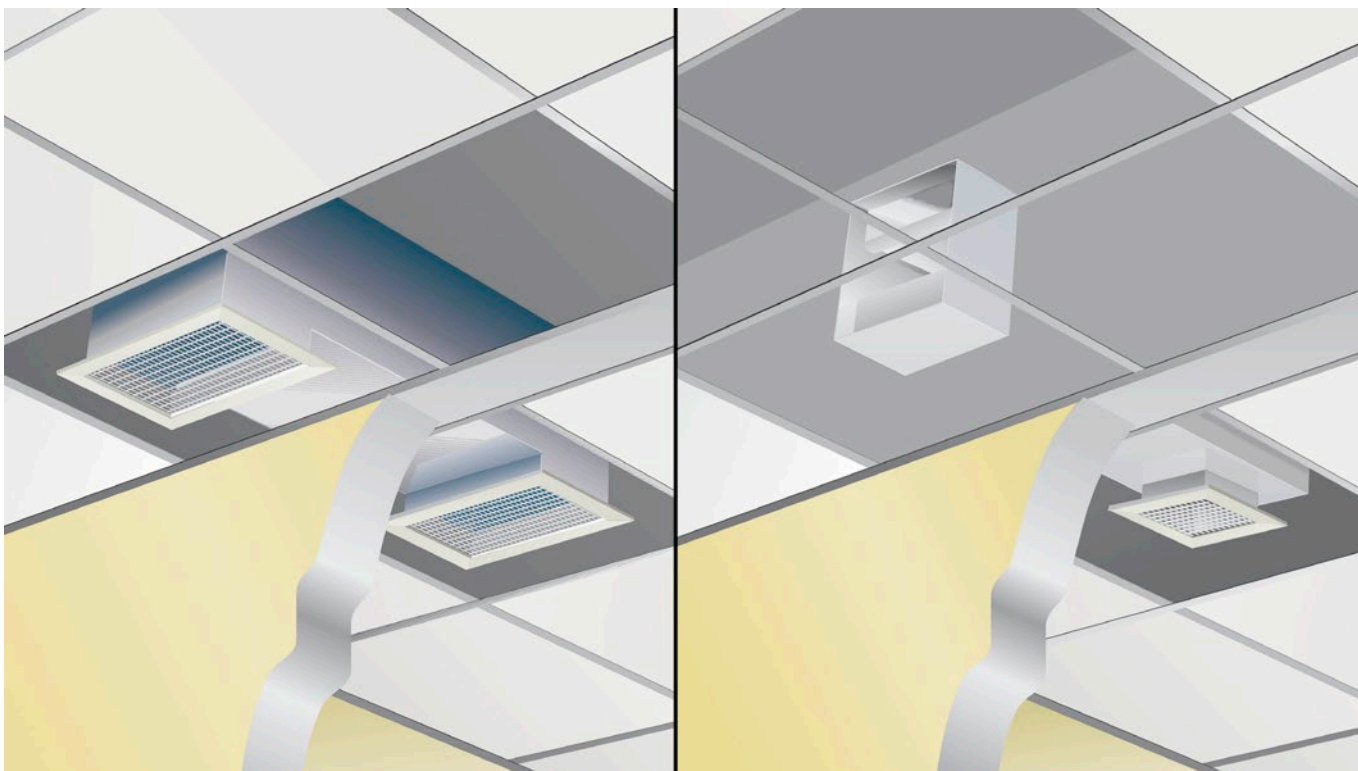


CTK/CTM

Sound attenuating transfer unit for large airflows



QUICK FACTS

- For transfer air through walls or wall/ceiling
- Large flow range up to 220 l/s
- Square hole cut
- Type approved sound attenuating material, ISOVER Cleantec® PLUS
- Simple installation
- Standard colour White RAL 9003
 - 5 alternative standard colours
 - Other colours upon request

AIR FLOW - PRESSURE DROP									
CTK					CTM				
Hole cut in susp. ceiling	10 Pa		20 Pa		Hole cut in susp. ceiling	10 Pa		20 Pa	
	l/s	m³/h	l/s	m³/h		l/s	m³/h	l/s	m³/h
150	43	155	60	216	300 x 150	28	101	40	144
200	78	281	110	396	500 x 150	71	256	100	360
300	155	558	220	792	800 x 200	142	511	200	720

Technical description

Function

A labyrinth with acoustic lining reduces the transmitted sound between rooms. The sound attenuation is strongly depending on the open free area. CTK and CTM combine a very good sound attenuation with a low pressure drop. The attenuator has angle changes, which further improves the acoustic properties of the terminal. CTK and CTM are used when there is demand for a high R_w value, high reduction of crosstalk in combination with large airflows.

Design

Rectangular transfer air baffle. The sound attenuating baffle is filled with sound absorbing material with a reinforced surface layer. CTK and CTM are manufactured as standard in galvanized sheet steel.

The sound attenuating material, ISOVER Cleantec® PLUS, is type approved (type approval no. 2706/92) with respect to cleaning, fibre migration, ageing properties, emissions etc. CTK and CTM consist of a sound attenuating section without grilles. If grilles and mounting frames are required they should be specified separately (see accessories below).

Models

CTK and CTM are supplied as standard in three sizes.

Accessories

A grille for each opening is normally required for CTK and CTM. If a low pressure drop grille is desired, we recommend GRL with the mounting frame FHB.

Grilles:

GRL. Manufactured in extruded aluminium profile and painted in our white interior paint.

Mounting frame:

FHB. Manufactured in galvanized sheet steel.

Planning

When transfer air terminals are installed in ceiling/wall, the reduction value of the wall will decrease. Graph 3 illustrates the possible decrease in the total reduction value of the wall. A calculation example is also given there.

CTK is designed to be used for transfer air through a ceiling/wall. A typical example is transfer air into a corridor, where exhaust air is extracted from above the suspended ceiling. See Figure 1.

CTM is designed to be used for transfer air through a wall. A typical example here is the transfer air between two rooms where the wall is not as high as the ceiling, but is built up to the suspended ceiling. See Figure 2.

A transfer unit should be chosen so that the insulating properties of the wall are not reduced. To quickly determine this, a rule of thumb can be used:

$R_{w \text{ transfer unit}} = \text{Sound classification of the wall} + 5 \text{ dB}$

To calculate the resulting R_w value for the wall see example 1 and 2 below.

les 1 and 2 below.

Table 1 shows the reduction value R , and the R_w value for transfer units with reference to 1 m² transmission area. The measurements were carried out according to Nordtest ACOU 037.

Maintenance

The transfer air terminals CTK and CTM are maintenance free under normal operating conditions. The grilles can be cleaned when necessary using lukewarm water with detergent added.

Environment

The declaration of construction materials is available at www.swegon.com.

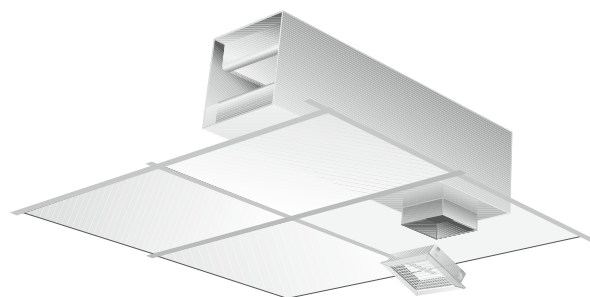


Figure 1. Alternative applications. CTK with transfer air into a corridor using the GRL grille in the room.

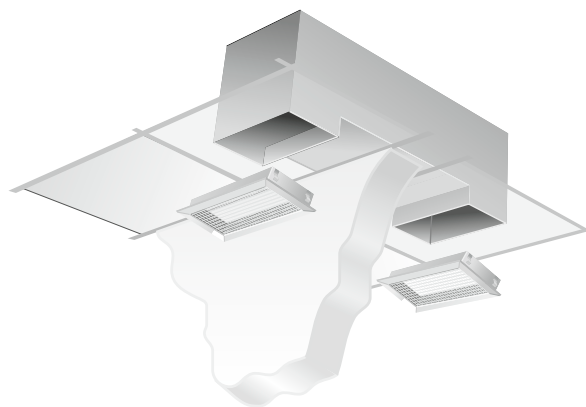


Figure 2. Alternative applications. CTM with transfer air between two rooms using the GRL grille.

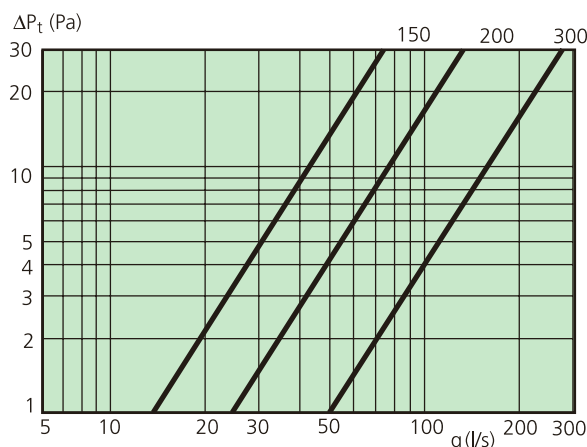
Table 1. Reduction values

Model	Size	Hz						$R_{w,r}$ dB 1 m ²	^{*)} $D_{n,ew,r}$ dB 10 m ²
		125	250	500	1K	2K	4K		
CTK	150	28	31	45	51	50	35	40	50
	200	22	33	46	49	49	37	39	49
	300	19	31	44	46	48	37	36	46
CTM	300 x 150	26	22	41	46	50	46	32	42
	500 x 150	14	30	39	45	49	44	30	40
	800 x 200	23	19	35	44	48	40	29	39

^{*)} $D_{n,ew}$ - the value applies for a transmission area of 10 m² to compare with other air transfer diffusers

Sizing

Graph 1. Airflow – Pressure drop CTK



Graph 2. Airflow – Pressure drop CTM

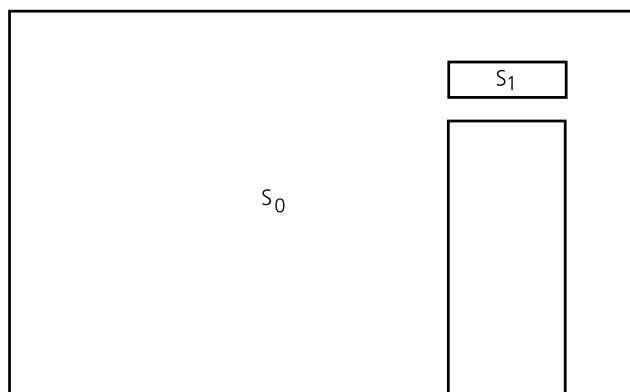
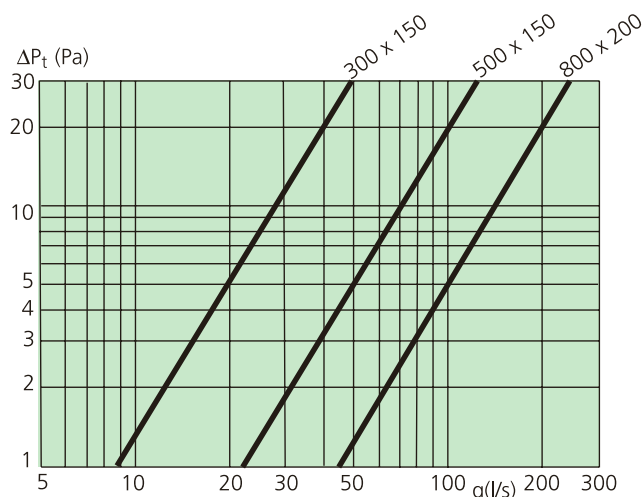
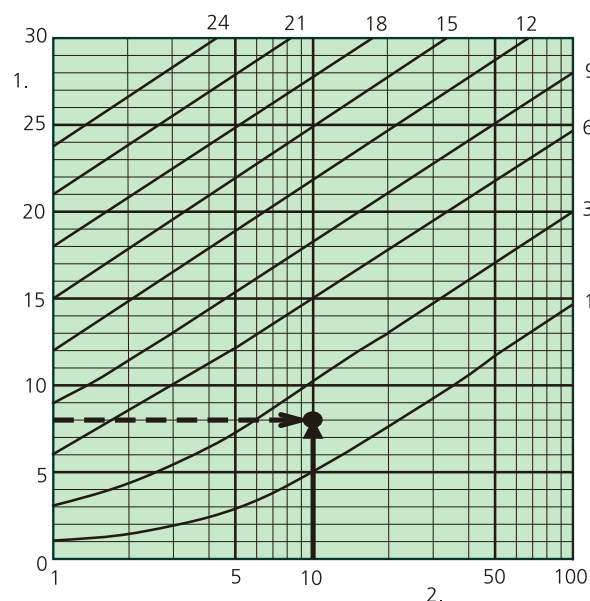


Figure 3. Terms used in Graph 3.

R_0 = reduction value of wall/ceiling
 R_1 = reduction value of transfer air baffle
 S_0 = wall area incl. windows/doors
 S_1 = reference area of terminal = 1 m²

Graph 3. Illustrates the decrease in the reduction value of a wall when the transfer air baffle is installed.



1. Difference $R_0 - R_1$ (dB)
2. Ratio of areas S_0/S_1

Example 1:

A CTM 300 x 150 with a GRL grille and mounting frame is mounted in a wall with an area of 10 m² and $R_w = 40$ dB. R_w for the transfer air baffle = 32 dB.

The difference between the wall and the transfer air baffle is 8 dB (40 - 32). Look at the point on the graph where the area relationship 10 (S_1 = reference area = 1 m²) crosses the difference of 8 dB. The intersection point between these two values gives the decrease in the reduction value of the wall when a terminal is installed (in this case about 2 dB).

I.e. a difference of 8 dB will produce a reduction value for the wall in question, including the transfer air baffle, of 38 dB (40 - 2).

Example 2:

Two CTK 150 with a GRL 150 x 150 grille and mounting frame are mounted in a wall with an area of 10 m² and $R_w = 45$ dB. R_w for the transfer air baffle = 40 dB.

The difference between the wall and the transfer air baffle is 5 dB (45 - 40). Look at the point on the graph where the area relationship 10 (S_1 = reference area = 1 m²) crosses the difference of 5 dB. The intersection point between these two values gives the decrease in the reduction value of the wall when a terminal is installed (in this case 1 dB).

I.e. a transfer air baffle in the wall will reduce the reduction value for the wall in question by 1 dB. The resulting R_w for the wall will be 44 dB (45 - 1). To see how both transfer air baffles work in combination, we can perform the same calculation again. The difference between the wall and the transfer air baffle is now 4 dB (44 - 40). Read off in the graph the intersection between the area relationship 10 (S_1 = reference area = 1 m²) and the difference of 4 dB. It will be about 1 dB and the total R_w for the wall = 43 dB (44 - 1).

Dimensions and weight

	dim.	A	B	C	H	L	Weight
CTK	150	150	250	50	250	1000	8.0
	200	200	300	50	250	1000	10.0
	300	300	600	150	250	1000	15.0
CTM	300x150	150	300	-	225	750	6.5
	500x150	150	500	-	225	750	9.5
	800x200	200	800	-	250	900	15.5

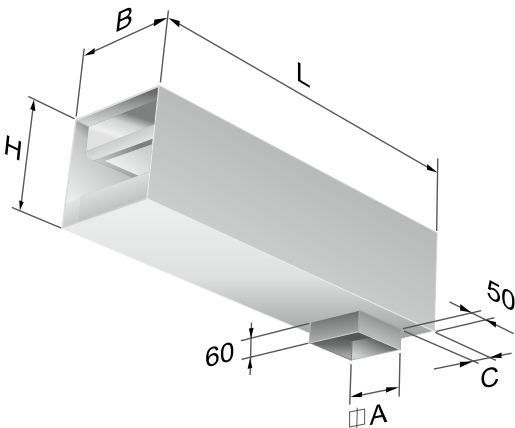


Figure 4. Dimensions CTK.

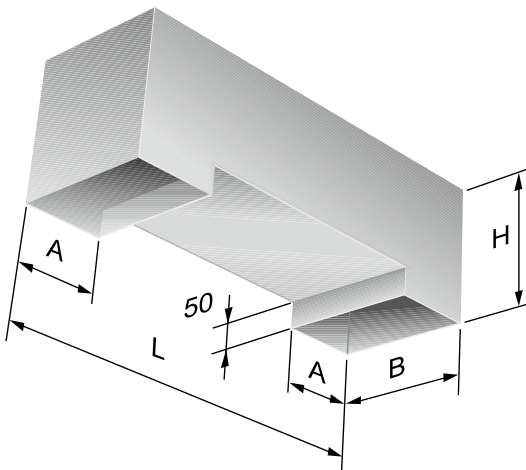


Figure 5. Dimensions CTM.

Order key

Product

Sound attenuating transfer unit air baffel	-aaa	-bbb x -ccc
CTKb, CTMb		
Dimensions:		
CTKb: 150, 200, 300		
CTMb: 300 x 150, 500 x 150, 800 x 200		

Accessories

Mounting frame FHB	CTK T1	-aaa x bbb
Size:	150x150	
	200x200	
	250x250	
	300x250	
	300x300	
	600x250	

Grille GRL	CTK T2	-aaa x bbb
Size:	150x150	
	200x200	
	250x250	
	300x250	
	300x300	
	600x250	

Product

Sound attenuating tranfer unit wall/ wall	CTM	b -aaa x bbb
Version:		
Size:		
CTM: 300 x 150, 500 x 150, 800 x 200		

Accessories

Mounting frame FHB	CTM T1	-aaa x bbb
Size:	300x150	
	500x150	
	800x200	

Grille GRL	CTM T2	-aaa x bbb
Size:	300x150	
	500x150	
	800x200	

Specification example

Swegons rectangular sound attenuating transfer unit of type CTMb, with the following functions:

- Manufactured in galvanized sheet steel
- Acoustic insulation with reinforced surface layer

Size:	CTMb	xx items
Accessories:		
Grilles:	GRLc	xx items
Mounting frame:	FHBa	xx items