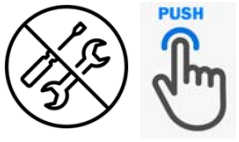
M A D E L ® we shape the air



LESS Supply-return linear slot diffusers

The linear diffusers of the **LESS** series allow the supply and return of air on the same unit, contributing to better architectural aesthetics and easy and quick installation. The LESS diffuser is divided into 60% supply and 40% return.

- Combine aesthetics and technical performance
- Mounting in a false ceiling or suspended from the ceiling
- Suitable for CAV and VAV installations from 2.6 up to 4 meters high and with a temperature differential up to 12º C.
- Diffuser accessible from the front without tools, by means of invisible PUSH system to access to the return filter (K/8 class EN 779 G3)

LESS diffuser advantages:

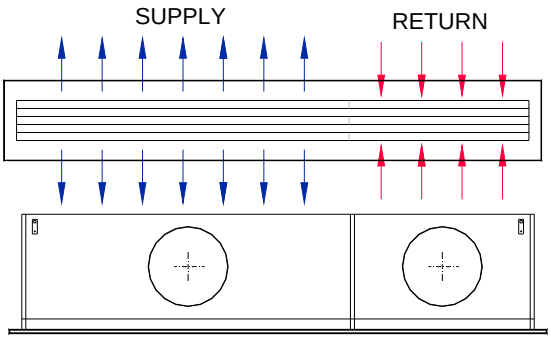
- ➢ Air supply and return in a single unit
- ➢ Fewer diffusion units
- ➢ Accessible without tools

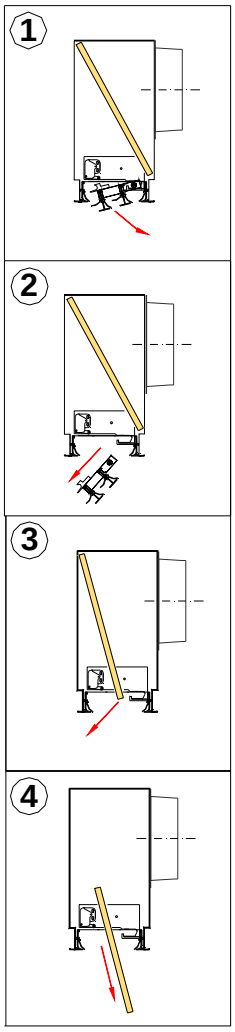
LESS diffuser benefits:

- ✓ Uniform and aesthetic installation
- ✓ Economical installation
- ✓ Ease of maintenance

- ❑ Offices
- ❑ Hotels
- ❑ Malls

LESS





CLASSIFICATION

LESS Linear diffuser for air supply and air return with side connection plenum and filter (K / 8 class EN 779 G3) incorporated. Adjustable blades to modify air distribution, without altering the flow rate.

...-MOD Modular linear diffuser. Specially designed to replace a false ceiling tile.

MATERIAL

Diffuser constructed from aluminium and deflection vanes from aluminium in black colour. Plenum box built in galvanized steel.

ACCESSORIES

.../AIS/ Thermally insulated plenum box with foam. Density 30 kg / m3 ISO 845. Thermal conductivity 20º C_0,040 W / mºK ISO 3386/1.
Classified reaction to fire B-s2, d0 EN 13501-1.

FIXING SYSTEMS

1) Support brackets to hang from the ceiling.

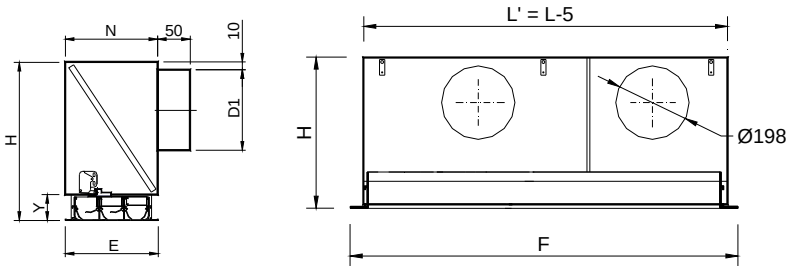
FINISHES

AA Matt silver anodised (not available for MOD version)
M9016 Painted white similar to RAL 9016 (85-95% gloss)
R9016S Painted white RAL 9016 semi-matt (60-70% gloss)
R9010S Painted white RAL 9010 semi-matt (60-70% gloss)
RAL... Painted in other RAL colours.

SPECIFICATION TEXT

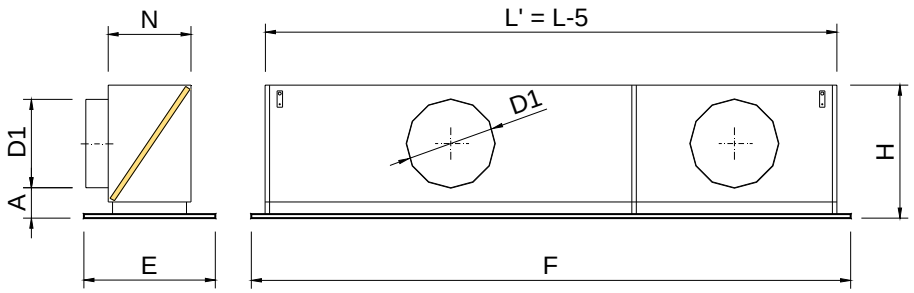
Supply and installation of linear diffuser for supply air return with side connection plenum and incorporated filter (K/8 class EN 779 G3), accessible from the front without tools, by means of invisible PUSH system, **LESS M9016 3x1000** series, made of aluminum and plenum galvanized steel; painted white color **M9016**. **MADEL** brand.

LESS



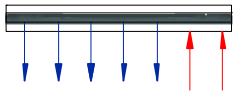
	L	F	E	A	L'	H	Y	N	D1
3	1000	1036	147	135	995	296	66	147	198
4	1000	1036	186	174	995	296	66	186	198
5	1000	1036	225	213	995	296	66	225	198
6	1000	1036	264	252	995	296	66	264	198
3	1100	1136	147	135	1095	296	66	147	198
4	1100	1136	186	174	1095	296	66	186	198
5	1100	1136	225	213	1095	296	66	225	198
6	1100	1136	264	252	1095	296	66	264	198
3	1200	1236	147	135	1195	296	66	147	198
4	1200	1236	186	174	1195	315	50	186	248
5	1200	1236	225	213	1195	315	50	225	248
6	1200	1236	264	252	1195	315	50	264	248
3	1300	1336	147	135	1295	296	66	147	198
4	1300	1336	186	174	1295	315	50	186	248
5	1300	1336	225	213	1295	315	50	225	248
6	1300	1336	264	252	1295	315	50	264	248
3	1400	1436	147	135	1395	296	66	147	198
4	1400	1436	186	174	1395	315	50	186	248
5	1400	1436	225	213	1395	315	50	225	248
6	1400	1436	264	252	1395	315	50	264	248
3	1500	1536	147	135	1495	296	66	147	198
4	1500	1536	186	174	1495	315	50	186	248
5	1500	1536	225	213	1495	315	50	225	248
6	1500	1536	264	252	1495	315	50	264	248

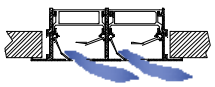
LESS-MOD



MOD L x H	slots	F	E	L'	H	D1	N	Y
1200x300	3	1195	295	1145	296	198	147	66
1200x300	4	1195	295	1145	315	248	186	50
1200x300	5	1195	295	1145	315	248	225	50
1200x300	6	1195	295	1145	315	248	264	50
1350x300	3	1345	295	1295	296	198	147	66
1350x300	4	1345	295	1295	315	248	186	50
1350x300	5	1345	295	1295	315	248	225	50
1350x300	6	1345	295	1295	315	248	264	50

LESS





RECOMMENDED VELOCITY.

SLOTS	Vmin (m/s)	Vmax (m/s)
3	2.5	4
4	2.5	4
5	2.5	4
6	2.5	4

FREE FACE AREA (m2).

	1000	1100	1200	1300	1400	1500
3	0,0157	0,0172	0,0188	0,024	0,0219	0,0235
4	0,0209	0,0230	0,0251	0,0271	0,0292	0,0313
5	0,0261	0,0287	0,0313	0,0339	0,0365	0,0392
6	0,0313	0,0345	0,0376	0,0407	0,0438	0,0470

MOD

	1195	1345
3	0,0179	0,0203
4	0,0239	0,0270
5	0,0299	0,0338
6	0,0359	0,0406

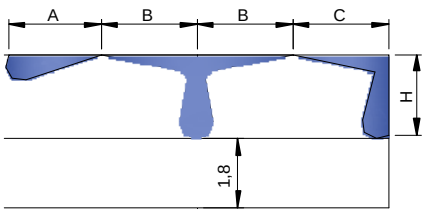
DPt1 = Kp x DPt

CORRECTON FACTOR FOR THROW KL

KL	1000	1100	1200	1300	1400	1500
3	0,9	0,9	0,9	1	1	1.1
4	0,9	0,95	0,95	1	1	1.1
5	0,9	0,9	0,9	1	1	1.1
6	1	1.12	1.12	1.05	1.05	1.15

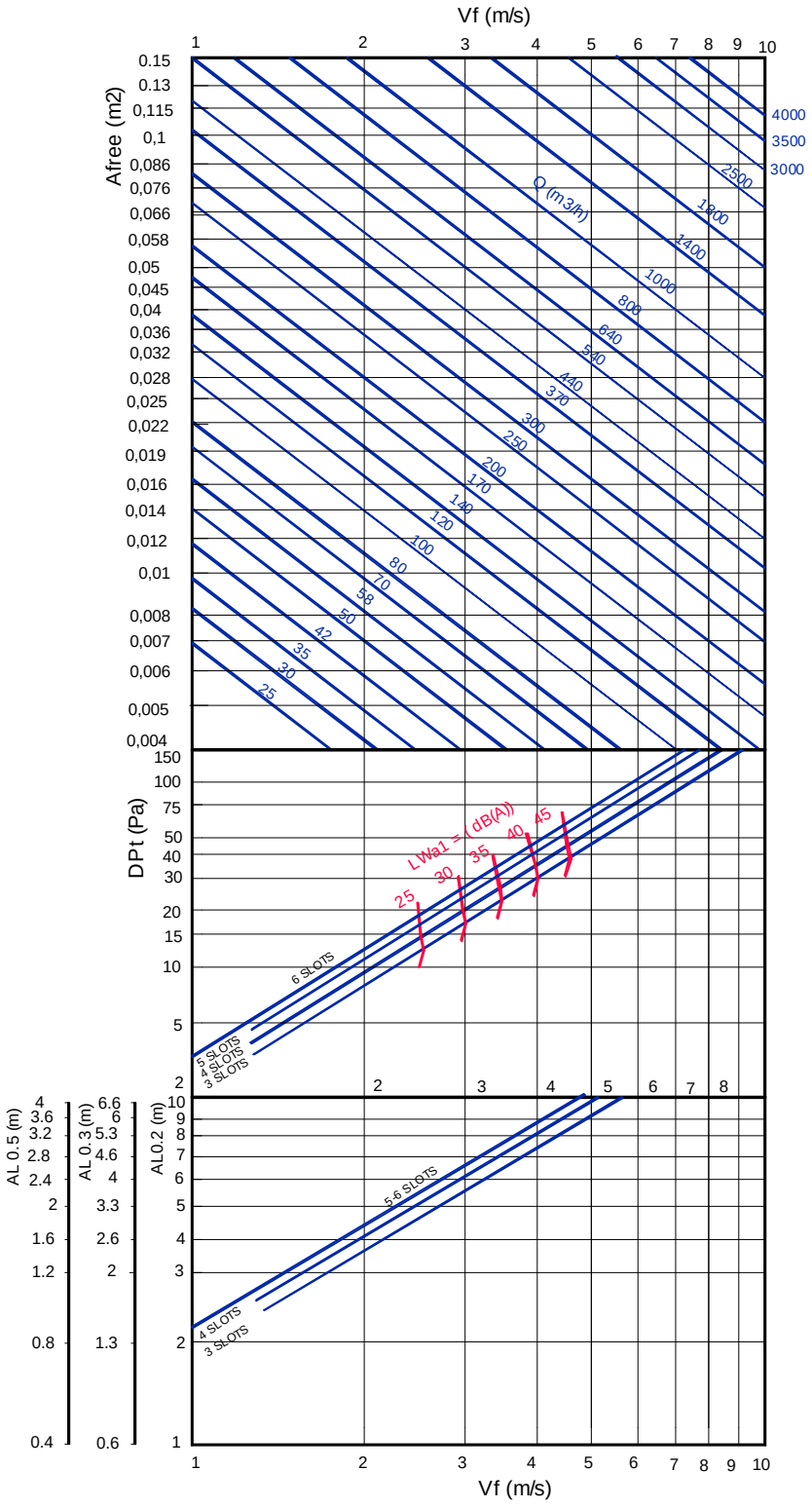
KP	1000	1100	1200	1300	1400	1500
3	0,66	0,66	0,66	0.7	0.7	0.7
4	0,7	0,7	0,7	0.83	0.83	0.83
5	0,6	0,6	0,6	0.64	0.64	0.64
6	1	1	1	0.89	0.89	0.89

AL`02 = Kl x AL02

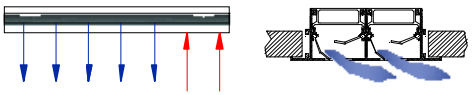


$AL_{0.2} = A$
$AL_{0.2} = B+H$
$AL_{0.2} = C+H$

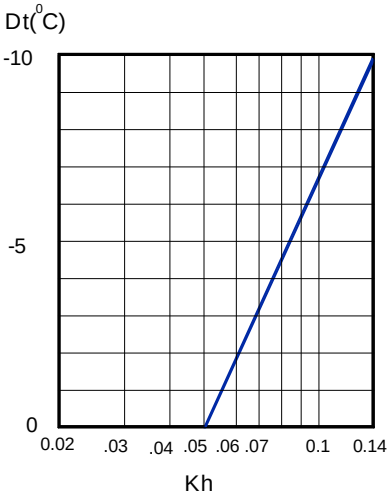
FREE VELOCITY, PRESSURE LOSS AND SOUND POWER LEVEL, THROW WITH CEILING EFFECT: 1 DIRECTION.



LESS

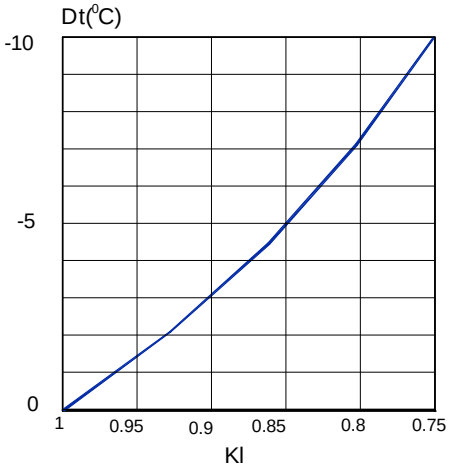


CORRECTION FACTOR FOR VERTICAL DIFFUSION (bV) FOR DT (-).

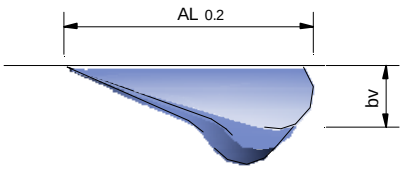


Kh = Correction factor for the vertical diffusion.

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



Kl = Correction factor for the throw.

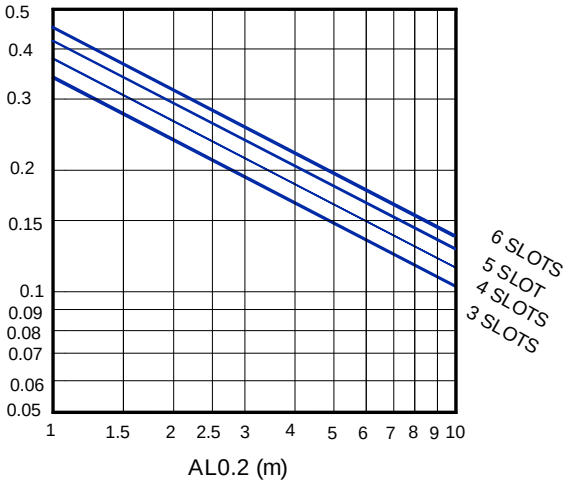


$$bv = Kh \times Al_{0.2}$$

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

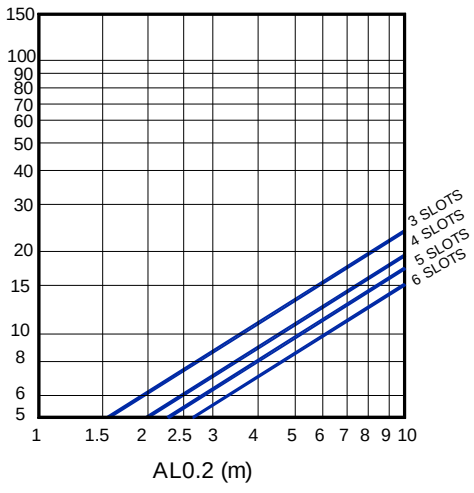
TEMPERATURE RATIO.

$$\frac{Dtl}{Dtz} = \frac{t\ room - tx}{t\ room - t\ supply}$$

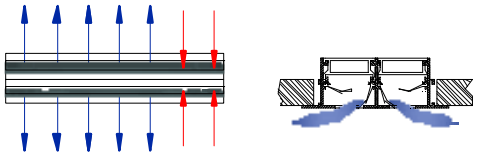


INDUCTION RATIO.

$$i = \frac{Qr}{Q_0} = \frac{Q\ total\ at\ x}{Q\ of\ supply.}$$



LESS



RECOMMENDED VELOCITY.

SLOTS	Vmin (m/s)	Vmax (m/s)
4	2.5	4.5
6	2.5	4

FREE FACE AREA (m2).

	1000	1100	1200	1300	1400	1500
4	0,0209	0,0230	0,0251	0,0271	0,0292	0,0313
6	0,0313	0,0345	0,0376	0,0407	0,0438	0,0470

MOD

	1195	1345
4	0,0239	0,0270
6	0,0359	0,0406

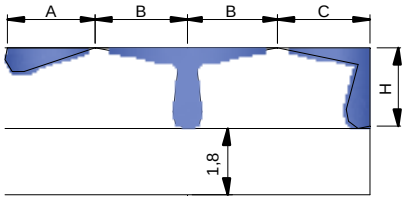
DPt1 = Kp x DPt
CORRECTON FACTOR FOR

THROW KL

KL	1000	1100	1200	1300	1400	1500
4	0.88	0.88	0.88	1	1	1
6	0.97	0.97	0.97	1.12	1.12	1.12

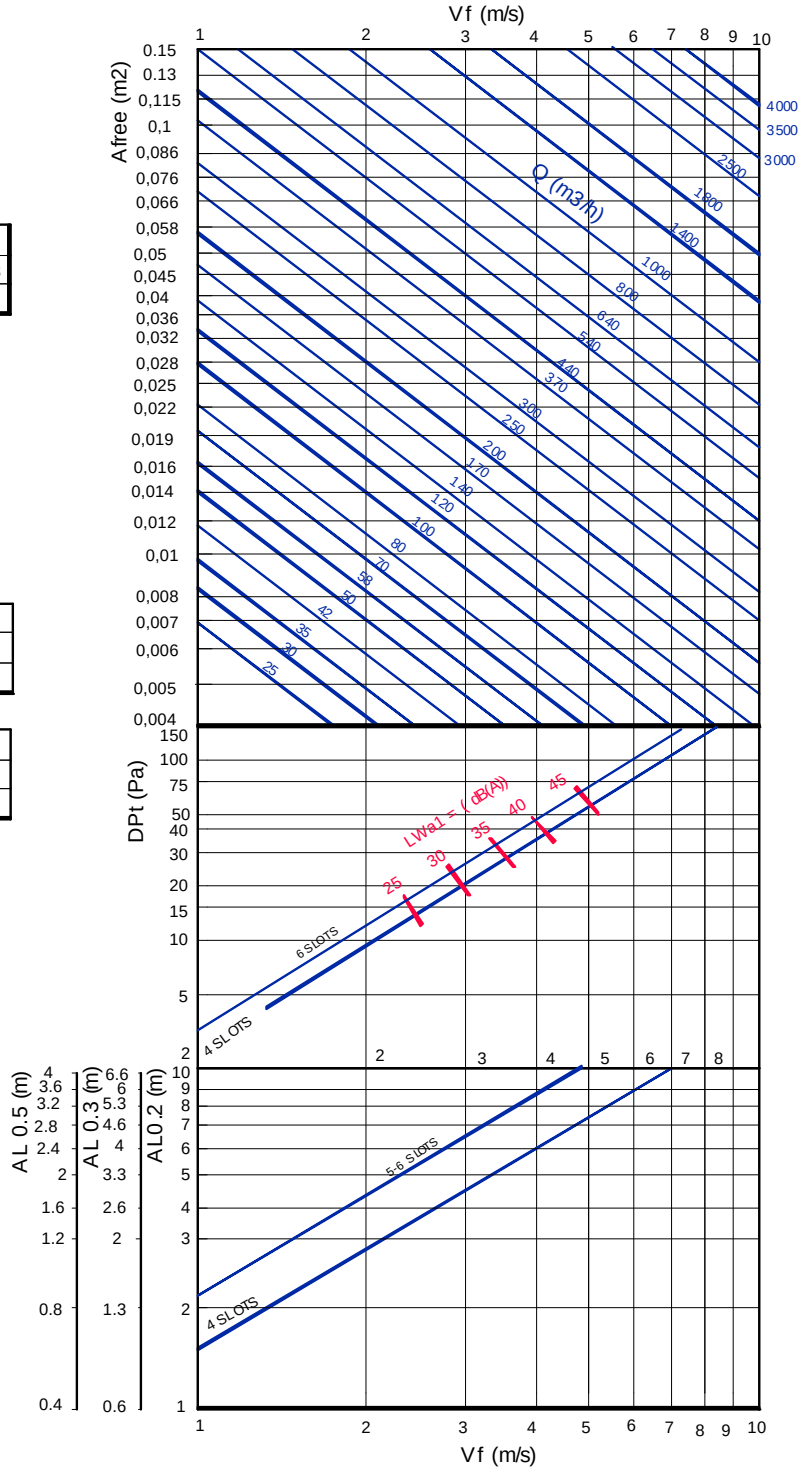
KP	1000	1100	1200	1300	1400	1500
4	0.62	0.62	0.62	0.83	0.83	0.83
6	0.9	0.9	0.9	0.85	0.85	0.85

AL`02 = KI x AL02

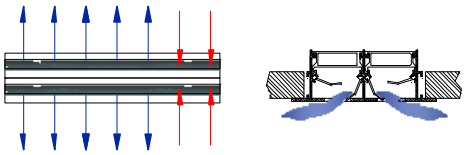


$AL_{0.2} = A$
$AL_{0.2} = B+H$
$AL_{0.2} = C+H$

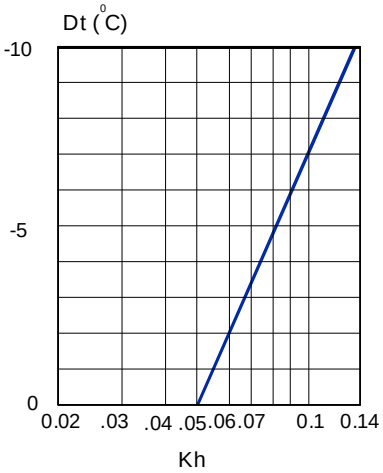
FREE VELOCITY, PRESSURE LOSS AND SOUND POWER LEVEL, THROW WITH CEILING EFFECT:2DIRECTIONS.



LESS

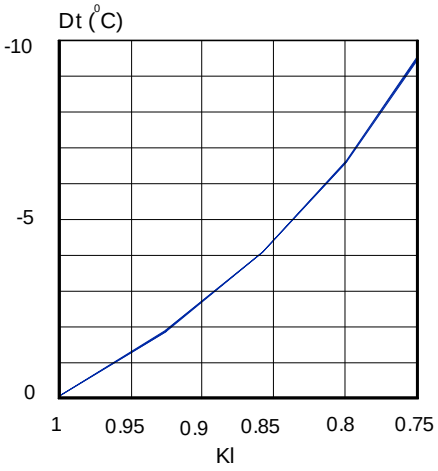


CORRECTION FACTOR FOR VERTICAL DIFFUSION (bV) FOR DT (-).

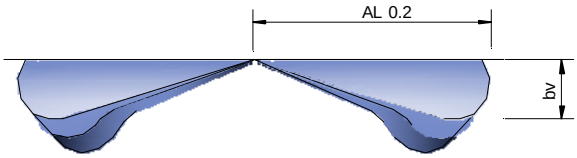


Kh = Correction factor for the vertical diffusion.

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



Kl = Correction factor for the throw.

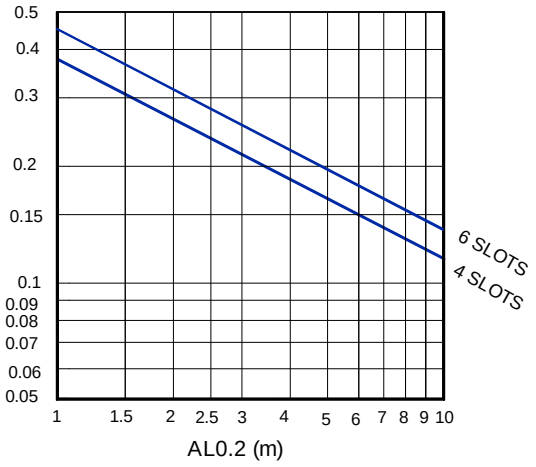


$$bv = Kh \times Al_{0.2}$$

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

TEMPERATURE RATIO.

$$\frac{Dtl}{Dtz} = \frac{t\ room - tx}{t\ room - t\ supply}$$



INDUCTION RATIO.

$$i = \frac{Qr}{Q_0} = \frac{Q\ total\ at\ x}{Q\ of\ supply.}$$