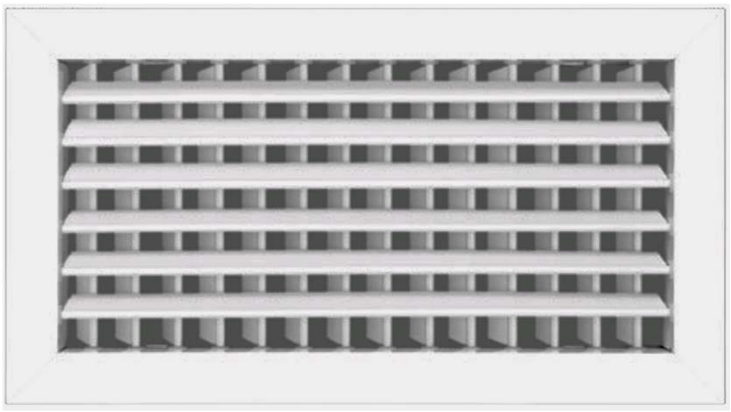
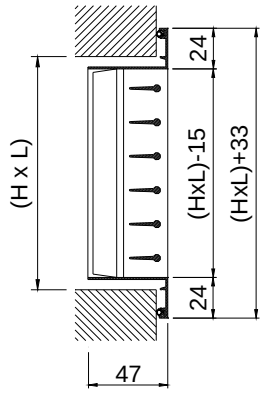


CTM double deflection grilles for air supply

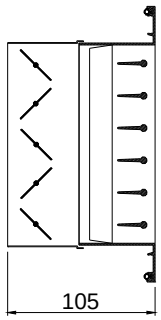
MADEL®

The **CTM** series grilles are designed to be used in air-conditioning, ventilation and heating. They are mounted on walls or in false ceilings.
The direction of the blades can be altered, making it possible to graduate the extent, the height and the width of the air stream.

CTM



CTM + SP



CLASSIFICATION

CTM Grille with front blades parallels to the largest side (L size).

CMT Grille with front blades parallels to the shortest side (H size).

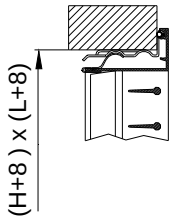
MATERIAL

CTM-…
CMT-…
…-AN Grille in aluminium.
…-N Grille in galvanised steel.

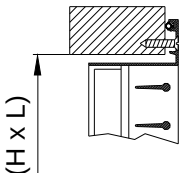
ADDITIONAL ACCESSORIES

SP Opposed blades volume damper from electro-zinc steel, in black colour. The damper is operated by an easily accessible key inside the grille.
The damper is held in place by “S” springs.

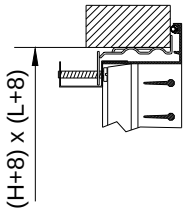
(S)



(T)



(O)



FIXING SYSTEMS

(S) Clips. It requires mounting frame CM.
(O) Hidden screw. It requires mounting frame CM.
(T) Visible screws.

FINISHES

…-AN

AA Matt silver anodised.
M9016 Painted in white similar to RAL 9016.
R9010 Painted in white RAL 9010.

…-N

M9006 Painted in grey similar to RAL 9006.
M9016 Painted in white similar to RAL 9016.
R9010 Painted in white RAL 9010.
RAL… Painted in other RAL colours.

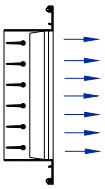
SPECIFICATION TEXT

Supply and mounting of double deflection grille for air supply with individually adjustable blades parallels to the largest side series
CTM-AN+SP+CM (S) M9016 dim. LxH, constructed from aluminium paint in white **M9016** with opposed blades volume damper from electro-zinc steel in black colour **SP**, invisible fixing by clips **(S)** and mounting frame **CM**.
Manufacturer **MADEL**.

CTM

FREE FACE AREA m2.

H \ L	150	200	250	300	350	400	450	500	600	700	800	900	1000
100	0,008	0,012	0,015	0,018	0,022	0,025	0,028	0,031	0,037	0,044	0,051	0,057	0,063
150	0,013	0,019	0,024	0,029	0,034	0,037	0,044	0,049	0,060	0,070	0,080	0,090	0,101
200	0,018	0,026	0,033	0,040	0,047	0,054	0,061	0,068	0,082	0,096	0,110	0,124	0,138
250	0,024	0,033	0,042	0,051	0,059	0,056	0,077	0,086	0,104	0,122	0,140	0,159	0,175
300	0,029	0,040	0,050	0,062	0,072	0,083	0,094	0,105	0,126	0,148	0,169	0,191	0,213
350	0,034	0,047	0,059	0,072	0,085	0,098	0,110	0,123	0,148	0,174	0,199	0,225	0,250
400	0,039	0,054	0,058	0,083	0,098	0,112	0,127	0,142	0,171	0,200	0,229	0,258	0,287
450	0,044	0,061	0,077	0,094	0,110	0,127	0,143	0,160	0,193	0,226	0,259	0,292	0,325
500	0,049	0,068	0,086	0,105	0,123	0,142	0,160	0,178	0,215	0,252	0,289	0,325	0,362
600	0,059	0,082	0,104	0,126	0,149	0,171	0,193	0,215	0,259	0,304	0,348	0,393	0,438



RECOMMENDED VELOCITY.

Vmin m/s	Vmax m/s
2	3.5

Determination of air flow.
Measuring the Vf in different points of the grille, we find the Vfmed.

Q (l/s) = Vfmed (m/s) * Afree (m2) * 1000
Q (m3/h) = Vfmed (m/s) * Afree (m2) * 3600

CORRECTION FACTOR FOR Lwa1.

Afree m2	0,01	0,02	0,05	0,1	0,2	0,4
Lwa1(kf)	-10	-8	-1	-	+6	+10

Weighted noise level related to Afree = 0,1m2.

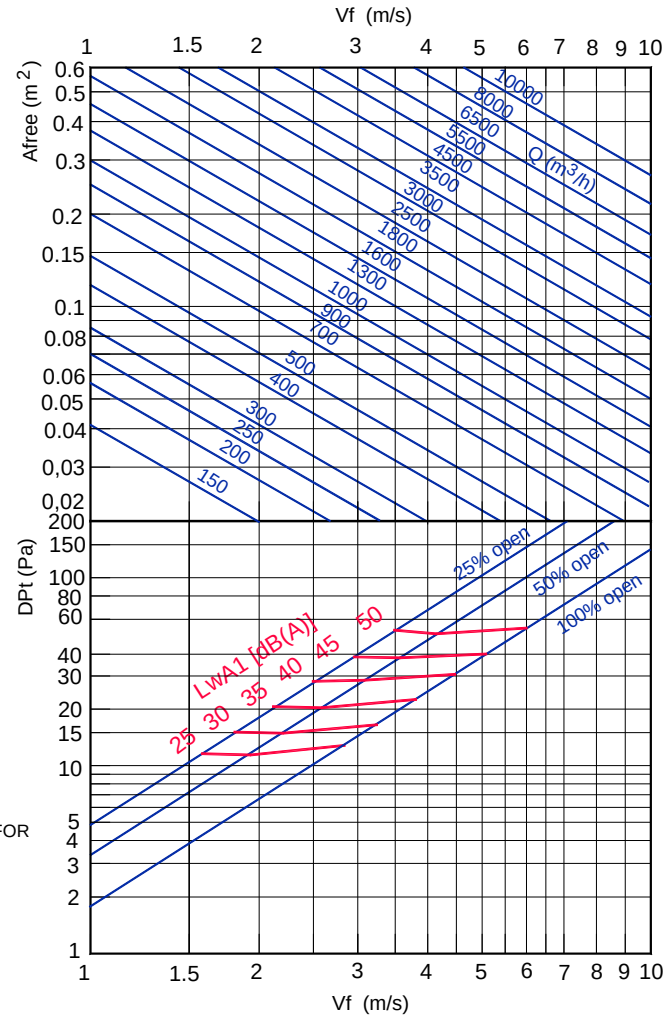
Lwa = Lwa1 + Kf

CORRECTION FACTOR OF PRESSURE LOSS FOR DIFFERENT BLADES POSITIONS.

	0º	22º	45º
Kp	1	1,28	1,5

DPt' = Dpt x Kp

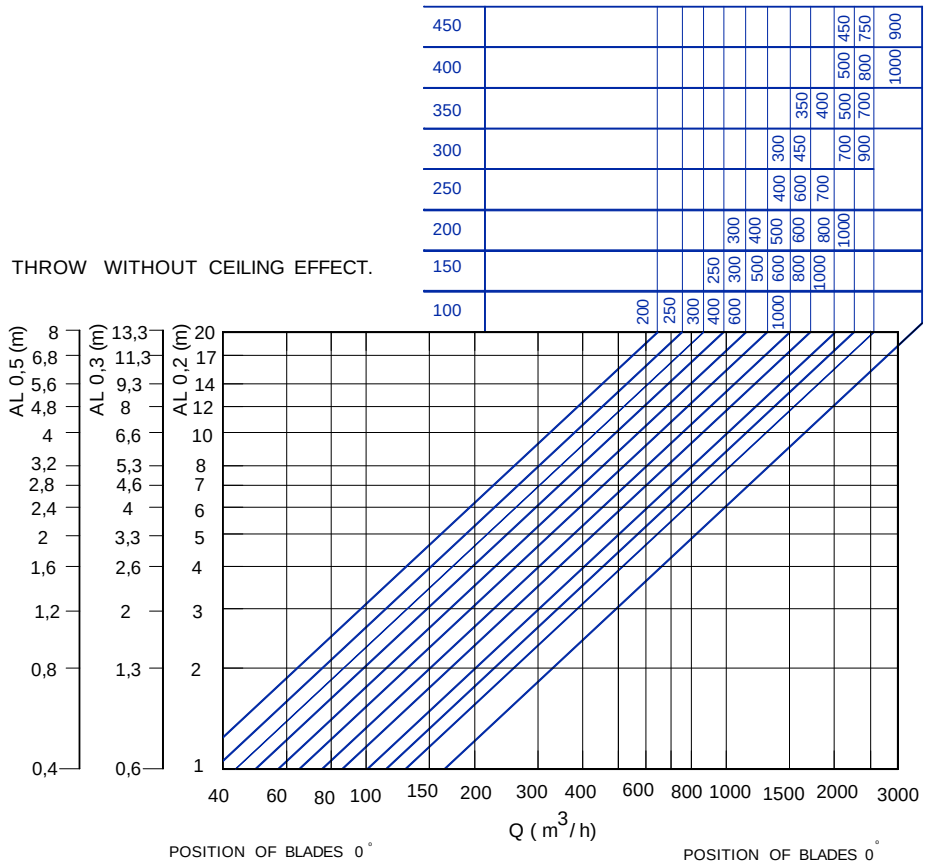
FREE VELOCITY, PRESSURE LOSS AND SOUND POWER LEVEL.



Note: In MadelMedia Octava band centre frequency in Hz.

CTM

THROW WITHOUT CEILING EFFECT.



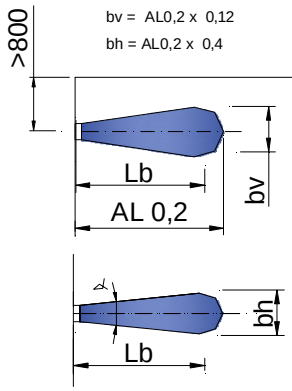
POSITION OF BLADES 0° WITHOUT CEILING EFFECT.

AL0,2

Lb = AL0,2 x 0,53

bv = AL0,2 x 0,12

bh = AL0,2 x 0,4



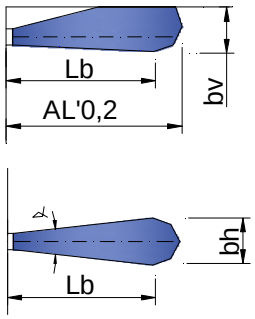
POSITION OF BLADES 0° WITH CEILING EFFECT.

AL'0,2 = AL0,2 x 1,33

Lb = AL0,2 x 0,7

bv = Al0,2 x 0,106

bh = Al0,2 x 0,53



CORRECTION FACTOR FOR POSITION OF BLADES.

AL0,2(22º) = Al0,2 x 0,8

Lb(22º) = AL0,2 x 0,53

bv(22º) = Al0,2 x 0,096

bh (22º) = Al0,2 x 0,48

AL0,2(45º) = Al0,2 x 0,5

Lb(45º) = AL0,2 x 0,33

bv(45º) = Al0,2 x 0,06

bh(45º) = Al0,2 x 0,6

CORRECTION FACTOR FOR POSITION OF BLADES.

AL'0,2(22º) = Al0,2 x 1,064

Lb(22º) = Al0,2 x 0,7

bv(22º) = Al0,2 x 0,08

bh(22º) = Al0,2 x 0,64

Lb(45º)= Al0,2 x 0,66

Lb(45º)= Al0,2 x 0,44

bv(45º) = Al0,2 x 0,054

bh(45º) = Al0,2 x 0,798