



Lievore,  
Altherr  
& Molina

## KIS micro-jet nozzles linear diffuser

The **KIS** series micro-jet nozzles linear diffusers are designed for air supply in HVAC systems.

- Manually adjustable nozzles.
- Wall or ceiling mounting.
- Suitable for any type of premises with a temperature differential of up to 12°C.

### Product advantage

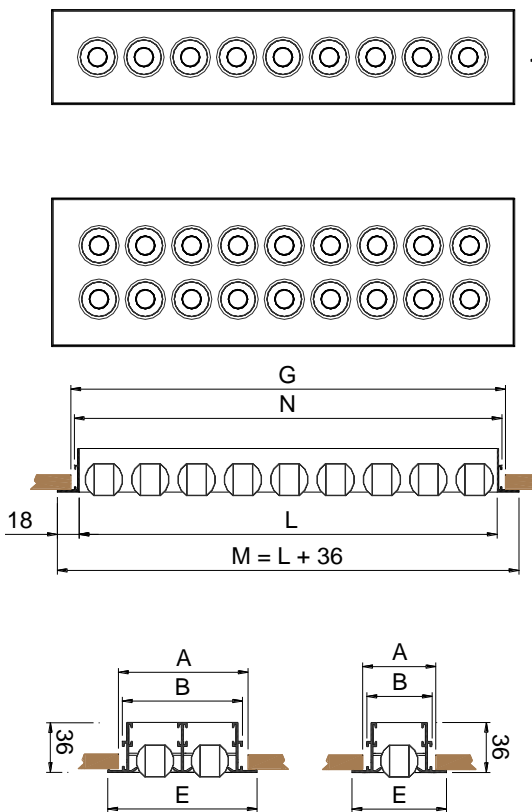
- Complete flexibility of air direction.
- High induction rate to minimize air stratification.
- Smoother lines, reducing the visual impact.
- Cutting-edge design of **Lievore, Altherr & Molina studio**.



- Offices
- Halls
- Shopping centres



## KIS



	E	A	B
KIS 1	68	55	47
KIS 2	107	95	86

L	M	N	G
500	536	507	516
1000	1036	1007	1016
1200	1236	1207	1216
1500	1536	1507	1516
2000	2036	2007	2016

## CLASSIFICATION

**KIS-AR** Diffuser with end borders included.  
Suitable for lengths  $\leq 2$  m.

**...-ARI** Diffuser with an end border on the left side, required to form lines  $> 2$  m.

**...-ARD** Diffuser with an end border on the right side, required to form lines  $> 2$  m.

**...-INT** Diffuser without end borders, required to form lines  $> 4$  m.

(\*) In case of needing sections of equal length, it must be indicated.

## MATERIAL

Diffuser constructed from aluminium and nozzles from PP plastic.

## FINISHES

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

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

**R9006M** Painted aluminium colour RAL 9006 (20-30% gloss)

**R9005M** Painted black RAL 9005 (20-30% gloss)

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

(\*) Indicate nozzle color: white or black.

## FIXING SYSTEMS

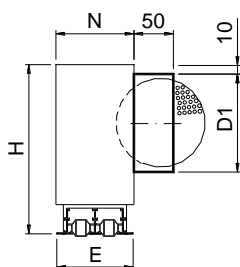
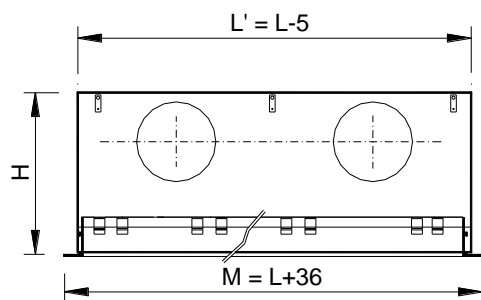
**(D)** Diffuser with brackets for ceiling suspension without plenum box.

**(PL)** Screws to join the diffuser to the plenum box and suspension of the assembly to the ceiling.

**(PM)** Crossbars for installation of the diffuser without plenum box in false ceiling.



**PLSD/L/**



**ACCESSORIES**

**PLSD/L/** Plenum box with circular lateral connection and brackets for ceiling suspension.

**...-R** Air flow damper in the spigot.

**.../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.

**SPECIFICATION TEXT**

Supply and mounting of linear diffuser with micro-jet nozzles adjustable in all directions series **KIS-AR+PLSD-R R9016S** 1x1000 constructed from aluminium paint in white RAL 9016 (60-70% gloss) with lateral connection plenum box and air flow damper in the spigot. Manufacturer **MADEL**.

	0,5 < L < 1,2		1,3 < L < 1,5		1,6 < L < 2			
	H	D1	H	D1	H	D1	N	E
KIS 1	256	1/158	256	1/158	256	1/158	69	68
KIS 2	256	1/158	256	1/158	256	1/158	108	107

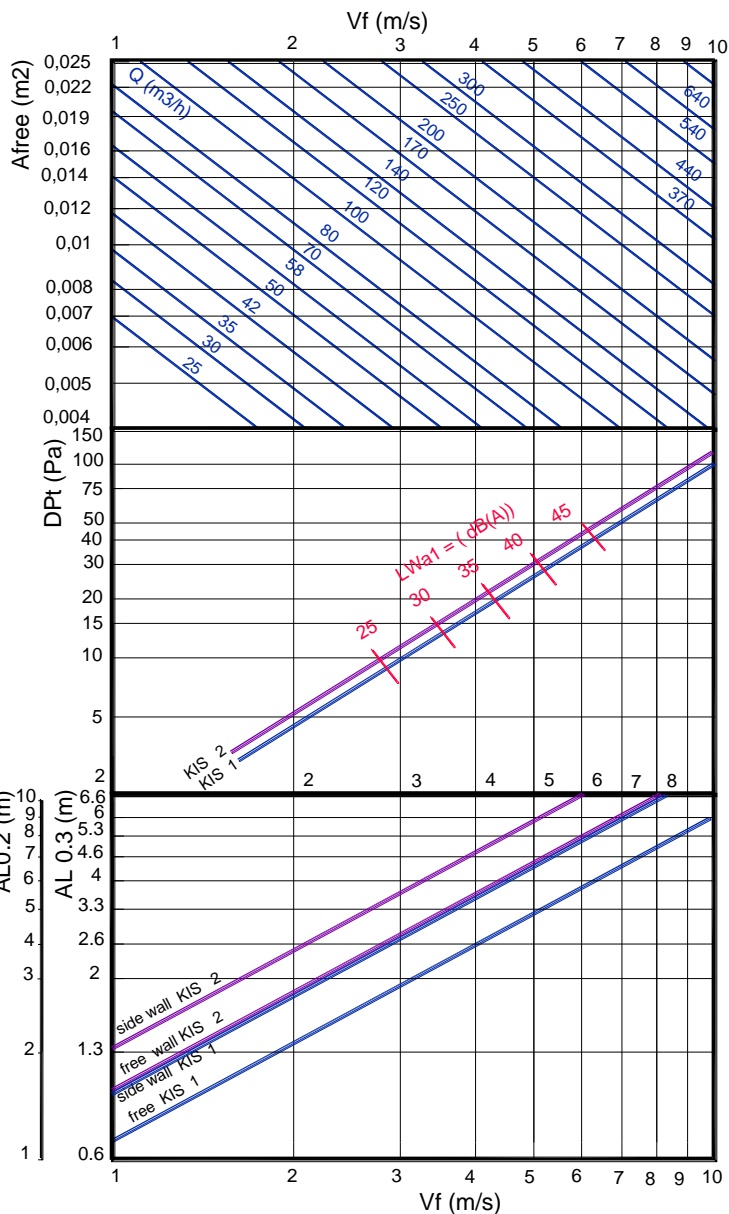
# KIS

m	KIS 1	Vmin m/s	Vmax m/s	Qmin m3/h	Qmax m3/h
0.5	0.0024	2.5	6.5	25	57
1	0.0048	2.5	6.5	43	112
1,1	0.0053	2.5	6.5	48	125
1,2	0.0058	2.5	6.5	52	135
1,3	0.0063	2.5	6.5	56	146
1,4	0.0067	2.5	6.5	60	158
1,5	0.0072	2.5	6.5	65	169
1,6	0.0077	2.5	6.5	69	180
1,7	0.0082	2.5	6.5	74	191
1,8	0.0087	2.5	6.5	78	203
1,9	0.0092	2.5	6.5	82	215
2	0.0096	2.5	6.5	86	225

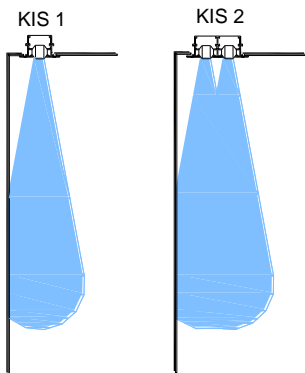
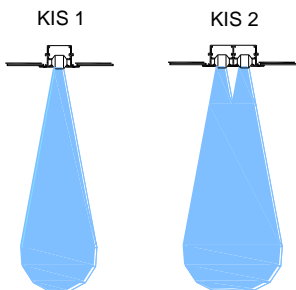


m	KIS 2	Vmin m/s	Vmax m/s	Qmin m3/h	Qmax m3/h
0.5	0.0048	2.5	5.5	43	95
1	0.0096	2.5	5.5	86	190
1,1	0.0106	2.5	5.5	95	210
1,2	0.0116	2.5	5.5	104	229
1,3	0.0125	2.5	5.5	112	248
1,4	0.0135	2.5	5.5	122	267
1,5	0.0145	2.5	5.5	130	286
1,6	0.0154	2.5	5.5	139	305
1,7	0.0164	2.5	5.5	148	324
1,8	0.0174	2.5	5.5	157	343
1,9	0.0183	2.5	5.5	165	365
2	0.0193	2.5	7	174	382

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



Note: In MadelMedia Octava band centre frequency in Hz.



CORRECTION FACTOR FOR THROW KL

	0.5 m	1 m	1.5 m	2 m
1	0.71	1	1.07	1.14
2	0.73	1	1.09	1.15

$$AL'02 = KI \times AL02$$

CORRECTION FACTOR FOR DPT AND Lwa1.

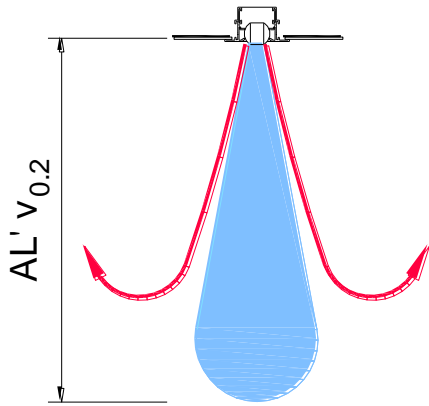
	0.5 m			1 m			1.5 m			2 m			
	100%	50%	0%	100%	50%	0%	100%	50%	0%	100%	50%	0%	
1	Dpt	0.95	2.35	3.15	1	1.4	2.2	1	1.4	2.2	1.1	2.5	3.3
	Lwa1	-6,1	-3,1	-3,6	0	+0,8	+0,4	+0,9	+1,6	+1	-2,1	-0,5	-1,9
2	Dpt	0.98	2.48	3.25	1	1.5	2.3	1	1.5	2.3	1.2	2.7	3.5
	Lwa1	-3,8	-3,4	-2,9	0	+0,6	+0,6	+2,4	+3,3	+3,2	-0,3	+0,9	+1,1

$$DPT1 = Kp \times DPT$$

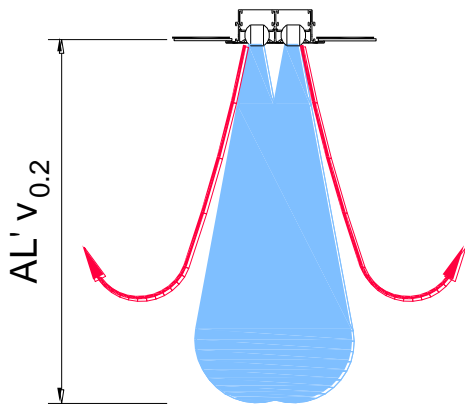
$$Lwa1 = Lwa + Kf$$



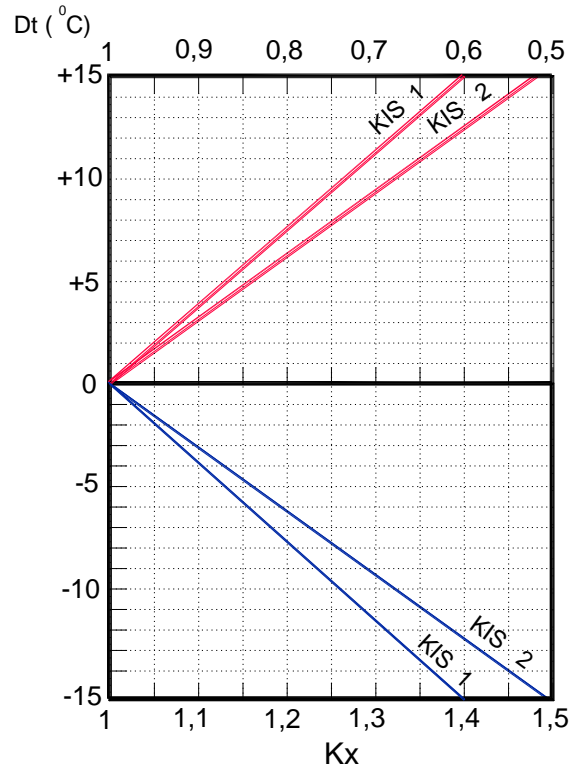
KIS 1



KIS 2



CORRECTION FACTOR FOR VERTICAL THROW (ALv<sub>0,2</sub>) DT



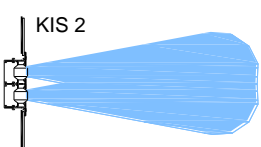
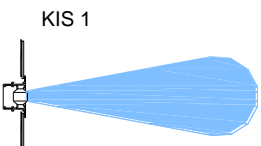
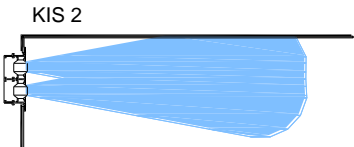
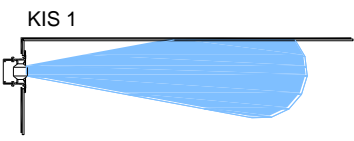
$$AL' v_{0,2} = Kx \times AL_{0,2}$$

# KIS

m	KIS 1	Vmin	Vmax	Qmin	Qmax
		m/s	m/s	m3/h	m3/h
0.5	0.0024	2.5	6.5	25	57
1	0.0048	2.5	6.5	43	112
1,1	0.0053	2.5	6.5	48	125
1,2	0.0058	2.5	6.5	52	135
1,3	0.0063	2.5	6.5	56	146
1,4	0.0067	2.5	6.5	60	158
1,5	0.0072	2.5	6.5	65	169
1,6	0.0077	2.5	6.5	69	180
1,7	0.0082	2.5	6.5	74	191
1,8	0.0087	2.5	6.5	78	203
1,9	0.0092	2.5	6.5	82	215
2	0.0096	2.5	6.5	86	225



m	KIS 2	Vmin	Vmax	Qmin	Qmax
		m/s	m/s	m3/h	m3/h
0.5	0.0048	2.5	5.5	43	95
1	0.0096	2.5	5.5	86	190
1,1	0.0106	2.5	5.5	95	210
1,2	0.0116	2.5	5.5	104	229
1,3	0.0125	2.5	5.5	112	248
1,4	0.0135	2.5	5.5	122	267
1,5	0.0145	2.5	5.5	130	286
1,6	0.0154	2.5	5.5	139	305
1,7	0.0164	2.5	5.5	148	324
1,8	0.0174	2.5	5.5	157	343
1,9	0.0183	2.5	5.5	165	365
2	0.0193	2.5	7	174	382

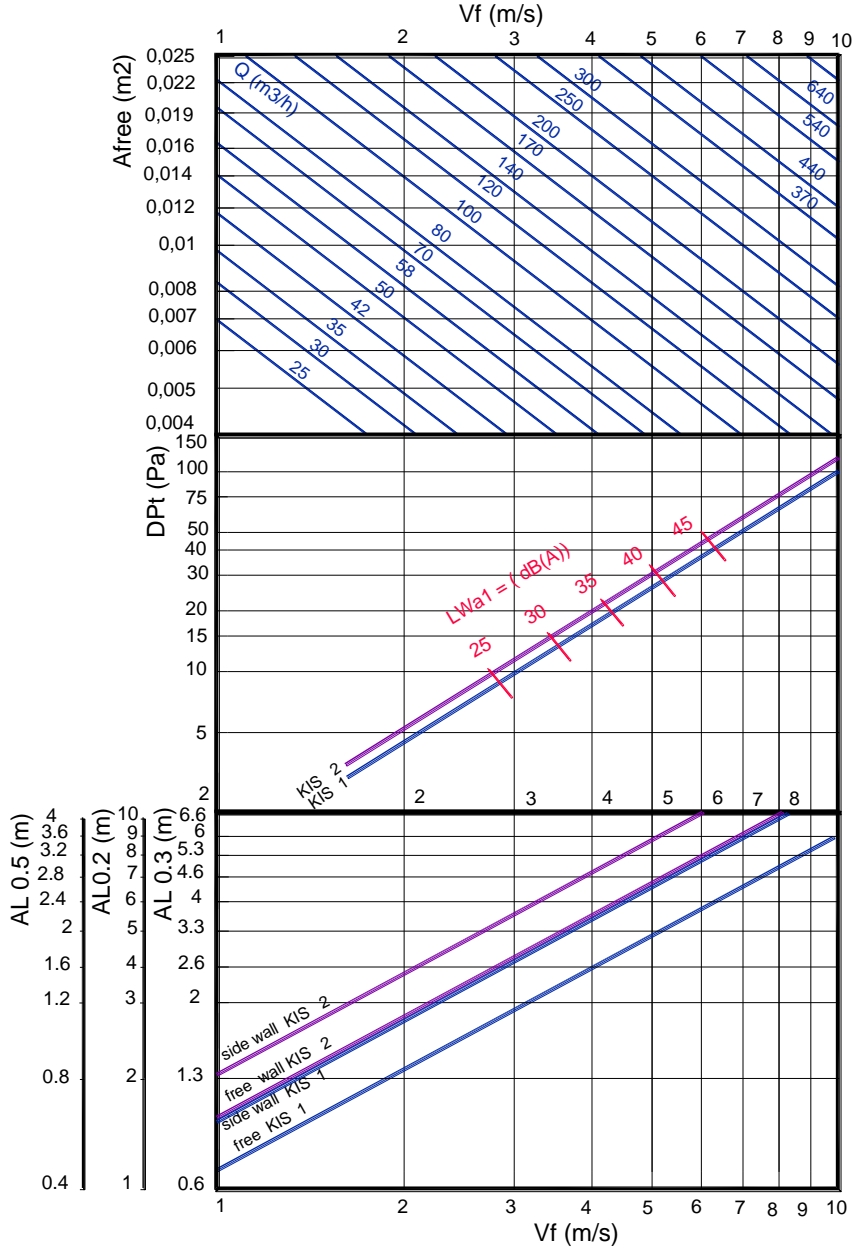


CORRECTION FACTOR FOR THROW KL

	0.5 m	1 m	1.5 m	2 m
1	0.71	1	1.07	1.14
2	0.73	1	1.09	1.15

$AL'02 = K1 \times AL02$

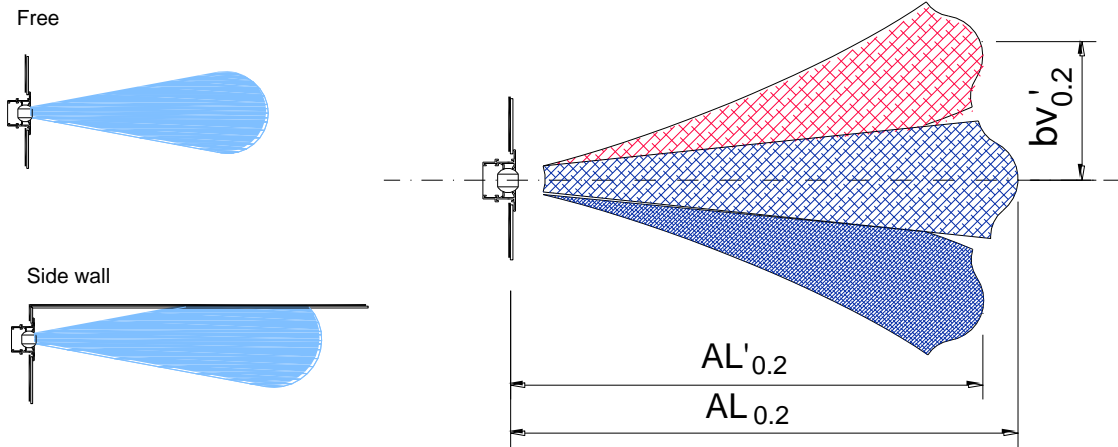
FREE VELOCITY, PRESSURE LOSS AND SOUND POWER LEVEL, THROW WITH CEILING EFFECT: 1 DIRECTION.



CORRECTION FACTOR FOR DPT AND Lwa1.

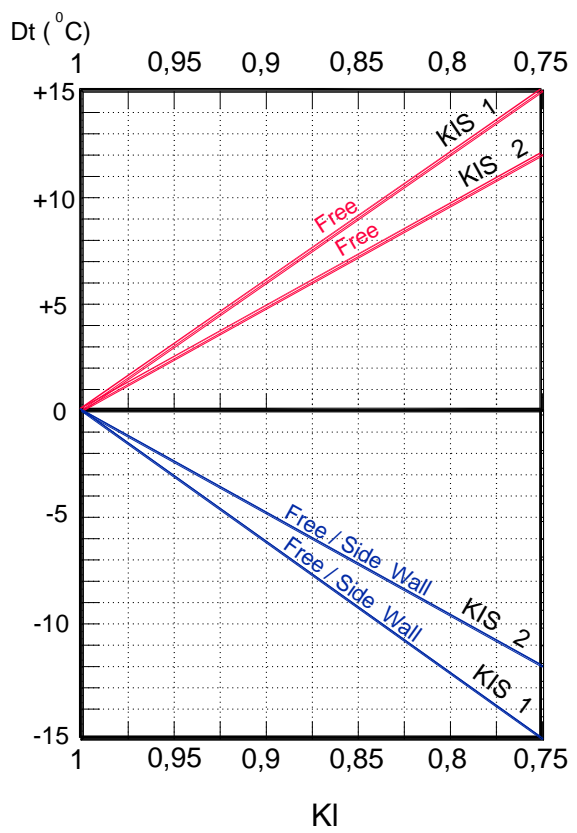
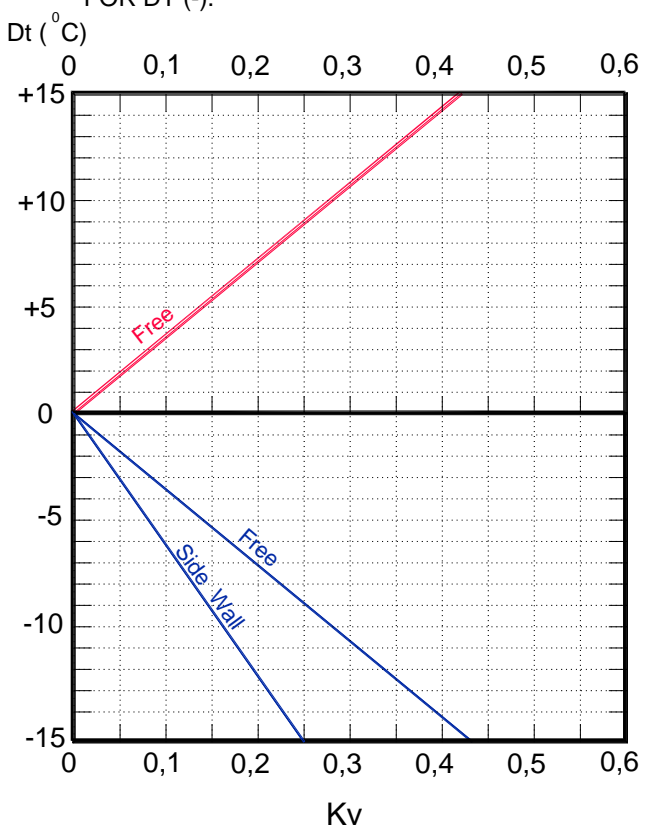
	0.5 m			1 m			1.5 m			2 m			
	100%	50%	0%	100%	50%	0%	100%	50%	0%	100%	50%	0%	
1	Dpt	0.95	2.35	3.15	1	1.4	2.2	1	1.4	2.2	1.1	2.5	3.3
	Lwa1	-6	-3	-3,6	0	0,8	0,4	+1,2	+1,9	+1,4	-2	-	-1,6
2	Dpt	0.98	2.48	3.25	1	1.5	2.3	1	1.5	2.3	1.2	2.7	3.5
	Lwa1	-4	-3,6	-3,1	0	+0,6	+0,6	+2,3	+3,2	+3,1	0	+1	+1,2

$D_{Pt1} = K_p \times D_{Pt}$   
 $L_{wa1} = L_{wa} + K_f$



CORRECTION FACTOR FOR VERTICAL DIFFUSION ( $bv$ ) FOR  $Dt$  (-).

CORRECTION FACTOR FOR THROW ( $L_{0.2}$ )  $Dt$  (-).



$$bv'_{0.2} = Kv \times Al_{0.2}$$

$$Al'_{0.2} = KI \times Al_{0.2}$$

$Kv$  = Correction factor for the vertical diffusion.

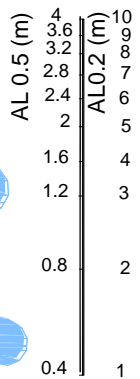
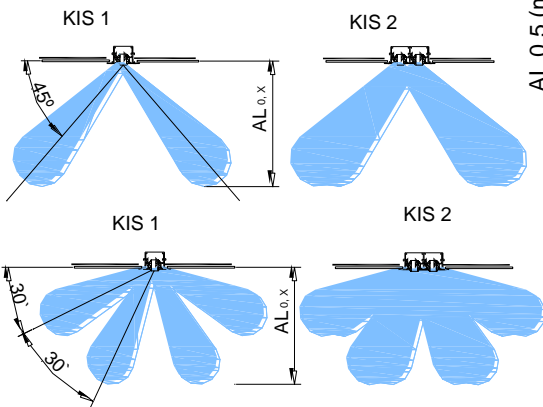
$KI$  = Correction factor for the throw.

# KIS

m	KIS 1	Vmin m/s	Vmax m/s	Qmin m3/h	Qmax m3/h
0.5	0.0024	2.5	6.5	25	57
1	0.0048	2.5	6.5	43	112
1,1	0.0053	2.5	6.5	48	125
1,2	0.0058	2.5	6.5	52	135
1,3	0.0063	2.5	6.5	56	146
1,4	0.0067	2.5	6.5	60	158
1,5	0.0072	2.5	6.5	65	169
1,6	0.0077	2.5	6.5	69	180
1,7	0.0082	2.5	6.5	74	191
1,8	0.0087	2.5	6.5	78	203
1,9	0.0092	2.5	6.5	82	215
2	0.0096	2.5	6.5	86	225



m	KIS 2	Vmin m/s	Vmax m/s	Qmin m3/h	Qmax m3/h
0.5	0.0048	2.5	5.5	43	95
1	0.0096	2.5	5.5	86	190
1,1	0.0106	2.5	5.5	95	210
1,2	0.0116	2.5	5.5	104	229
1,3	0.0125	2.5	5.5	112	248
1,4	0.0135	2.5	5.5	122	267
1,5	0.0145	2.5	5.5	130	286
1,6	0.0154	2.5	5.5	139	305
1,7	0.0164	2.5	5.5	148	324
1,8	0.0174	2.5	5.5	157	343
1,9	0.0183	2.5	5.5	165	365
2	0.0193	2.5	7	174	382

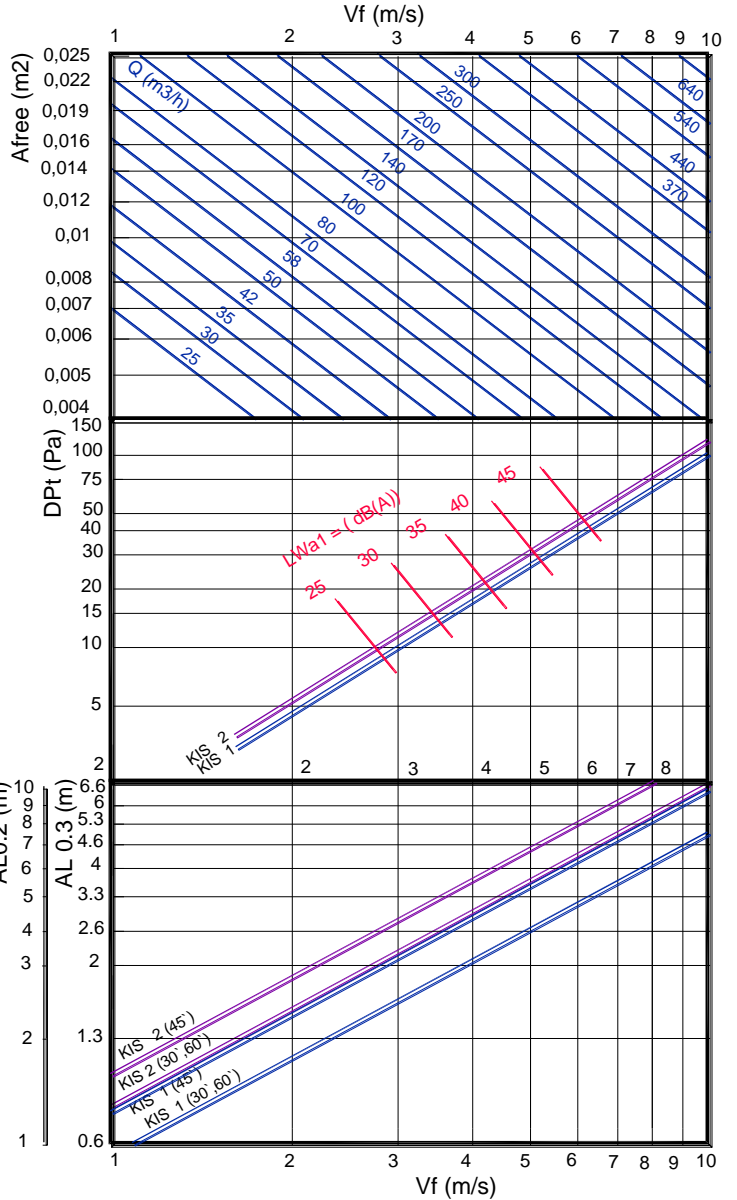


CORRECTION FACTOR FOR THROW KL

	0.5 m	1 m	1.5 m	2 m
1	0.71	1	1.07	1.14
2	0.73	1	1.09	1.15

$$AL'02 = KI \times AL02$$

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



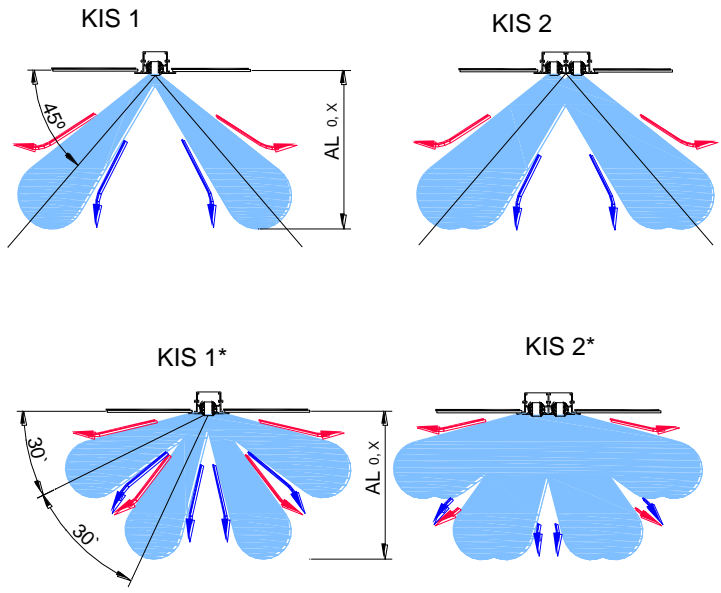
CORRECTION FACTOR FOR DPt AND Lwa1.

	0.5 m			1 m			1.5 m			2 m			
	100%	50%	0%	100%	50%	0%	100%	50%	0%	100%	50%	0%	
1	Dpt	0.95	2.35	3.15	1	1.4	2.2	1	1.4	2.2	1.1	2.5	3.3
	Lwa1	-6	-3	-3,7	0	+0,8	+0,4	+1	+1,7	+1,2	-2,1	-0,4	-1,9
2	Dpt	0.98	2.48	3.25	1	1.5	2.3	1	1.5	2.3	1.2	2.7	3.5
	Lwa1	-3,7	-3,4	-2,9	0	+0,6	+0,6	+2,4	+3,3	+3,2	-0,5	+0,8	+0,9

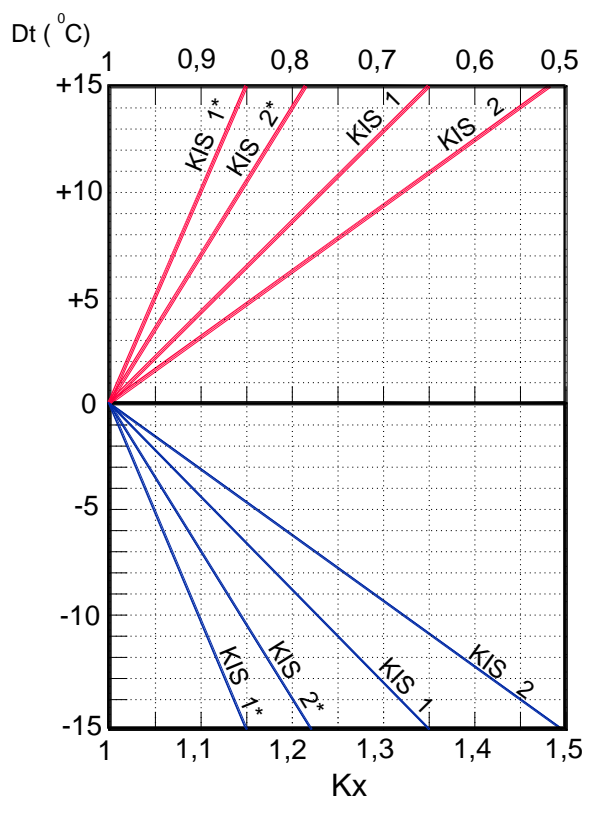
$$DPt1 = Kp \times DPt$$

$$Lwa1 = Lwa + Kf$$





CORRECTION FACTOR FOR VERTICAL THROW ( $Al_{v0,2}$ ) DT



$$AL' v_{0,2} = Kx \times AL_{0,2}$$