



KLN SERIES

OVERVIEW CHARACTERISTICS APPLICATIONS

OVERVIEW:

The KLN series linear diffusers allow to manage high air flows with minimum pressure losses and generated noise power.

They allow to fully make us of the induction principle, guaranteeing optimum comfort conditions, no noticeable air currents and temperature uniformity, even in large areas by positioning the diffusers along the perimeter of the ceiling.

The big innovation on the KLN series is the double flow deflector system: for horizontal throw 2 settings are available and fully adjustable on constrcution site. The first setting allow supply air horizontally with a big ceiling effect, while the second setting still allow horizontal air supply but for biggest air flow and low pressure loss and noise level.

CHARACTERISTICS AND OPERATION :

The KLN series diffusers are constructed from an aluminium diffuser body lots and a series of deflectors, also in aluminium, environments with an atmosphere containing corrosive for the horizontal or vertical air though. The change of direction of the air through can be easily made without removing the diffuser.

APPLICATIONS :

The KLN series diffusers are ideal in application with a ceiling height between 3 and 6 meters like open space offices, commercial galleries hospital wards or hotel rooms.

VERSIONS:

Standard, with or without filter holder Fineline, with or without filter holder Fitted, without filter holder With panel, with or without filter holder

DIFFUSER INSTALLATION:

The KLN series diffusers are installed inside special plenum boxes, by suspension using quick fix connectors. This solution allows a quick installation even at the end of work carried out on the building site. Possibilty of installation in continuos lines.

FINISH:

The KLN diffusers are constructed from an aluminium body anodized or painted white RAL 9010. The deflectors cam be anodized, painted white RAL 9010 or black painted. The KLN diffusers with panel are constructed from an aluminium body and a carbon steel panel. Special finishes for the diffuser body can be made on request.

UNSUITABLE ENVIRONMENTS

The aluminum products are not suitable for installation in substances for this material and in particular containing chlorine, such as swimming pools, spas and some types of food industries.



installation in continuos lines





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OVERALL DIMENSIONS



Ak Efficient section for diffuser L=1 m (m ²)						
1 slot 2 slots 3 slots 4 slots 5 slots 6 slots						6 slots
Horizontal throw high Coandé effect	0,00944	0,01888	0,02832	0,03776	0,04720	0,05664
Horizontal throw high air flow	0,01544	0,03088	0,04632	0,06176	0,0772	0,09264
Vertical throw	0,01500	0,03000	0,04500	0,06000	0,07500	0,09000



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VERSIONS







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AIR THROW ADJUSTMENT

Horizontal throw configuration for high Coandă effect The throw moves along the ceiling It guarantees the complete absence of air currents both in heating and cooling.

Vertical throw configuration The air throw penetrates directly into the room Prevents the formation of layers of hot air when used for heating.



Horizontal throw configuration for high air flow The throw moves along the ceiling It guarantees the possibility of supply high air flow

with minimal levels of pressure drop and spund power

CHOICE OF AIR THROW ORIENTATION :

The horizontal throw represents the most common use of this type of diffuser, both for heating and cooling. The throw follows the ceiling and expands horizontally within the room. This generates a vertical recall of air present in the room, guaranteeing a perfect mixture of air without the presence of air currents within the occupied area.

The vertical throw, used when heating, allows to send the hot air directly within the occupied area to hinder the formation of layers of hot air in higher parts of the room caused by the lesser density.

The change of orientation of the air throw is obtained by rotating the deflector blade from an inclined position to a horizontal one, and vice versa.

The blade is rotated from within the diffuser, with the use of a leaver at both extremities of the air slot.





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STANDARD KLN PLENUM BOXES





- L Nominal length of the diffuser
- A Version for installation with quick fix connectors (standard version without filter holder)
- **B** Version for installation with rivets (filter holder, fineline, fitted and with panel versions)

				L ≤ 1200 mm		L ≤ 1200 mm		ı 1201≤ L ≤ 2000 mm		Holes in the
Clata	H	S	С	connector	ØD	connector	ØD	counterceiling		
SIOLS	(mm)	(mm)	(mm)	qty	(mm)	qty	(mm)	KLN standard version		
1	250	54	100	1	124	2	124	L+15 x 61		
2	250	95	115	1	158	2	158	L+15 x 104		
3	320	138	135	1	198	2	198	L+15 x 147		
4	320	181	135	1	198	2	198	L+15 x 190		
5	370	224	160	1	248	2	248	L+15 x 233		
6	370	267	160	1	248	2	248	L+15 x 276		





Insert the diffuser into the plenum

The diffuser will remain suspended



Open the deflectors



Insert a screwdriver



Tight the screws of the quick fix connectors

All done







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REMOVE THE DIFFUSER FIXED WITH QUICK FIX CONNECTORS STANDARD DIFFUSER



Open the blades



Insert a screwdriver





Loose the screws

Off-hook using the screwdriver



Estract the diffuser









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INSTALLATION IN PALSTERBOARD COUNTERCEILING STANDARD DIFFUSER WITHOUT PLENUM





Fix the plastic elements

Insert the screws



Fix the metallic bridge

Insert the diffuser into the counterceiling and tight the screws



All done







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INSTALLATION FILTER HOLDER VERSION WITHOUT PANEL



Open the diffuser



Insert the diffuser into the plenum



Fix the diffuser to the plenum using self-drilling screws



Close the diffuser



All done



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CHANGING THE FILTER



Close the diffuser

All done





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CAUTIONS FOR VERSIONS WITH PANEL

Never apply forces of any kind on panel, this may imply panel deformation.

The weight of the panel itself, of the diffuser, of the plenum box and of the air duct has to be supported by plenum box hangers and not by the panel.

Always handle with care. never lift or handle the product using the panel.

To lift or handle the product please hold the plenum box body.

The manufacturer does not assume any responsibility in the event of uncorrect use.







KLN SERIES

ONE SLOT Vo LIMIT OF THE OCCUPIED ZONE









Aeraulic data measured in isothermic conditions for a one meter long diffuser in accordance with the international standard:

ISO 5219 1984: Air distribution and air diffusion -Laboratory. Aerodynamic testing and rating of air terminal devices.

A (m) distance between diffusers Vo (m/s) speed at limit of occupied area

For Hr different to 3m, use the multiplier factor KF: Vo (h) = Vo x Kf





KLN **SERIES**

ONE SLOT HORIZONTAL THROW









Aeraulic data measured in isothermic conditions for a one meter long diffuser in accordance with the international standard:

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L (m) horizontal distance in meters from the centre of diffuser

VL (m/s) maximum speed in air stream at distance L T0,2 (m) throw for an isothermal air jet with a Coandé effect for a terminal speed of Vt=0,20m/s.

	ΔT	x Kf
	-10	0,90
ng	-8	0,92
oli	-6	0,94
Сс	-4	0,96
	-2	0,98
	2	1,02
ng	4	1,04
ati	6	1,06
He	8	1,08
	10	1,10

Correction factor for non isotermal conditions







KLN SERIES

ONE SLOT VERTICAL THROW



Aeraulic data measured in isothermic conditions for a one meter long diffuser in accordance with the international standard: ISO 5219 1984: Air distribution and air diffusion -Laboratory. Aerodynamic testing and rating of air terminal devices.

H (m) vertical distance in meters from ceiling Vh (m/s) maximum speed in air stream at distance H T0,2 (m) throw for an isothermal air jet for a terminal speed of Vt=0,20m/s.



Correction factor for non isotermal conditions

	ΔT	x Kf
	-10	1,11
ng	-8	1,09
oli	-6	1,06
ŭ	-4	1,04
	-2	1,02
	2	0,98
ng	4	0,96
cati	6	0,94
He	8	0,93
	10	0,91





KLN SERIES

ONE SLOT PRESSURE DROP





Laboratory. Aerodynamic testing and rating of air terminal devices.





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KLN SERIES

ONE SLOT SOUND POWER







Data measured in reverberating room in accordance with the following international standards:

ISO 3741 1999: Acoustic - determination of sound power levels of noise sources using sound pressure - Precision methods for reverberation rooms

ISO 5135 1997: Acoustic - determination of sound power levels of noise from air-terminal devices; air terminal units; dampers and valves by measurement in a reverberation room.

The data shown does not consider the attenuation given by the place of installation. This attenuation is normally included between 6 and 10dBa and is determined by the dimensions of the room, its shape and the arrangements of the furnishings within it.

Correction factor for different length same flow rate per meter of diffuser

L	+Kf
600	-2,2
800	-1,0
1000	0,0
1200	0,8
1500	1,8
2000	3,0





KLN SERIES

TWO SLOTS Vo LIMIT OF THE OCCUPIED ZONE









Aeraulic data measured in isothermic conditions for a one meter long diffuser in accordance with the international standard:

ISO 5219 1984: Air distribution and air diffusion -Laboratory. Aerodynamic testing and rating of air terminal devices.

A (m) distance between diffusers Vo (m/s) speed at limit of occupied area

For Hr different to 3m, use the multiplier factor KF: Vo (h) = Vo x Kf





KLN SERIES

TWO SLOTS HORIZONTAL THROW









Aeraulic data measured in isothermic conditions for a one meter long diffuser in accordance with the international standard:

ISO 5219 1984: Air distribution and air diffusion -Laboratory. Aerodynamic testing and rating of air terminal devices.

 $L\left(m\right)$ horizontal distance in meters from the centre of diffuser

VL (m/s) maximum speed in air stream at distance L T0,2 (m) throw for an isothermal air jet with a Coandé effect for a terminal speed of Vt=0,20m/s.

> ΔT x Kf -10 0,90 Cooling -8 0,92 0,94 -6 -4 0,96 -2 0,98 2 1,02 Heating 4 1,04 6 1,06 8 1,08 10 1,10

Correction factor for non isotermal conditions





KLN SERIES

TWO SLOTS VERTICAL THROW



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Correction factor for non isotermal conditions

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	2	0,98
ng	4	0,96
cati	6	0,94
He	8	0,93
	10	0,91





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TWO SLOTS PRESSURE DROP



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KLN SERIES

TWO SLOTS SOUND POWER







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Correction factor for different length same flow rate per meter of diffuser

L	+Kf
600	-2,2
800	-1,0
1000	0,0
1200	0,8
1500	1,8
2000	3,0





KLN SERIES

THREE SLOTS Vo LIMIT OF THE OCCUPIED ZONE









Aeraulic data measured in isothermic conditions for a one meter long diffuser in accordance with the international standard:

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THREE SLOTS HORIZONTAL THROW









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	2	1,02
ng	4	1,04
ati	6	1,06
He	8	1,08
	10	1,10

Correction factor for non isotermal conditions





KLN SERIES

THREE SLOTS VERTICAL THROW



Aeraulic data measured in isothermic conditions for a one meter long diffuser in accordance with the international standard: ISO 5219 1984: Air distribution and air diffusion -Laboratory. Aerodynamic testing and rating of air terminal devices.

H (m) vertical distance in meters from ceiling Vh (m/s) maximum speed in air stream at distance H T0,2 (m) throw for an isothermal air jet for a terminal speed of Vt=0,20m/s.



Correction factor for non isotermal conditions

	1	
	$\Delta 1$	x Kt
	-10	1,11
ng	-8	1,09
oli	-6	1,06
ŭ	-4	1,04
	-2	1,02
	2	0,98
ng	4	0,96
cati	6	0,94
He	8	0,93
	10	0,91





KLN SERIES

THREE SLOTS PRESSURE DROP - SUPPLY





Laboratory. Aerodynamic testing and rating of air terminal devices.







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THREE SLOTS PRESSURE DROP - EXTRACTION





Laboratory. Aerodynamic testing and rating of air terminal devices.









KLN SERIES

THREE SLOTS SOUND POWER - SUPPLY





Data measured in reverberating room in accordance with the following international standards:

ISO 3741 1999: Acoustic - determination of sound power levels of noise sources using sound pressure - Precision methods for reverberation rooms

ISO 5135 1997: Acoustic - determination of sound power levels of noise from air-terminal devices; air terminal units; dampers and valves by measurement in a reverberation room.

The data shown does not consider the attenuation given by the place of installation. This attenuation is normally included between 6 and 10dBa and is determined by the dimensions of the room, its shape and the arrangements of the furnishings within it.

Correction factor for different length same flow rate per meter of diffuser

L	+Kf
600	-2,2
800	-1,0
1000	0,0
1200	0,8
1500	1,8
2000	3,0







KLN SERIES

THREE SLOTS SOUND POWER - EXTRACTION





Data measured in reverberating room in accordance with the following international standards:

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Correction factor for different length same flow rate per meter of diffuser

L	+Kf
600	-2,2
800	-1,0
1000	0,0
1200	0,8
1500	1,8
2000	3,0





KLN SERIES

FOUR SLOTS Vo LIMIT OF THE OCCUPIED ZONE









Aeraulic data measured in isothermic conditions for a one meter long diffuser in accordance with the international standard:

ISO 5219 1984: Air distribution and air diffusion -Laboratory. Aerodynamic testing and rating of air terminal devices.

A (m) distance between diffusers Vo (m/s) speed at limit of occupied area

For Hr different to 3m, use the multiplier factor KF: Vo (h) = Vo x Kf





KLN SERIES

FOUR SLOTS HORIZONTAL THROW









Aeraulic data measured in isothermic conditions for a one meter long diffuser in accordance with the international standard:

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L (m) horizontal distance in meters from the centre of diffuser

VL (m/s) maximum speed in air stream at distance L T0,2 (m) throw for an isothermal air jet with a Coandé effect for a terminal speed of Vt=0,20m/s.

> ΔT x Kf -10 0,90 Cooling -8 0,92 0,94 -6 -4 0,96 -2 0,98 2 1,02 Heating 1,04 4 6 1,06 8 1,08 10 1,10

Correction factor for non isotermal conditions





KLN SERIES

FOUR SLOTS VERTICAL THROW



Aeraulic data measured in isothermic conditions for a one meter long diffuser in accordance with the international standard: ISO 5219 1984: Air distribution and air diffusion -Laboratory. Aerodynamic testing and rating of air terminal devices.

H (m) vertical distance in meters from ceiling Vh (m/s) maximum speed in air stream at distance H T0,2 (m) throw for an isothermal air jet for a terminal speed of Vt=0,20m/s.



Correction factor for non isotermal conditions

	٨T	v Kf
	Δ 1	ARI
	-10	1,11
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KLN SERIES

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KLN SERIES

FOUR SLOTS PRESSURE DROP - EXTRACTION





Laboratory. Aerodynamic testing and rating of air terminal devices.









KLN SERIES

FOUR SLOTS SOUND POWER - SUPPLY





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Correction factor for different length same flow rate per meter of diffuser

L	+Kf
600	-2,2
800	-1,0
1000	0,0
1200	0,8
1500	1,8
2000	3,0







KLN SERIES

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KLN SERIES

FIVE SLOTS Vo LIMIT OF THE OCCUPIED ZONE









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KLN SERIES

FIVE SLOTS HORIZONTAL THROW









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Correction factor for non isotermal conditions





KLN SERIES

FIVE SLOTS VERTICAL THROW



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Correction factor for non isotermal conditions

	17	170
	$\Delta 1$	x Kt
bu	-10	1,11
	-8	1,09
oli	-6	1,06
ŭ	-4	1,04
	-2	1,02
Heating	2	0,98
	4	0,96
	6	0,94
	8	0,93
	10	0,91





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FIVE SLOTS PRESSURE DROP - SUPPLY



Aeraulic data measured in isothermic conditions for a one meter long diffuser in accordance with the international standard:

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FIVE SLOTS PRESSURE DROP - EXTRACTION



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FIVE SLOTS SOUND POWER - SUPPLY





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L	+Kf
600	-2,2
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KLN SERIES

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KLN SERIES

SIX SLOTS Vo LIMIT OF THE OCCUPIED ZONE









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SIX SLOTS HORIZONTAL THROW









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	ΔT	x Kf
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Сс	-4	0,96
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ng	4	1,04
ati	6	1,06
He	8	1,08
	10	1,10

Correction factor for non isotermal conditions





KLN SERIES

SIX SLOTS VERTICAL THROW



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SIX SLOTS PRESSURE DROP - SUPPLY



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KLN SERIES

SIX SLOTS SOUND POWER - SUPPLY





Data measured in reverberating room in accordance with the following international standards:

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Correction factor for different length same flow rate per meter of diffuser

L	+Kf
600	-2,2
800	-1,0
1000	0,0
1200	0,8
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SIX SLOTS SOUND POWER - EXTRACTION





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KLN SERIES

FILTERS



KLN SERIES

CODES







KLN SERIES

CODES - INSPECTION AND MAINTENANCE



As standard the plenum box is supplied separated from the diffuser

For the plenum box mounted on the diffuer use code: KLN-PLNMONT mounting of the plenum box on the diffuser



INSPECTION AND MAINTENANCE:

We recommend to check the filter condition at least every six months. Replace the filter if necessary and dispose of in accordance to local legislation separating the metal structure from the filter media.





KLN SERIES

ACCESSORIES SPARE PARTS



KLN-SW2 Pair of brackets for quick fix

Brackets KLN-SW2 let you use the quick fix method to install the diffuser KLN with the plenum (not supplied by MP3) made on site with 20mm thick sandwich panel in plasterboard ceilings thickness 12.5mm thick.

Diffuser length up to 1500mm : order two pairs of brackets. Diffuser length more than 1500mm: order three pairs of brackets.

It is recommended to attach the brackets with the same sealant used for joining panels.



- 1 Coumterceiling in plasterboard 12,5mm thick
- 2 Sandwich panel 20 mm thick
- 3 Bracket for quick fix
- 4 KLN diffuser
- 5 Quick fix









KLN SERIES

ACCESSORIES SPARE PARTS



Only for installation witout plenum

Only for standard version KLN ... SB (no filterholder, no panel)

For diffusers with a length equal or higher to 1650 mm it is suggested to use two pairs of mounting bridges











KLN SERIES

ACCESSORIES SPARE PARTS

Example of installation in continuos lines with corners



Number of slots	C (mm)
1	71
2	114
3	157
4	200
5	243
6	286



