



## 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.

- 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 12° C.
- Diffuser accessible from the front without tools, by means of invisible PUSH system.

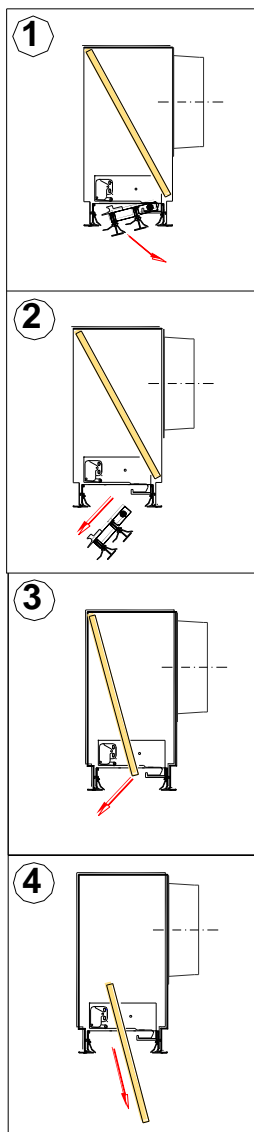
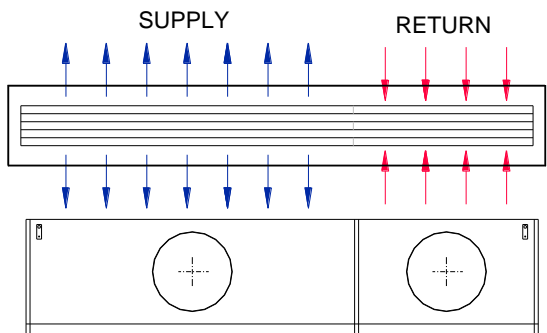
### Product advantages

- Air supply and return in a single unit for greater aesthetics and uniformity.
- Fewer diffusion units for a more economical installation.
- Accessible without tools for 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.

The LESS diffuser is divided into 60% supply and 40% return.

**...-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/** Plenum box with thermal insulation inside. Foam density 25 kg / m<sup>3</sup> ISO 845. Thermal conductivity 10° C\_0,040 W / m°K EN 12667. Classified reaction to fire B-s1, d0 EN 13501-1.

## FIXING SYSTEMS

1) Support brackets to hang from the ceiling.

## FINISHES

**AA** Matt silver anodised (not available for MOD version)

**R9016S** Painted white RAL 9016 (60-70% gloss)

**R9010S** Painted white RAL 9010 (60-70% gloss)

**RAL...** Painted in other RAL colours.

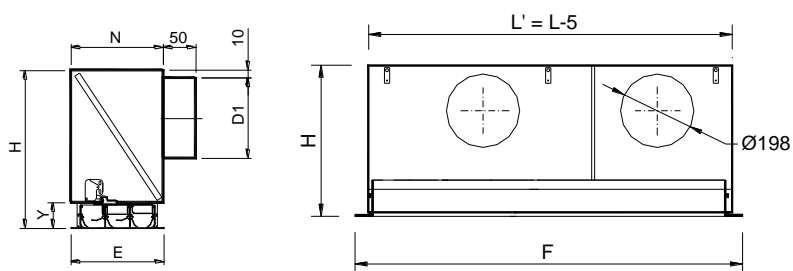
**.../AB/** Vanes in white colour.

## 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 R9010S 3x1000** series, made of aluminum and plenum galvanized steel; painted white RAL 9010 (60-70% gloss). **MADEL** brand.

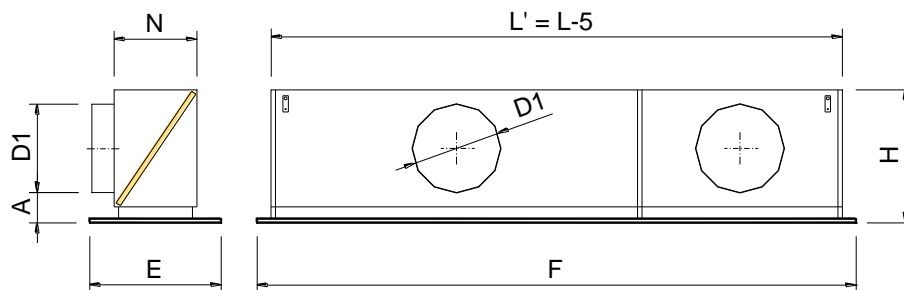


**LESS**



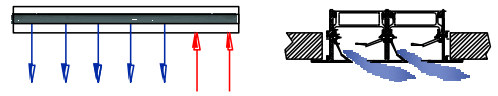
	L	F	E	A	L'	H	Y	N	D1
3	1000	1036	147	135	995	296	66	147	198
4	1000	1036	186	174	995	296	66	186	198
5	1000	1036	225	213	995	296	66	225	198
6	1000	1036	264	252	995	296	66	264	198
3	1100	1136	147	135	1095	296	66	147	198
4	1100	1136	186	174	1095	296	66	186	198
5	1100	1136	225	213	1095	296	66	225	198
6	1100	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 VELOCITY, PRESSURE LOSS AND SOUND POWER LEVEL, THROW WITH CEILING EFFECT: 1 DIRECTION.

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

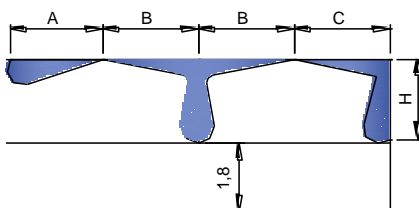
$$Dp_{t1} = K_p \times Dp_t$$

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

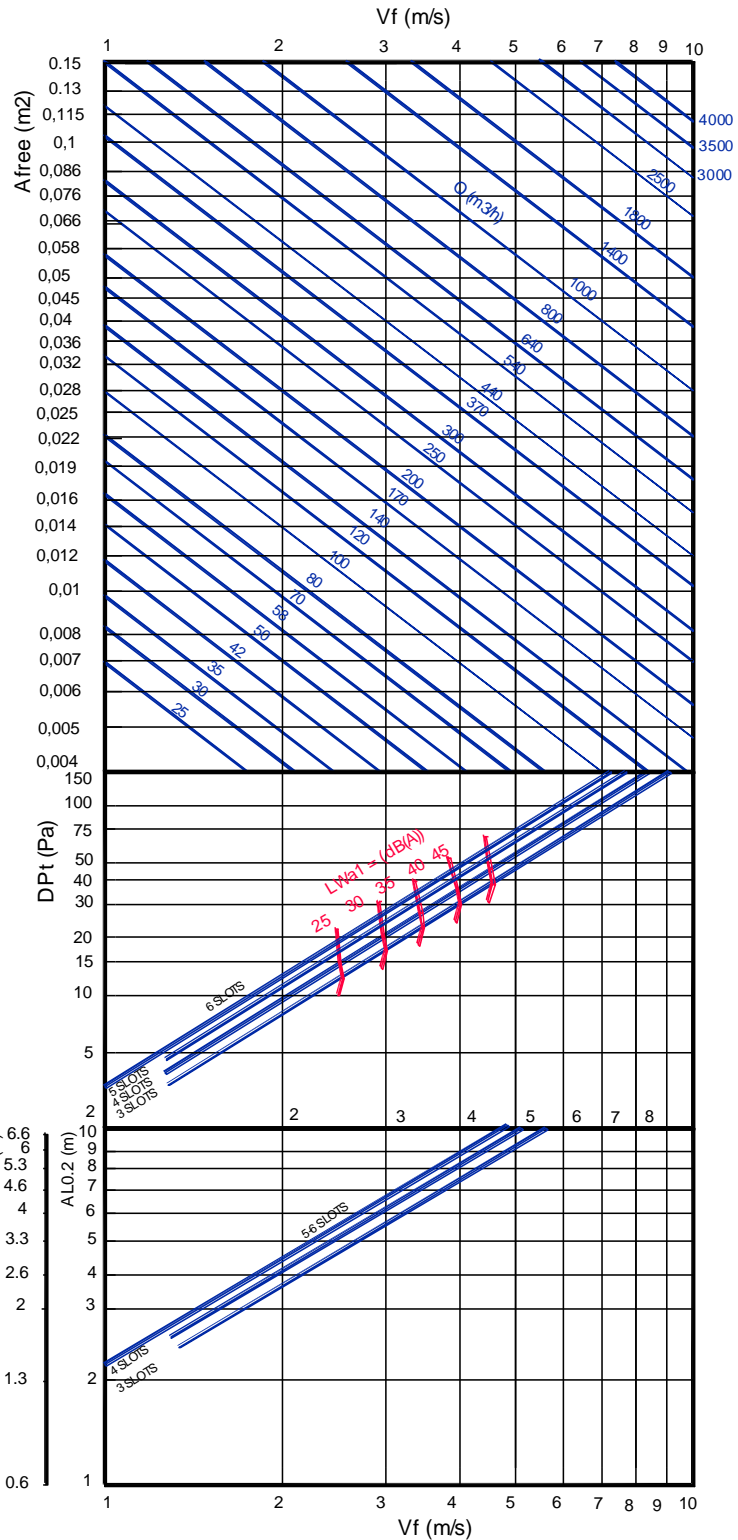
$$AL'_{0.2} = K_I \times AL_{0.2}$$



$$AL_{0.2} = A$$

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

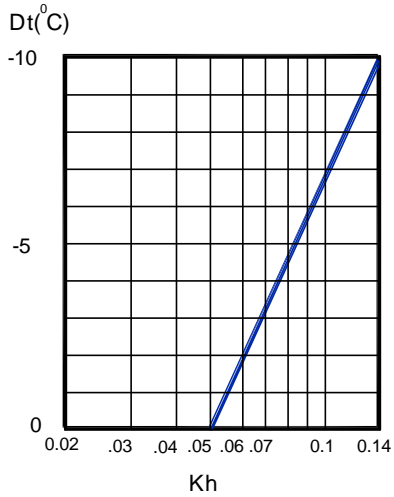
$$AL_{0.2} = C + H$$



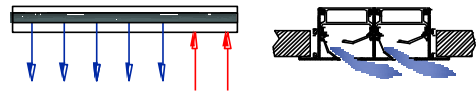


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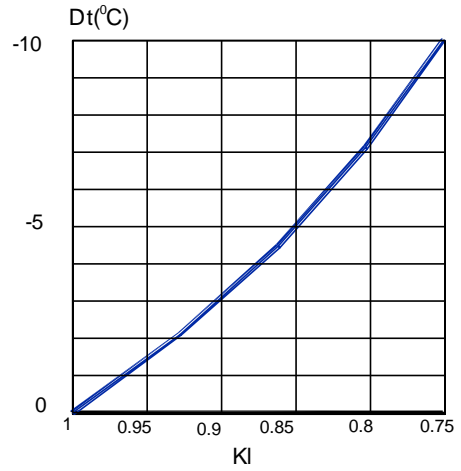
CORRECTION FACTOR FOR VERTICAL DIFFUSION (bv) FOR DT (-).



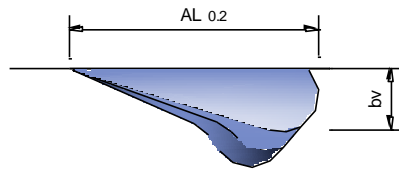
Kh = Correction factor for the vertical diffusion.



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



KI = Correction factor for the throw.

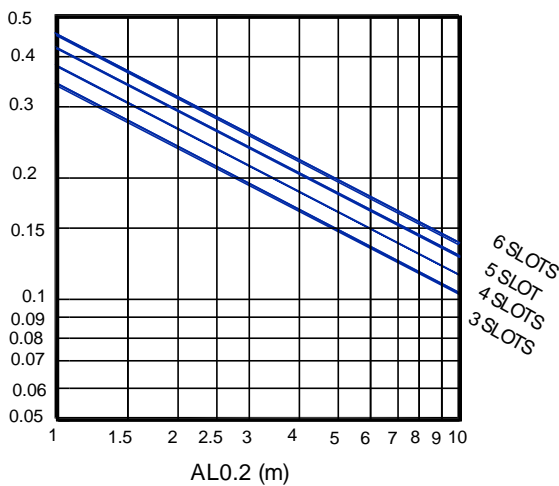


$$bv = Kh \times AL_{0.2}$$

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

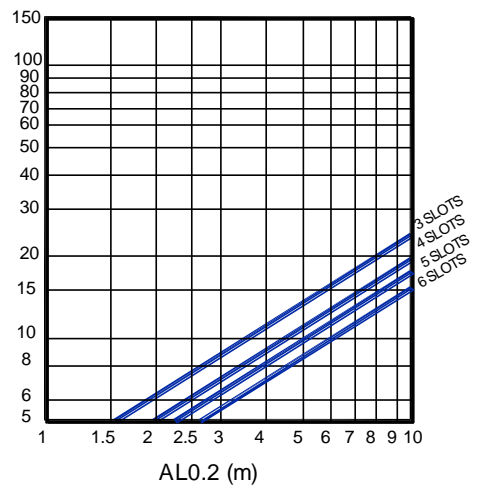
TEMPERATURE RATIO.

$$\frac{Dt_l}{Dt_z} = \frac{t_{room} - t_x}{t_{room} - t_{supply}}$$

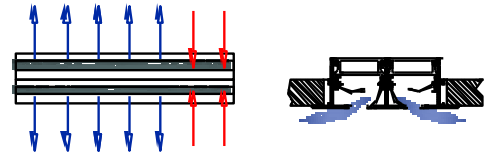


INDUCTION RATIO.

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



**LESS**



RECOMMENDED VELOCITY.

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

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

FREE FACE AREA (m<sup>2</sup>).

	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

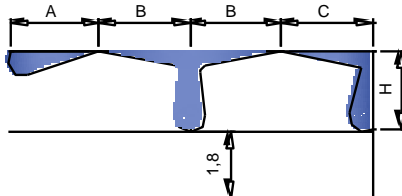
	1195	1345
4	0,0239	0,0270
6	0,0359	0,0406

DPT1 = Kp x DPt  
CORRECTON FACTOR FOR  
THROW KL

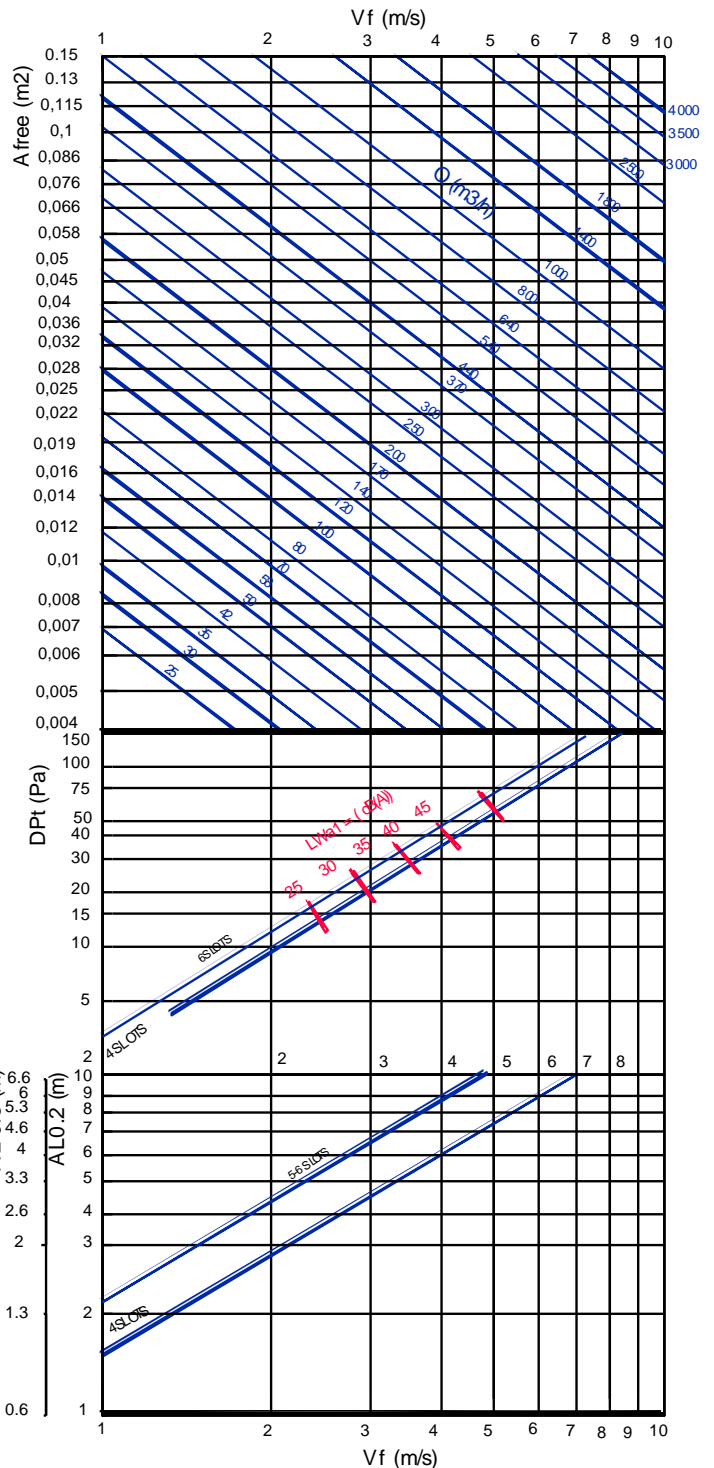
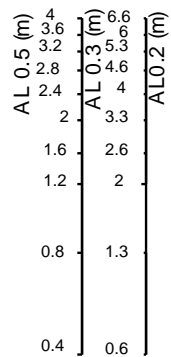
KL	1000	1100	1200	1300	1400	1500
4	0.88	0.88	0.88	1	1	1
6	0.97	0.97	0.97	1.12	1.12	1.12

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

$AL'02 = K1 \times AL02$

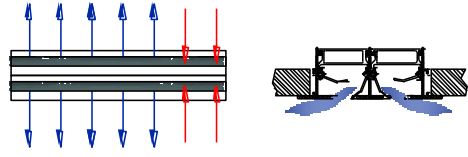


$AL_{0.2} = A$   
 $AL_{0.2} = B+H$   
 $AL_{0.2} = C+H$



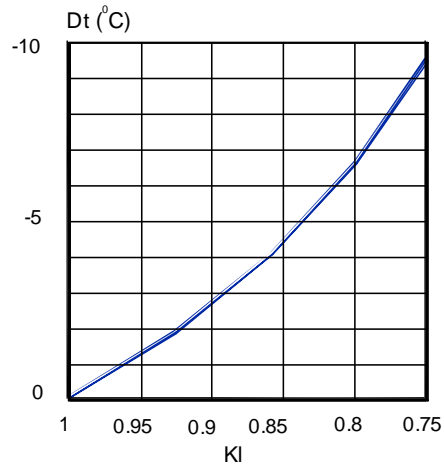
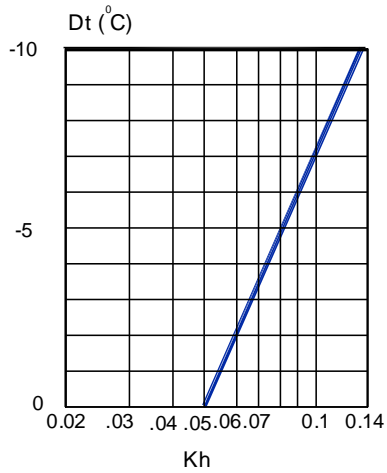


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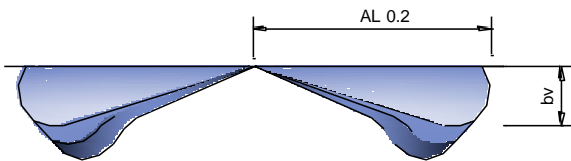
CORRECTION FACTOR FOR VERTICAL DIFFUSION (bv) FOR DT (-).

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



Kh = Correction factor for the vertical diffusion.

KI = Correction factor for the throw.



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

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

TEMPERATURE RATIO.

INDUCTION RATIO.

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

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

