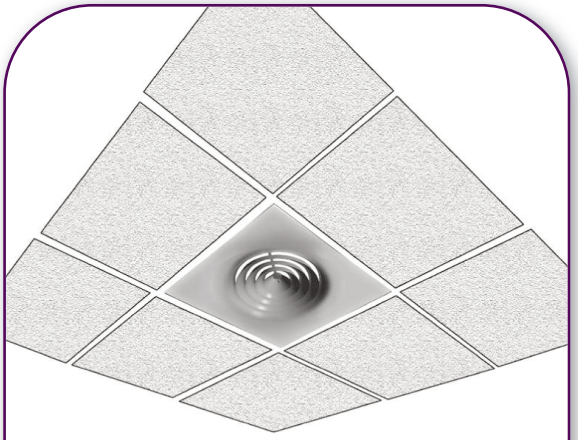
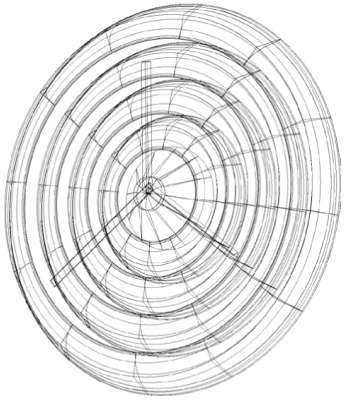
CDN series circular diffusers are designed for use in air conditioning, ventilation and heating systems. They are suitable for mounting in false ceilings and the circular shape assures a uniform air diffusion in all directions which provides a high level of induction rate to the air in the atmosphere.They can be used in premises up to four metres high and with a temperature differential of up to 12°C, obtaining good results not only in distribution, but also in sound pressure level in the comfort zone.



Circular Diffuser//Type **CDN**
Typical Installation

Circular Diffuser//Type **CDN**

Circular Diffuser//Type **CDN**
Wireframe Drawing



The cores are fixed providing an economical method of manufacture, however, we can now spin the whole of this diffuser into a 595mm or 599mm plain or recessed plate to completely replace the ceiling tile, a detail of which is shown overleaf. Diffuser sizes are available from 150mmØ up to 400mmØ neck.

Specification & Construction:
The frame and spinnings and surrounding outer square plate are all manufactured from aluminium HE30.

Sizes:
The smallest neck size available is 150mmØ up to a neck size of 400mmØ. The largest overall plate size is 1195mm x 595mm containing two diffusers.

Finish:
Standard finish is milled aluminium, however, most units are now polyester epoxy powder coated in a range of colours from the RAL list.

Fixing:
Either by concealed fixing into plenum box at rear, or by mounting in a flat plate for laying in a ceiling to replace a tile.

Material:

Diffusers made with aluminium spining. All diffusers are provided with a seal on the back of the frame in order that the perimeter in contact with the ceiling is airtight.

Additional Accessories:

R3E - Flap damper assembled in the diffuser neck. Manually operated. Constructed in galvanised steel.

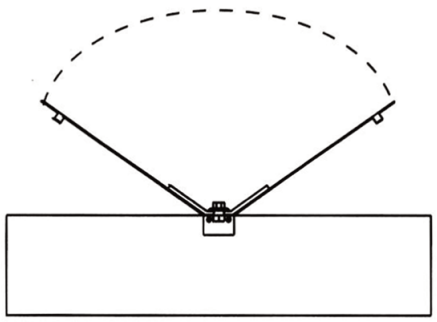
PLDN - Plenum box with a lateral circular connection. It includes supports to hang from the ceiling. Made in galvanised steel.

-R - Plenum box with a flow damper in the spigot.

/S/ - Plenum box with an upper circular neck connector.

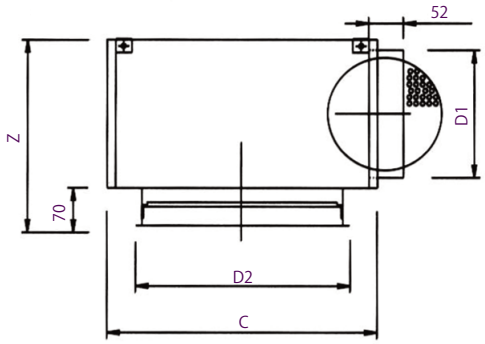
/AIS/ - Plenum box thermoacoustically insulated by foam with a coefficient of thermal conductivity of 0.04w/mk.

Foam complies with fire specifications:
UNE 23-727 M2
UNE 92-501 M2
DIN 4102 M2



R3E

Sizes			
	E	A	C
160	263	223	154
200	303	263	194
250	353	313	244
315	418	378	309
355	458	418	349
400	503	463	394



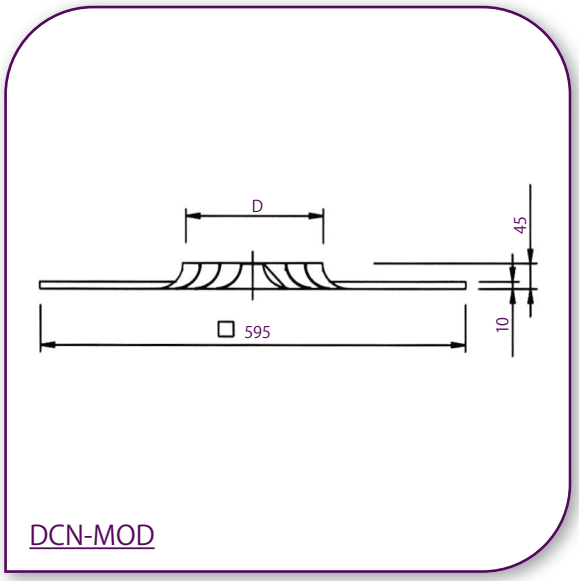
Sizes				
	D2	C	Z	D1
160	245	285	300	123
200	285	335	300	158
250	335	385	300	198
315	400	435	340	248
355	440	485	340	248
400	485	535	420	313

Classification:

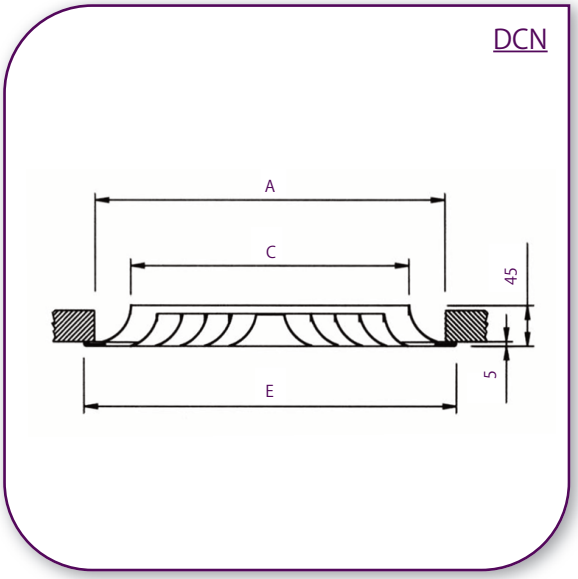
DCN - Circular Diffuser with fixed core.

DCN diffusers are provided with a seal on the back of the frame in order that the perimeter in contact with the ceiling is airtight.

DCN-MOD - DCN diffuser specially designed to replace a 600x600 false ceiling tile.



DCN-MOD



Plenum Box:

Plenum with circular adaptors. It includes supports to hang from the ceiling. Made in galvanised steel. The plenums can be supplied with a damper. Optionally, the plenums are thermoacoustically insulated by foam with thermal conductivity of 0.04 w/mk.

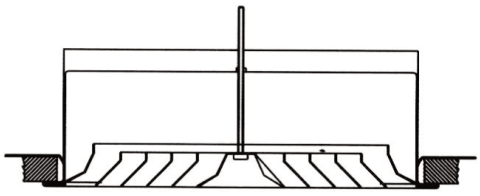
Foam complies with fire reaction specifications:
DIN 4102 B2 Class 'O'.

System of Attachment:

PMN - Hidden fixing with a crossbar and central screw. Suitable for mounting in false ceiling with rectangular duct. Constructed in galvanised steel.

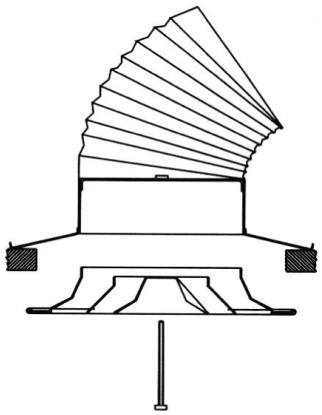
PFLEX - Hidden fixing with a circular crossbar by means of a central screw. Suitable for mounting in false ceiling with flexible duct.

PLDN - Connection into the plenum box by means of central screw, to hang the assembly from the ceiling with drop rods.



DCN+PMN

DCN+PFLEX



To regulate the flow in plenum box mounting, we suggest the PLDN-R that incorporates a damper in the plenum.

Finish:

Polyester powder-coated in the following colours:

RAL 9006 - Silver

RAL 9010 - White

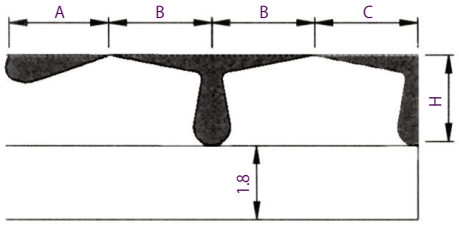
RAL - Other colours at an additional cost.

Recommended Velocity		
DCN	V min m/s	V max m/s
160	2.5	4.5
200	2.5	4.5
250	2.5	4.5
315	2.5	4.5
355	2.5	4.5
400	2.5	4.5

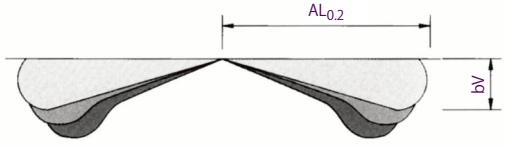
Effective Face Area m^2				
DCN	Ak m^2	Aeff m^2	Qmin m^3/h	Qmax m^3/h
160	0.0183	0.0123	100	200
200	0.0292	0.0177	150	300
250	0.0462	0.0265	250	450
315	0.0743	0.0413	400	700
355	0.949	0.0576	500	1000
400	0.121	0.0621	600	1100

Correction Factor for DPt & LWA1				
DCN+R3E		100% Open	50% Open	10% Open
160	DPt/Kp/	1	1.82	4.55
	Lwa1/Kf	0	6	15
200	DPt/Kp/	1	4.38	7.5
	Lwa1/Kf	0	6	15
250	DPt/Kp/	1	4.17	8.33
	Lwa1/Kf	0	6	16
315	DPt/Kp/	1	3	18
	Lwa1/Kf	0	7	16
355	DPt/Kp/	1	2.5	5
	Lwa1/Kf	0	7	17
400	DPt/Kp/	1	3.4	20
	Lwa1/Kf	0	7	17

DPt1 = Kp x DPt
Lwa = Lwa1 + Kf



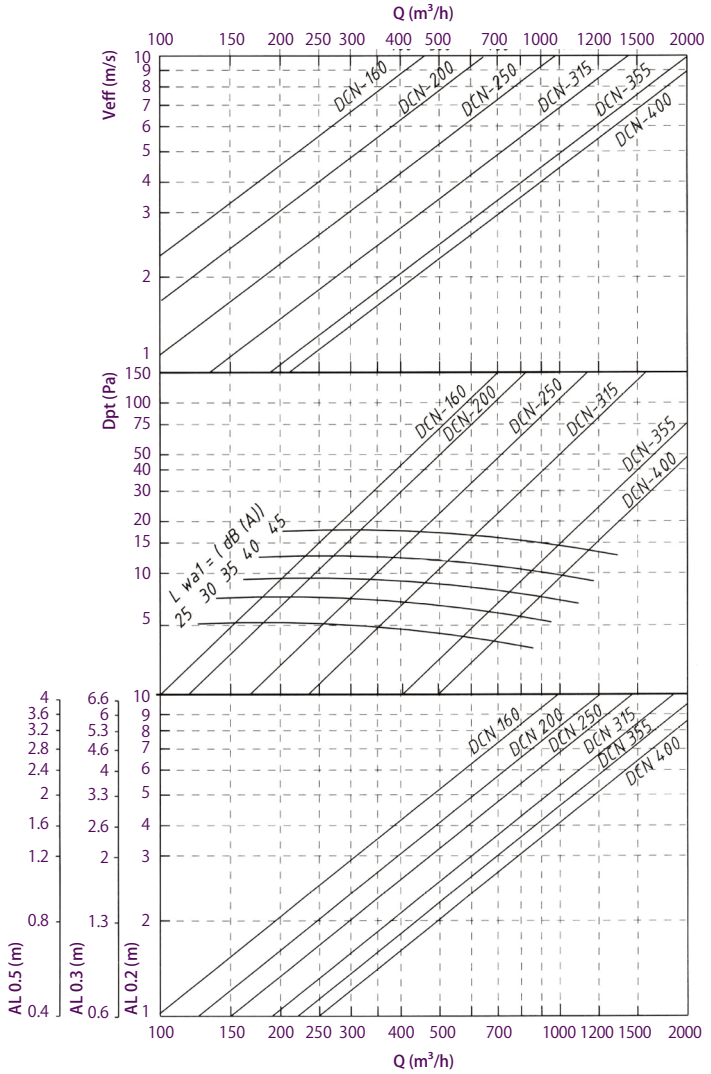
$AL_{0.2}$ = A
$AL_{0.2}$ = B+H
$AL_{0.2}$ = C+H



bV = Kh x A10.2
AL0.2/Dt <0/ = Kl x AL0.2

Diffusers

Effective Velocity, Pressure Loss & Sound Power Level Throw with Ceiling Effect



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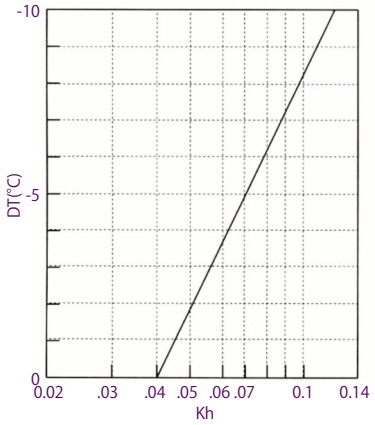
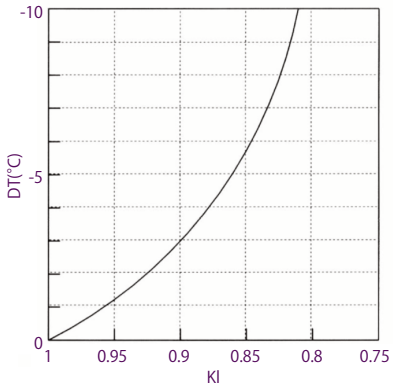
Correction Factor for Vertical Diffusion (bV) for DT(-)

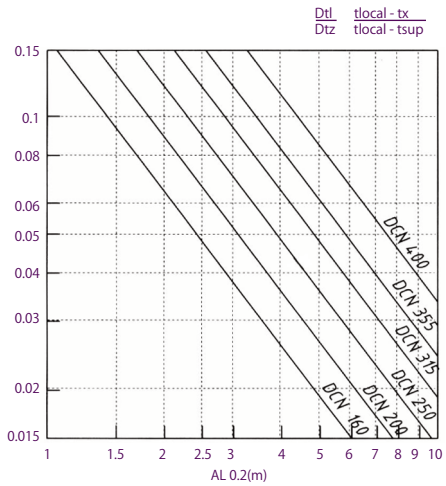


Kh = Correction factor for vertical diffusion

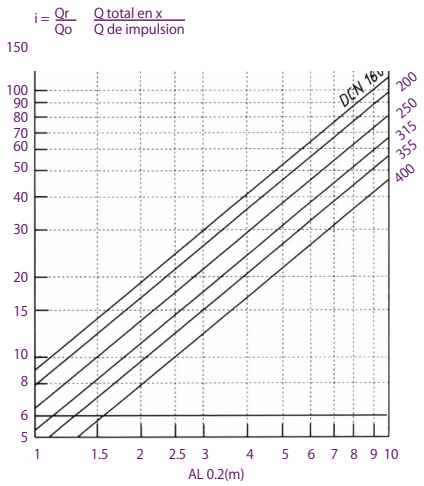
Correction Factor for Throw (L0.2) DT(-)



KI = Correction factor for throw



Temperature Ratio



Induction Ratio