



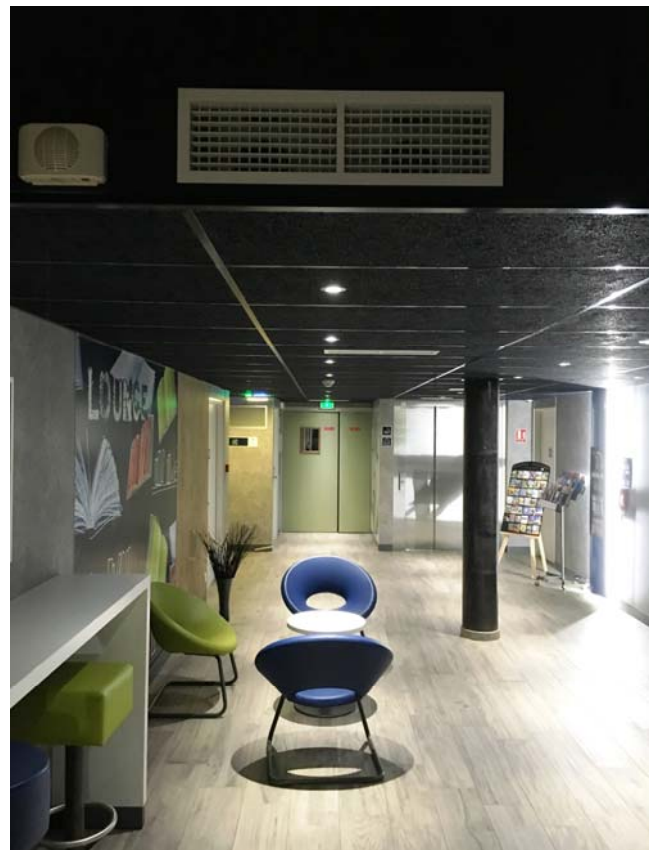
CTM double deflection grilles for air supply

The **CTM** series grilles are designed for air supply in HVAC system.

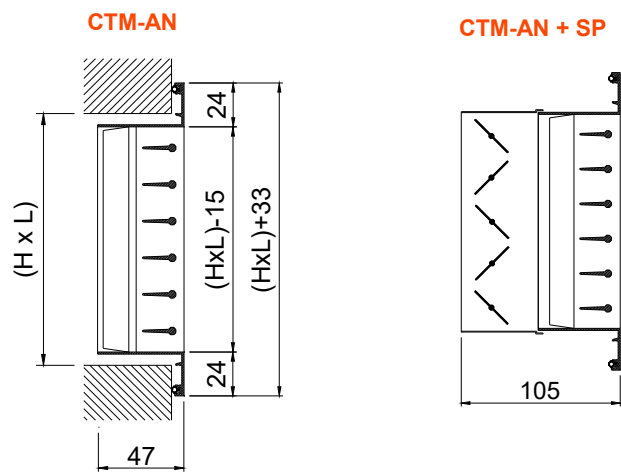
- Double deflection grilles.
- Wall or false ceiling mounting.
- Individually adjustable blades to adjust the throw and the air pattern.

Product advantages:

- Nylon bushings for optimal fit of the blades.
- Perimeter gasket for sealing with the wall or ceiling.
- Opposed blades damper in black color for better aesthetics.



- Offices
- Hotels
- Residences



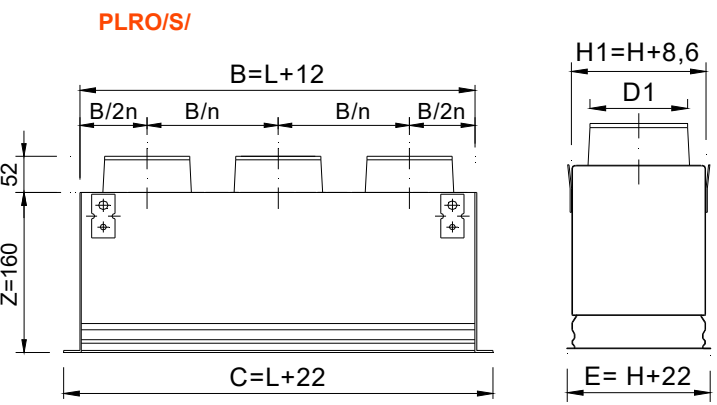
CLASSIFICATION

CTM-AN Grille with front blades parallels to the largest side (L size) and black rear blades.

CMT-AN Grille with front blades parallels to the shortest side (H size). Rear blades of the same color as the front ones.

MATERIAL

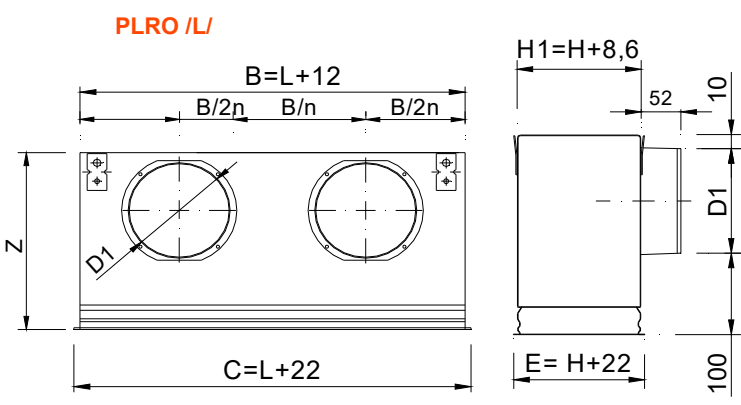
Aluminium grilles. Seal on the back of the frame in order that the contact with ceilings or walls is airtight.



ACCESSORIES

CM Mounting frame from galvanised steel (delivered separately in 4 linear elements) The opening size LxH must be increased by 8 mm.

SP Opposed blades volume damper from galvanised steel, in black colour. The damper is operated by an easily accessible key inside the grille.



PLRO Plenum box with circular connection, made from galvanized steel. Suitable for both wall and ceiling mounting.

.../S/ Upper circular connection.

.../L/ Lateral circular connection.

...-R Damper in the spigot.

.../AIS/ Thermally insulated plenum box with foam. Density 30 kg / m3 ISO 845. Thermal conductivity 20° C_0,040 W / m°K ISO 3386/1.

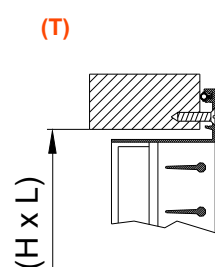
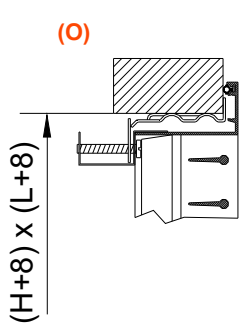
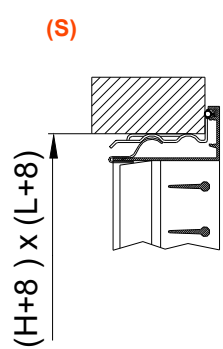
Classified reaction to fire B-s2, d0 EN 13501-1.

PLRO/S/ (D1)

LxH	100	150	200	250	300
200	1/98	1/123	1/198		
250	1/98	1/123	1/198	1/198	
300	1/98	1/123	1/198	1/248	1/248
350	1/98	1/123	1/198	1/248	1/248
400	1/98	1/123	1/198	1/248	1/248
450	1/98	1/123	1/198	1/248	1/248
500	1/98	1/123	1/198	1/248	1/248
600	2/98	2/123	1/198	1/248	1/248
700	2/98	2/123	1/198	1/248	1/248
800	2/98	2/123	1/198	1/248	1/248
900	2/98	2/123	2/198	1/248	1/248
1000	2/98	2/123	2/198	1/248	2/248

PLRO/L/ (D1)

LxH	100	150	200	250	300
200	1/123	1/158	1/198		
250	1/123	1/198	1/198	1/198	
300	1/158	1/198	1/198	1/198	1/248
350	1/158	1/198	1/198	1/248	1/248
400	1/158	1/198	1/248	1/248	1/248
450	1/198	1/198	1/248	1/248	1/313
500	1/198	1/198	1/248	1/248	1/313
600	1/198	2/198	1/248	1/248	1/313
700	2/198	2/198	2/198	2/248	2/248
800	2/198	2/198	2/198	2/248	2/248
900	2/198	2/198	2/248	2/248	2/313
1000	2/198	2/198	2/248	2/248	2/313



FIXING SYSTEMS

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

FINISHES CTM-AN (Shadowline Effect)

- SLAA** Matt silver anodised and black rear blades.
- SL16** Pre-lacquered in white similar to RAL 9016 (85-95% gloss) and black rear blades.
- SL10** Pre-lacquered in white RAL 9010 (60-70% gloss) and black rear blades.
- RAL...** Painted in other RAL colours.

FINISHES CMT-AN

- AA** Matt silver anodised.
- M9016** Pre-lacquered in white similar to RAL 9016 (85-95% gloss).
- R9010S** Pre-lacquered in white RAL 9010 (60-70% gloss).
- 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

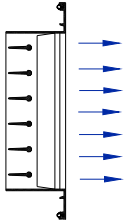
CTM-AN+SP+CM (S) SL16 dim. LxH, constructed from aluminium paint in white similar to RAL 9016 (85-95% gloss) and black rear blades, with opposed blades volume damper from galvanised steel in black colour, invisible fixing by clips and mounting frame CM. **Manufacturer MADEL.**



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



FREE VELOCITY, PRESSURE LOSS AND SOUND POWER LEVEL.

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.

$$Q \text{ (l/s)} = V_{\text{fmed}} \text{ (m/s)} * A_{\text{free}} \text{ (m}^2\text{)} * 1000$$

$$Q \text{ (m}^3\text{/h)} = V_{\text{fmed}} \text{ (m/s)} * A_{\text{free}} \text{ (m}^2\text{)} * 3600$$

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

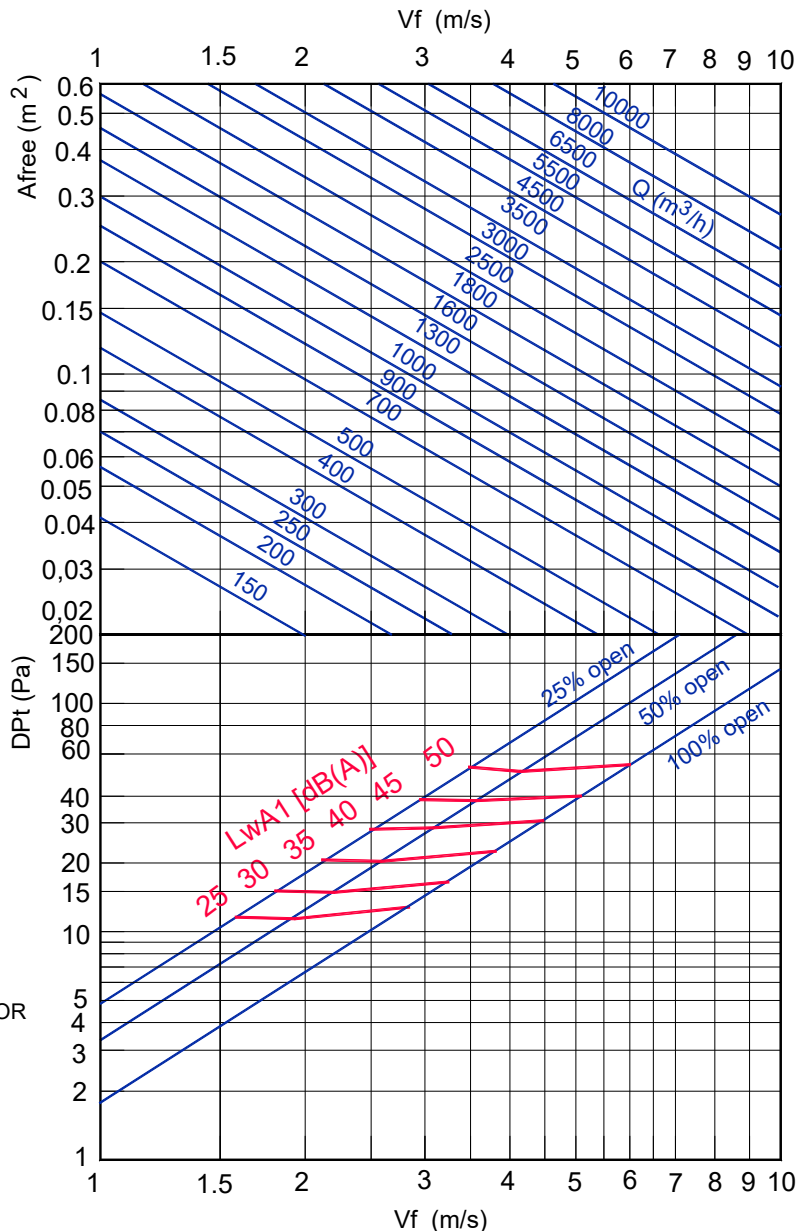
Weighted noise level related to Afree = 0,1m2.

$$L_{\text{wa}} = L_{\text{wa1}} + K_{\text{f}}$$

CORRECTION FACTOR OF PRESSURE LOSS FOR DIFFERENT BLADES POSITIONS.

Kp	0°	22°	45°
	1	1,28	1,5

$$DPT' = Dpt * Kp$$



Note: In MadelMedia Octava band centre frequency in Hz.

