



DCN CIRCULAR DIFFUSERS

MADEL®

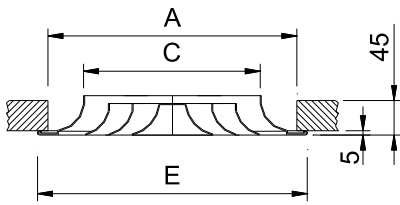
The **DCN** series diffusers are designed to be used in air-conditioning, ventilation and heating.

They can be mounted in false ceilings or suspended from the ceiling.

Its circular shape assures a uniform air pattern in all directions, which provides a high level of induction rate of the air in the atmosphere.

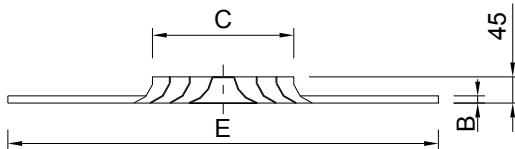
They can be used in premises up to 4 meters high and with a temperature differential up to 12°, obtaining good results, not only in air speed but also in sound pressure level in the comfort zone.

DCN



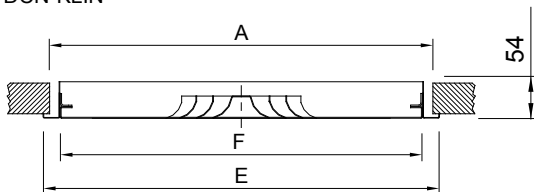
	E	A	C
160	263	223	154
200	303	263	194
250	353	313	244
315	418	378	309
355	458	418	349
400	503	463	394

DCN - MOD



		MOD/600		MOD/625		MOD/675	
	C	B	E	B	E	B	E
160	154	12	595	12	620	15	670
200	194	12	595	12	620	15	670
250	244	12	595	12	620	15	670
315	309	12	595	12	620	15	670
355	349	12	595	12	620	15	670
400	394	12	595	12	620	15	670

DCN-KLIN



	E	A	F
400-160	395	369	345
400-200	395	369	345
500-250	495	469	445
500-315	495	469	445
600-160	595	569	545
600-200	595	569	545
600-250	595	569	545
600-315	595	569	545
600-315	595	569	545
600-400	595	569	545

CLASSIFICATION

DCN Circular diffuser with fixed core.

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

DCN-MOD/625 Diffuser specially designed to replace a 625x625 false ceiling tile.

DCN-MOD/675 Diffuser specially designed to replace a 675x675 false ceiling tile.

DCN-KLIN Hinged removable core diffuser for the easy access to the installations above the ceiling with no need of tools, by means of PUSH fasteners.

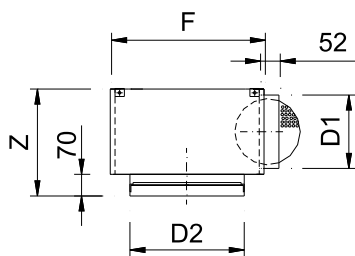
By slightly pressing on the invisible latch, the core opens, remaining hinged on one side. If necessary the core can be easily removed for maintenance of **HVAC** installations.

MATERIAL

Diffusers constructed from aluminium.
The frame of the **-KLIN** models is constructed from galvanised steel.

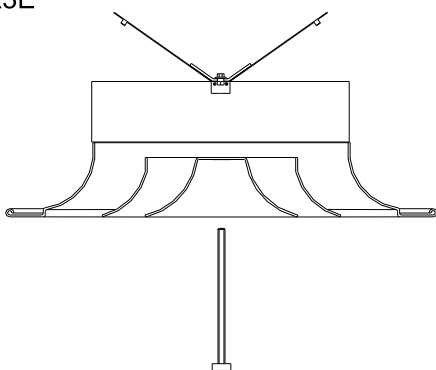
The **DCN** diffusers are provided with a seal on the back of the frame in order that the perimeter in contact with the ceiling is airtight.

PLDN...-R



	D2	F	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

R3E



ADDITIONAL ACCESSORIES

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 thermo acoustically insulated by a foam with a coefficient of thermal conductivity of 0,04 w/mk. This foam complies with the fire reaction specifications:

UNE 23-727 M2

NFP 92-501 M2

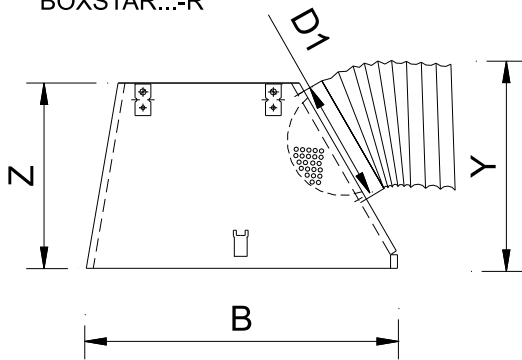
DIN 4102 M2

R3E Flap damper assembled in the diffuser neck.

Manually operated.

Constructed in galvanised steel.

BOXSTAR...-R



	B	Z	Y	D1
600	590	350	375	248
625	615	350	375	248

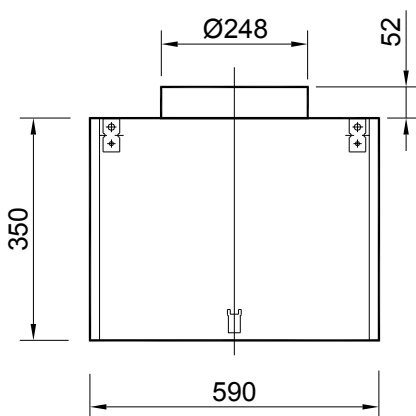
BOXSTAR Plenum box with a lateral circular connection for **DCN-MOD...** diffusers.

It includes supports to hang from the ceiling. The crossbar is supplied separately to be assembled manually on the work site. Made in galvanised steel.

Plenum box to pile up. It spares more than 50 % volume in relation to a conventional plenum box.

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

BOXSTAR/S/



/AIS/ Plenum box thermo acoustically insulated by a foam with a coefficient of thermal conductivity of 0,04 w/mk. This foam complies with the fire reaction specifications:

UNE 23-727 M2
NFP 92-501 M2
DIN 4102 M2

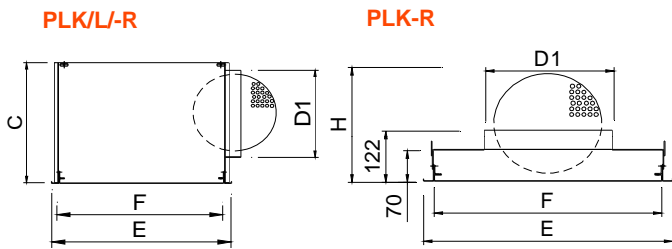
BOXSTAR/S/ Plenum box with an upper circular neck connection for **DCN-MOD** diffusers.

It includes supports to hang from the ceiling. Made in galvanised steel.

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

.../AIS/ Plenum box thermo acoustically insulated by a foam with a coefficient of thermal conductivity of 0,04 w/mk. This foam complies with the fire reaction specifications:

UNE 23-727 M2
NFP 92-501 M2
DIN 4102 M2



	E	F	C	D1	H
400	395	365	320	198	205
500	495	465	370	248	286
600	595	565	435	313	353
675	670	640	435	313	353

PLK Plenum box fixed to the diffuser, suitable for **-KLIN** models. Plenum box with an upper connection, made in galvanised steel.

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

.../L Plenum box with a lateral connection.

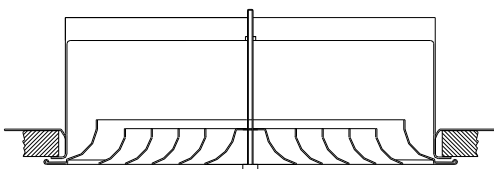
.../AIS/ Plenum box thermo acoustically insulated by a foam with a coefficient of thermal conductivity of 0,04 w/mk. This foam complies with the fire reaction specifications:

UNE 23-727 M2

NFP 92-501 M2

DIN 4102 M2

DCN + PMN

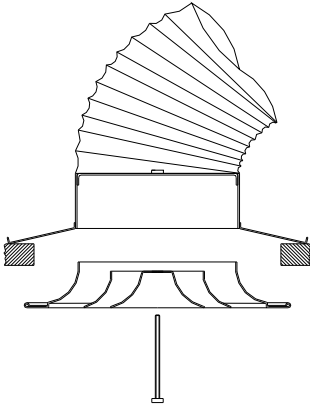


FIXING SYSTEMS

1) Connection into the PMN crossbar by means of central screw. Suitable for mounting in false ceiling with rectangular duct. Constructed in galvanised steel.

1) Connection into the PFLEX crossbar-neck by means of central screw. Suitable for mounting in false ceiling with flexible duct. Constructed in galvanised steel.

DCN + PFLEX

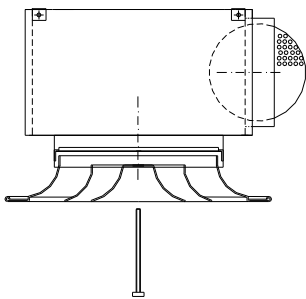


1) Connection into the plenum box by means of central screw, to hang the assembly from the ceiling with drop rods.

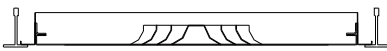
To regulate the flow in plenum box mounting, we suggest ...-R versions that incorporates a damper in the plenum.

1) Supports to hang the assembly from the ceiling with drops rods.

DCN + PLDN...-R



...-KLIN



FINISHES

DCN:

AA Anodised in matt silver.

R9010 Lacquer in white colour RAL 9010.

M9016 Lacquer in white colour similar to RAL 9016.

RAL... Lacquer in other colours (RAL specifications).

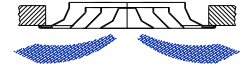
DCN-MOD:

R9010 Lacquer in white colour RAL 9010.

M9016 Lacquer in white colour similar to RAL 9016.

RAL... Lacquer in other colours (RAL specifications).

DCN SERIES



RECOMMENDED VELOCITY.

DCN	Vmin m/s	Vmax m/s
160	2,5	5,2
200	2,5	5,9
250	2,5	5
315	2,5	5
355	2,5	4,8
400	2,5	4,2

FREE FACE AREA (m2).

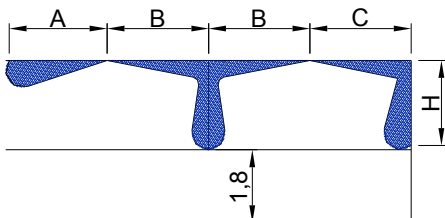
DCN	Ak m2	Afree m2	Qmin. m3/h	Qmax. m3/h
160	.0183	.016	144	300
200	.0292	.02	180	425
250	.0462	.0330	297	595
315	.0743	.0460	414	835
355	.0949	.0550	495	970
400	.121	.070	630	1060

CORRECTION FACTOR FOR DPt AND Lwa1.

DCN+R3E	100% Open		50% Open	
		Dpt (Kp)	Lwa1 (Kf)	Dpt (Kp)
160	Dpt (Kp)	1,3	5,4	
	Lwa1 (Kf)	+1,6	+10,4	
200	Dpt (Kp)	1,2	5,5	
	Lwa1 (Kf)	+0,6	+11,7	
250	Dpt (Kp)	1,3	5,8	
	Lwa1 (Kf)	+0,2	+10,3	
315	Dpt (Kp)	1,3	5,5	
	Lwa1 (Kf)	-0,8	+6,2	
355	Dpt (Kp)	1,25	6,6	
	Lwa1 (Kf)	+0,1	+10,7	
400	Dpt (Kp)	1,1	6,2	
	Lwa1 (Kf)	+0,3	+10,6	

$$DPt1 = Kp \times DPt$$

$$Lwa = Lwa1 + Kf$$

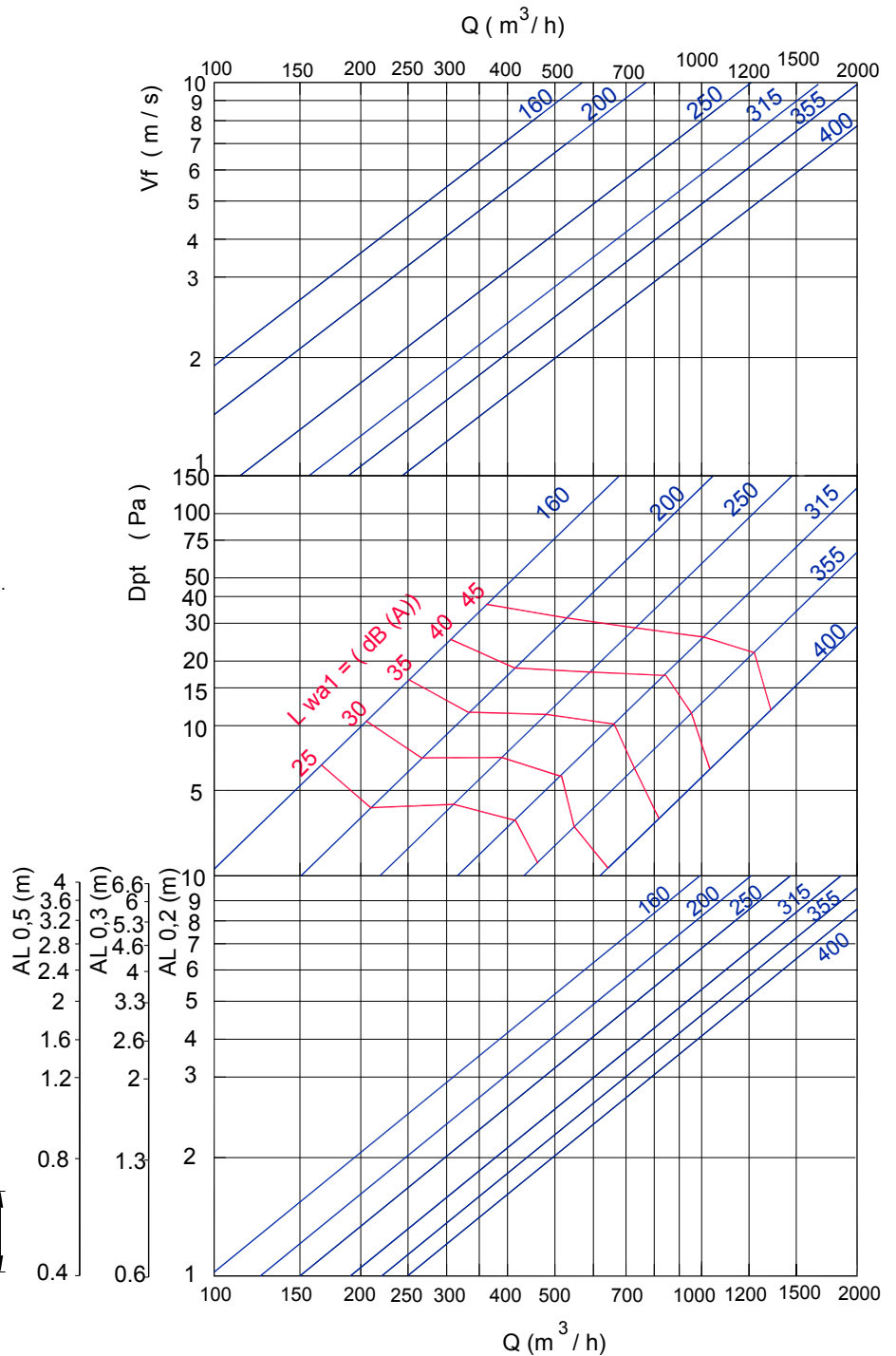


$$AL_{0,2} = A$$

$$AL_{0,2} = B+H$$

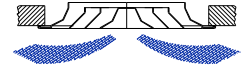
$$AL_{0,2} = C+H$$

FREE VELOCITY, PRESSURE LOSS AND SOUND POWER LEVEL,
THROW WITH CEILING EFFECT.
DCN

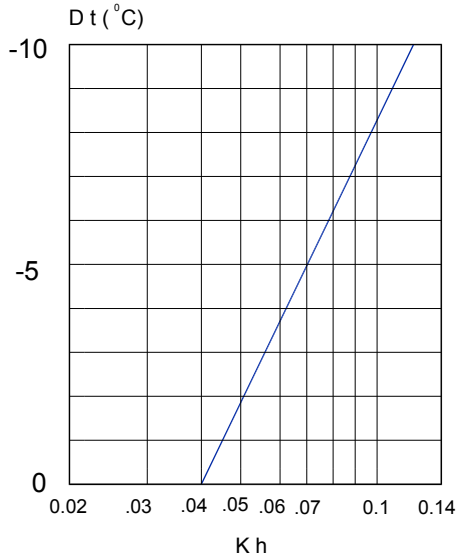


Note: In MadelMedia Octava band centre frequency in Hz.

DCN SERIES

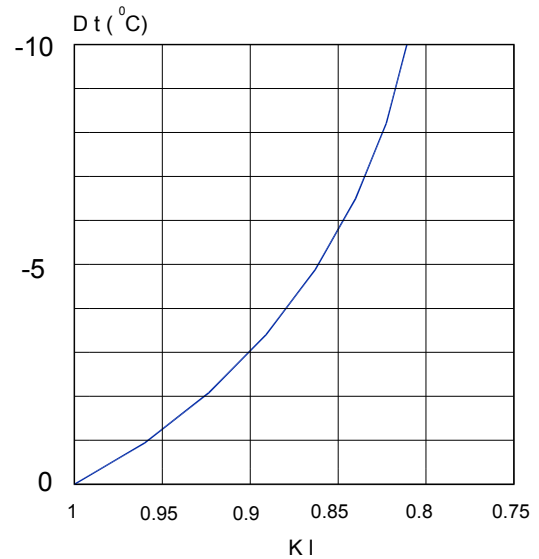


CORRECTION FACTOR FOR VERTICAL DIFFUSION (bv) FOR DT (-).

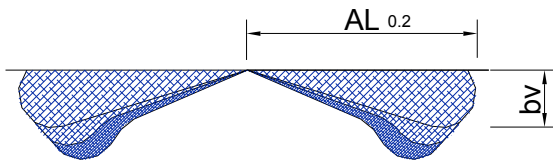


Kh = Correction factor for the vertical diffusion.

CORRECTION FACTOR FOR THROW (L0.2) DT (-).



Kl = Correction factor for the throw.

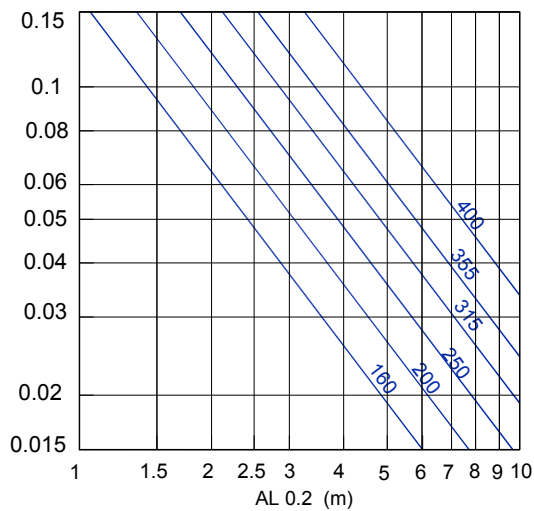


$$bv = Kh \times Al_{0.2}$$

$$AL'_{0.2} (Dt < 0) = Kl \times AL_{0.2}$$

TEMPERATURE RATIO.

$$\frac{Dtl}{Dtz} = \frac{t_{room} - t_x}{t_{room} - t_{supply}}$$



INDUCTION RATIO.

$$i = \frac{Q_r}{Q_0} = \frac{Q_{total\ at\ x}}{Q\ of\ supply}$$

