

# KOOLAIR

## series

# KS

Variable volume  
terminal units



ISO 9001

BUREAU VERITAS  
Certification

Sistema de Gestión

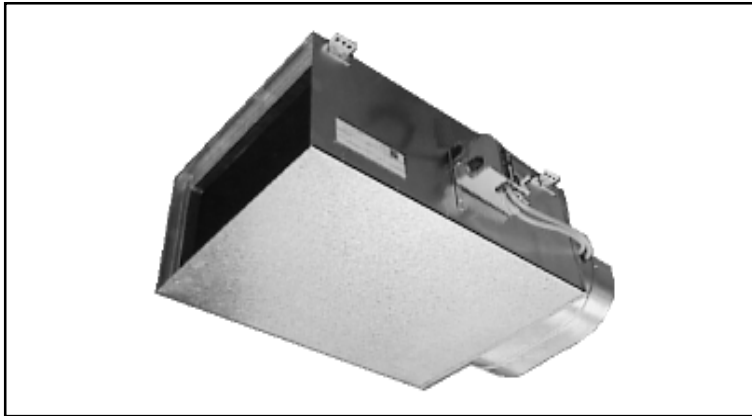


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# Contents

	Page
<b>Variable volume terminal units, type KS</b>	
Description _____	4
Dimensions and product code _____	5
General information _____	6
Comments on the selection tables _____	8
Selection tables _____	10
<b>Variable volume terminal units, type KSL</b>	
Description, dimensions and product code _____	20
Comments on the selection tables _____	21
Selection tables _____	22

## Variable volume terminal units, type KS



### Description

Koolair boxes type KS are air volume control terminal units for use in single duct installations.

KS boxes consist of a cabinet constructed of galvanised steel-sheet with interior thermal-acoustical insulation of fibreglass, fire resistance M1 not inflammable. They comprise of two connections, one circular or oval at the inlet and another rectangular at the discharge side.

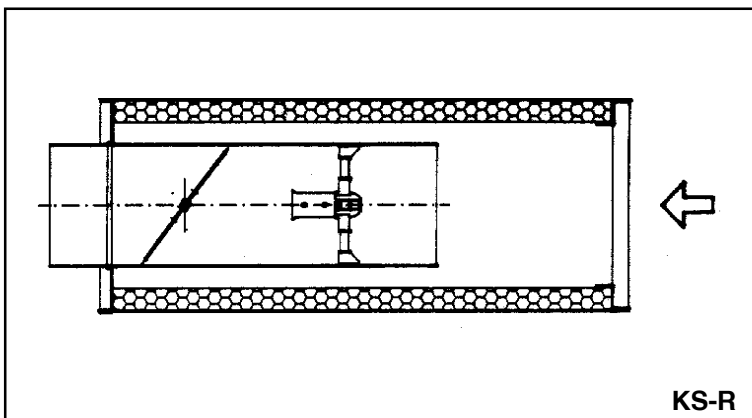
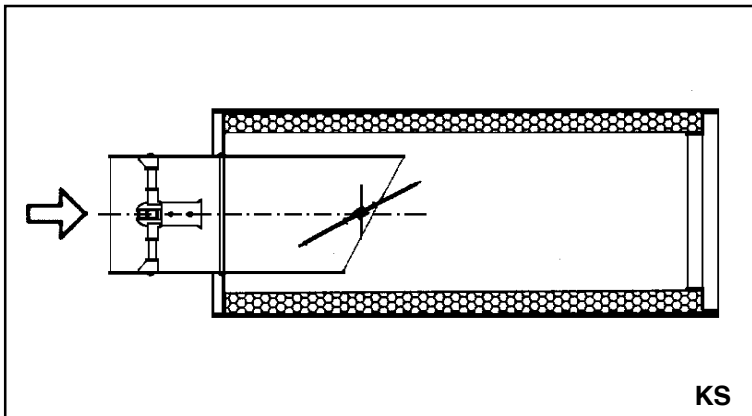
Also available is an additional plenum at the discharge side with various connections: circular, oval or rectangular, up to a maximum of five (see table on page 6).

The volume control damper, with its elliptical shape and sealing gasket in its entire periphery, and installed in the circular inlet, is the most adequate to obtain maximum linearity in damper actuation and a reduced sound level.

In the inlet duct a cross-shaped probe is installed which measures the differential pressure which varies with the air volume entering the unit.

The KS unit is used to provide a variable air volume to the room to be conditioned, as a function of the variations of its heat loads.

If it is desired to control the exhaust air from a room as a function of its supply air so as to obtain an over or underpressure with respect to adjacent rooms, the KSR unit should be installed.

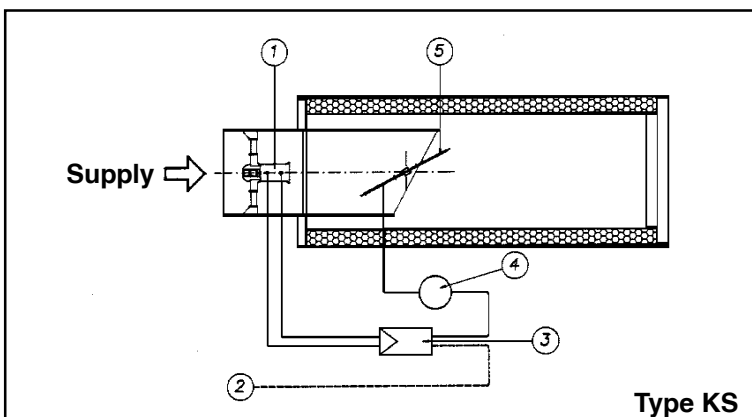


The only difference between KSR and KS units is that in the first the air enters the unit from the opposite side, which obliges the position of the differential pressure sensor to be modified. The minimum pressures for equipment setup depend on the actuator sensor accuracy.

### Control

Air volume control can be either electronic or pneumatic. The KS control system consists of:

- ① Differential pressure sensor
- ② Temperature sensor (not included in the KS)
- ③ Controller which receives the signals from the temperature probe and differential pressure sensor
- ④ Actuator, which closes or opens the KS damper
- ⑤ according to the signal received from the controller

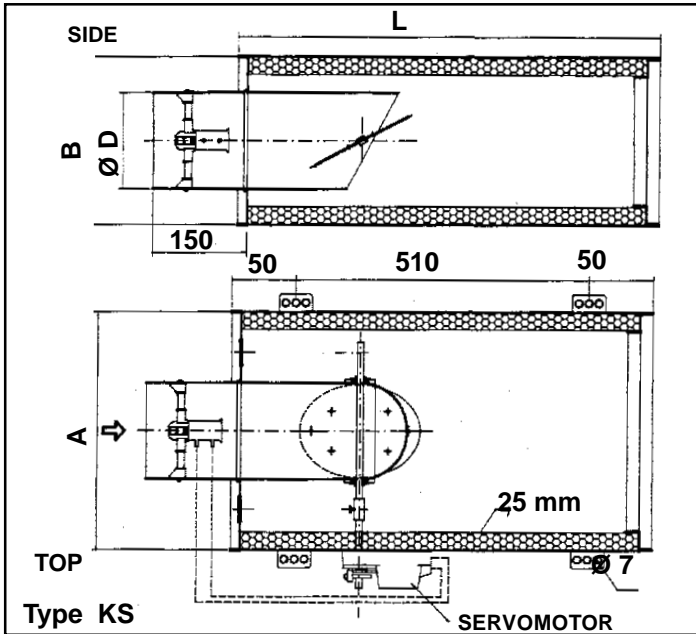


The controller and actuator are usually constructed as a single compact unit, which fulfils both functions.

In the controller maximum and minimum required air flow rates are selected, which will be controlled by the controller as a function of the signal received from the differential pressure sensor.

Between these limits the controller will vary the air flow rate according to the signal received from the temperature sensor.

## Dimensions



Dimensions in mm					
Size	A	B	ØD	L	Weight(kg)
100	240	254	99	610	7
200	265	254	124	610	8
400	300	254	159	610	8,5
600	320	254	179	610	9,5
800	340	254	199	610	10
1200	420	254	*249	610	10,5
1600	520	254	*314	610	11,5
2000	585	254	*354	610	13
3000	655	254	*399	610	14
4000	735	254	*449	610	18
6000	710	458	*499	610	21
8000	915	458	*629	610	26

(\*) OVAL

KS units are usually installed in the false ceilings of the rooms to be conditioned. In their design this fact has been taken into account, resulting in a minimum height. To facilitate the mounting of the units their length was also considered important and is therefore kept at 610 mm for all sizes.

<b>KS</b>	Variable air volume unit for supply.
<b>KSR</b>	Variable air volume unit for return.
<b>Sizes</b>	Indicate size from 100 to 8000.
<b>Discharge Configuration</b>	Indicate according to table on page 6
<b>-</b>	If not indicated, the interior finish will be fibreglass with neoprene film.
<b>P</b>	Perforated plate in interior.
<b>M</b>	Protection of the insulation with "melinex".
<b>W</b>	Re-heating coil with hot water.
<b>E</b>	Electrical re-heating coil.

## Product code:

Examples:

KS-200-1 Standard supply unit, size 200 with one rectangular discharge duct.

KS-200-7-P-W Supply unit with two lateral discharge ducts, perforated plate in interior and re-heating coil for hot water.

For calibration of the KS maximum and minimum air flow rates should also be indicated. If necessary the side where the controls should be mounted should be defined, looking from air inlet side.

## Damper leakage:

The sealing gasket, mounted on the periphery of the damper, guarantees an air leakage level through the damper less than 1% of the nominal air flow rate (defined as the flow rate corresponding to a velocity in the inlet duct of 7.5 m/s) and at a pressure of up to 1000 Pa.

## Coefficient to transform the differential pressure reading into air flow rate.

In order to determine the air flow rate through the KS variable flow terminal units, a number of constants are used based on the differential pressure measured at the unit inlet sensor.

To calculate the flow rate, use the following formula:

$$Q = C \cdot \sqrt{Pd}$$

Where :

Q = air flow rate in m<sup>3</sup>/h

C = constant

Pd = differential pressure at probe in Pa

## Multiple Discharge configurations

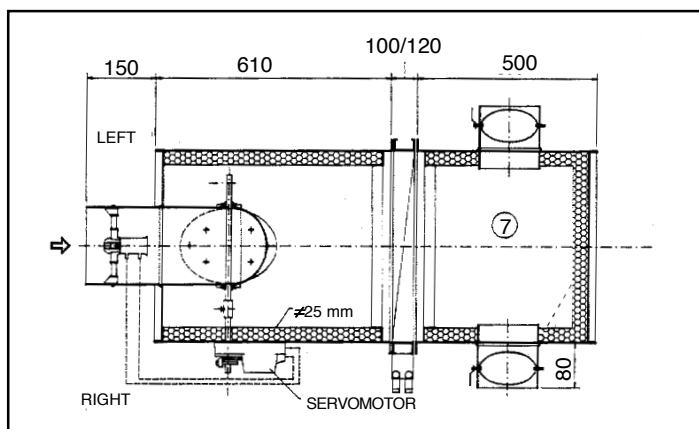
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<b>100</b>		180	225*	225*	180	180	225*	-	-	-	180	-	-	-	-	-
<b>200</b>		180	225*	225*	180	180	225*	-	-	-	180	-	-	-	-	-
<b>400</b>		180	225*	225*	180	180	225*	-	-	-	180	-	-	-	-	-
<b>600</b>		225*	225*	225*	225*	225*	225*	160*	160*	160*	225*	-	-	-	160*	-
<b>800</b>		225*	225*	225*	225*	225*	225*	160*	160*	160*	225*	-	-	-	160*	-
<b>1200</b>	<	250*	225*#	225*#	250*	250*	225*	180*	180*	180*	250*	-	-	-	180*	-
<b>1600</b>	×	315*	225*#	225*#	315*	315*	225*	180*	180*	180*	315*	-	-	-	180*	-
<b>2000</b>	⊕	400*	225*#	225*#	400*	400*	225*#	200*#	200*#	200*#	400*	180*#	180*#	180*#	200*#	180*#
<b>3000</b>		450*	225*#	225*#	450*	450*	225*#	250*#	250*#	250*#	450*	180#	180#	180#	250*	180#
<b>4000</b>		630*	225*#	225*#	630*	630*	225*#	315*#	315*	315*	630*	225*#	225*#	225*#	315*	225*#
<b>6000</b>		630*	315#	315#	500*	500*	315#	355*#	355*	355*	500*	315*#	315*	315*	355*	315*
<b>8000</b>		660*#	315#	315#	660*	660*	315#	400#	400#	400#	660*	355*#	355*#	355*#	400#	355*

Comments: \* Oval discharge.

Maximum diameter lateral discharge: 315 mm.

When lateral discharges are incorporated the length is 915 mm.

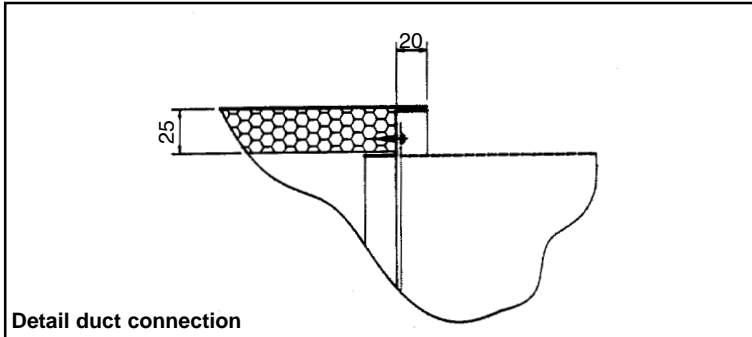
For sizes 6000 and 8000 circular discharge of bigger diameter than 315 mm may be incorporated (maximum 400 mm for size 8000).



The minimum pressure required for configurations with either lateral or frontal discharges equals 5.5 times the Pmin presented in the selection tables. For combined discharges (both lateral and frontal) this factor reduces to 4.0. Configurations with # require a minimum pressure over 100 Pa at nominal air flow rate, please consult Koolair.

### Re-heating coil and multiple discharges

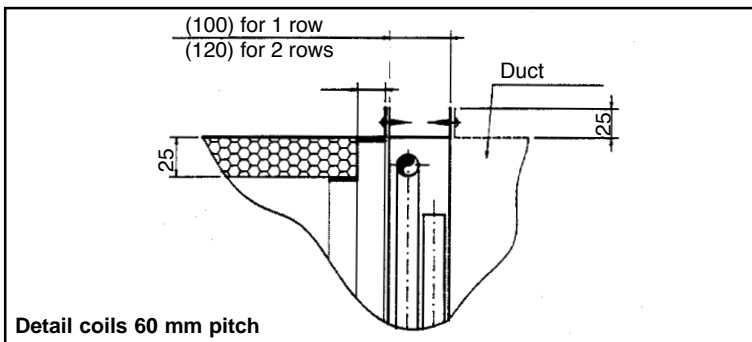
When a KS is selected with re-heating coil and multiple discharges, the coil will be installed behind the terminal unit, after which the multiple discharge plenum will be mounted, which for all models has a length of 500 mm.



### Duct connection discharge side

The rectangular discharge can be connected to the duct as shown in the figure. In this way the exterior height of the duct is less than that of the KS and even permits exterior duct insulation without superseeding the height of the terminal unit.

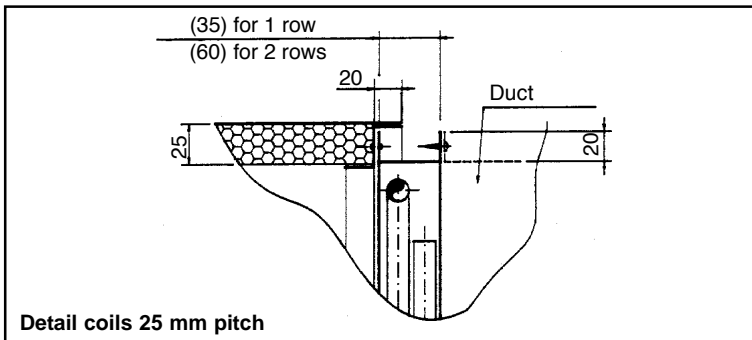
Detail duct connection



### Re-heating coil mounting

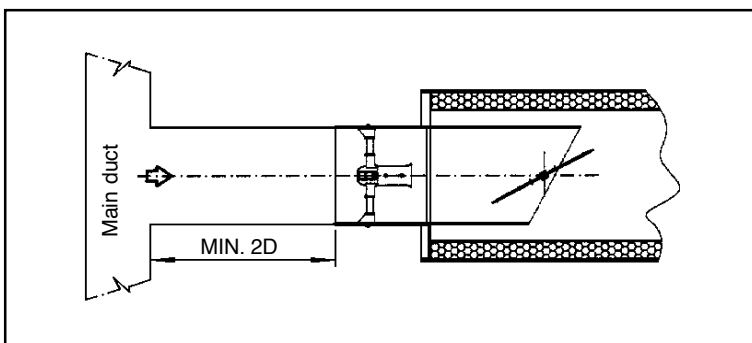
In the standard configuration the re-heating coil is mounted at the discharge side of the KS unit on a 25 mm wide flange by means of screws. This way of mounting adds 50 mm to the height of the KS unit. The coil which is mounted in this configuration has a 60 mm pitch between tubes.

Detail coils 60 mm pitch



In those cases where height is critical a re-heating coil can be mounted within the unit, avoiding the 25 mm flange. In this case it is necessary to use coils with a pitch of 25 mm between tubes.

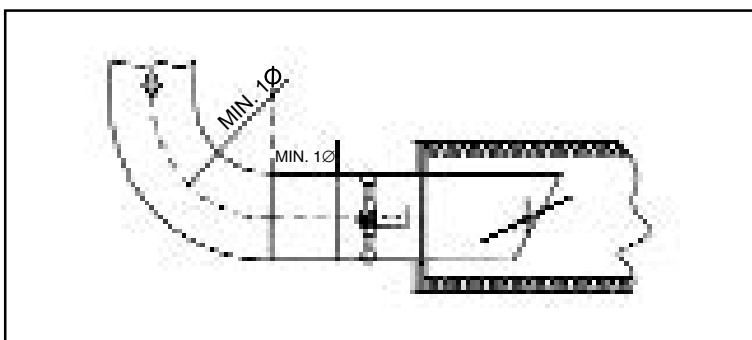
Detail coils 25 mm pitch



### Installation conditions

In order to obtain a correct reading with the differential pressure probe a minimum uniform air distribution at the inlet of the KS unit is required.

For this reason the minimum distances indicated in the figures are recommended, both for a KS box close to a T-piece as well as close to a 90° elbow.



## Selection tables

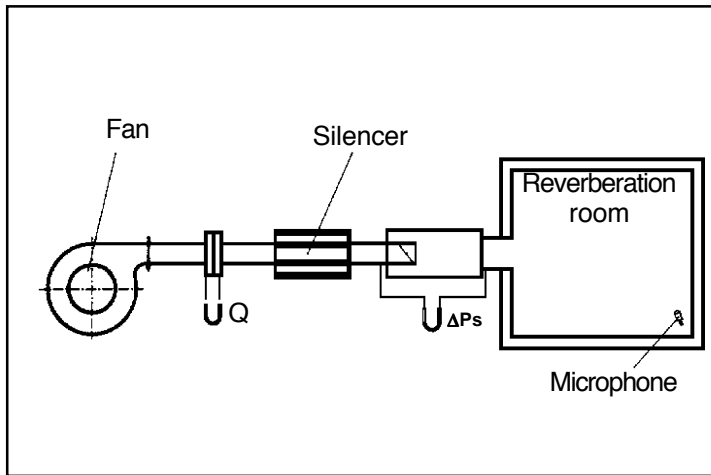
In the following tables (1 to 10) all data are presented which are necessary for a correct selection of the KS terminal units.

Data common to all tables:

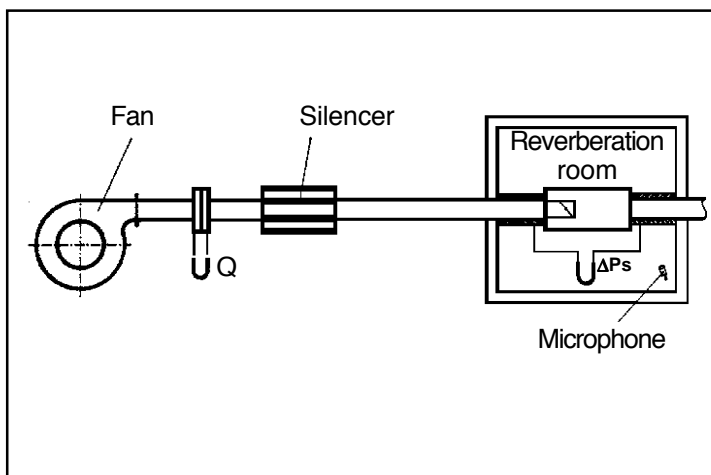
Diam.(mm): diameter of the circular inlet duct connection.

Pmin (Pa): minimum pressure at the inlet of the KS, equivalent to the pressure loss of the box with the damper fully open.

Q(m<sup>3</sup>/h) (l/s): Air flow rate for which the unit is to be selected.



Determination of sound power regenerated by the KS.



Determination of sound power radiated by the KS.

### Table n°1

In this table the sound pressure level in the room, due to the noise regenerated by the KS unit, is given in dB(A) for various air flow rates and for pressures from 100 to 1000 Pa. To obtain these values a 10 dB/octave attenuation has been assumed for discharge duct, diffuser and room.

### Table n°2

In this table the sound pressure level in the room is given expressed in NC (value of the NC curve corresponding to the sound spectrum) for the same conditions as table 1.

### Table n°3

Values for the sound pressure level in the room in NR (value of the NR curve corresponding to the sound spectrum) is presented for the same conditions as table 1.

### Tables n°4 and 5

The value of the sound power level (dB), regenerated by the KS unit is presented for the octave bands between 63 and 8000 Hz.

## Selection tables

### Table n°6

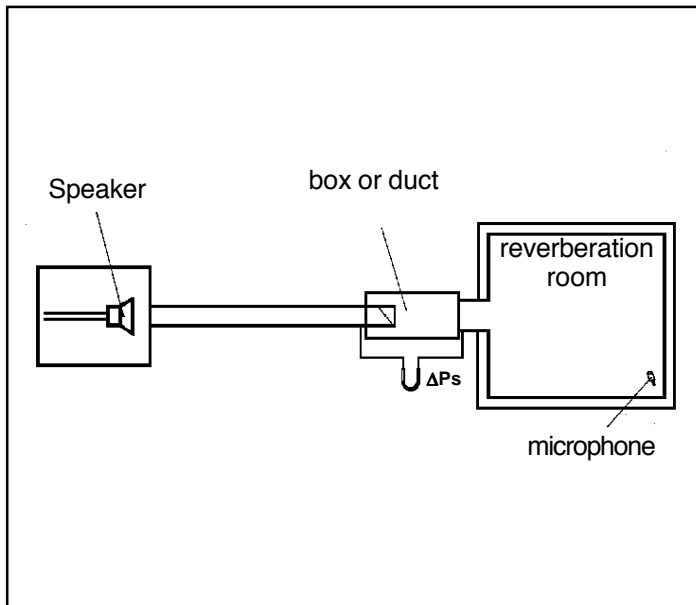
In this table the sound pressure level in the room, due to the noise radiated by the KS-unit, is given in dB(A) for various air flow rates and for pressures from 100 to 1000 Pa. To obtain these values a 10 dB/octave attenuation has been assumed for the false ceiling.

### Tables n°7 and 8

These tables are similar to the former, except that the sound pressure levels are referred to the NC and NR curves respectively.

### Tables n°9 and 10

Sound power levels (dB) are given for the radiated noise for the octave bands from 63 to 8000 Hz.



Determination of the attenuation due to the KS units.

### ISO Standards

All acoustic data published in this catalogue were obtained by tests, realised in a single reverberation room, constructed according to ISO standard 3741. All tests have been realised according to ISO standards 5135 and 5220.

### Attenuation due to the KS units

For a correct estimation of the sound pressure level in the room not only the regenerated noise of the unit should be taken into account, but also the noise level due to the fan, which should be added logarithmically to the noise of the KS unit. For this calculation it is necessary to take into account the attenuation by the KS unit, for which values are given in the adjacent table.

KS size	Octave band							
	1	2	3	4	5	6	7	8
100	6	0	0	11	17	12	6	8
200	6	0	1	11	16	11	6	7
400	5	0	1	10	15	10	6	7
600	4	0	1	10	14	10	5	7
800	4	0	1	9	14	10	5	7
1200	3	0	2	8	12	9	5	6
1600	2	1	2	7	11	8	5	6
2000	1	1	2	7	10	7	4	5
3000	0	1	2	6	9	6	4	5
4000	0	1	3	6	8	6	4	5
6000	0	1	4	3	4	3	3	3
8000	0	1	4	1	2	2	2	2

Attenuation due to the KS units

### Correction factor on sound level for re-heating coil

When the KS unit incorporates a re-heating coil, its effect on the noise generated by the box should be taken into account by using the values presented in the table below.

Vdischarge	Δ dB(A) for n° of rows=			
	1	2	3	4
0-3 m/s	-3,0	-2,0	-1,5	-1,0
3-4 m/s	-1,0	0,0	0,5	1,0
> 4 m/s	1,0	2,0	2,5	3,0



## Selection tables

- Terminal units type KS (Sound pressure levels in dB(A))

KS		Regenerated noise			dB(A) a p =									
Tamaño	Ø [mm]	Q [m3/h]	Q [l/s]	Pmin [Pa]	100	200	300	400	500	600	700	800	900	1000
100	99	80	22,2	1	<	<	22	24	26	27	28	29	30	31
		160	44,4	1	21	26	29	31	33	35	36	37	38	38
		240	66,7	1	25	31	34	36	38	39	40	41	42	43
		320	88,9	1	28	34	37	39	41	42	43	44	45	46
		400	111,1	1	31	36	39	41	43	45	46	47	48	48
200	124	125	34,7	1	<	23	27	29	31	32	33	35	35	36
		250	69,4	1	25	31	34	36	38	39	41	42	43	43
		375	104,2	2	29	35	38	40	42	44	45	46	47	48
		500	138,9	4	32	38	41	43	45	47	48	49	50	51
		625	173,6	7	35	40	43	46	47	49	50	51	52	53
400	159	200	55,6	1	22	28	31	34	36	37	38	40	41	41
		400	111,1	2	29	35	38	41	42	44	45	46	47	48
		600	166,7	5	33	39	42	45	46	48	49	50	51	52
		800	222,2	9	36	42	45	47	49	51	52	53	54	55
		1000	277,8	13	38	44	47	50	51	53	54	55	56	57
600	179	275	76,4	1	25	31	34	37	39	40	42	43	44	45
		550	152,8	3	32	38	41	43	45	47	48	49	50	51
		825	229,2	7	36	41	45	47	49	51	52	53	54	55
		1100	305,6	13	38	44	48	50	52	53	55	56	57	58
		1375	381,9	20	40	46	50	52	54	56	57	58	59	60
800	199	325	90,3	1	26	32	36	38	40	42	43	44	45	46
		650	180,6	3	33	39	42	45	47	48	50	51	52	53
		975	270,8	8	37	42	46	48	50	52	53	54	55	56
		1300	361,1	13	39	45	49	51	53	55	56	57	58	59
		1625	451,4	21	41	47	51	53	55	57	58	59	60	61
1200	249	500	138,9	1	29	36	39	42	44	45	47	48	49	50
		1000	277,8	4	35	42	45	48	50	51	53	54	55	56
		1500	416,7	10	39	45	49	51	53	55	56	58	59	60
		2000	555,6	17	41	48	51	54	56	57	59	60	61	62
		2500	694,4	27	43	50	53	56	58	59	61	62	63	64
1600	314	800	222,2	1	32	39	42	45	47	49	50	51	53	54
		1600	444,4	5	38	44	48	51	53	54	56	57	58	59
		2400	666,7	12	41	48	51	54	56	58	59	60	62	62
		3200	888,9	22	43	50	54	56	58	60	62	63	64	65
		4000	1111,1	34	45	52	55	58	60	62	63	65	66	67
2000	354	1000	277,8	1	33	40	44	46	48	50	52	53	54	55
		2000	555,6	6	39	45	49	52	54	56	57	58	59	60
		3000	833,3	13	42	48	52	55	57	59	60	62	63	64
		4000	1111,1	23	44	51	55	57	59	61	63	64	65	66
		5000	1388,9	36	46	52	56	59	61	63	64	66	67	68
3000	399	1250	347,2	2	34	41	45	48	50	51	53	54	55	56
		2500	694,4	6	40	46	50	53	55	57	58	59	61	62
		3750	1041,7	14	43	49	53	56	58	60	61	63	64	65
		5000	1388,9	25	45	51	55	58	60	62	63	65	66	67
		6250	1736,1	38	46	53	57	60	62	64	65	66	68	69
4000	449	1700	472,2	2	36	43	46	49	51	53	55	56	57	58
		3400	944,4	8	41	48	52	54	57	58	60	61	62	63
		5100	1416,7	17	44	51	54	57	59	61	63	64	65	66
		6800	1888,9	31	46	53	57	59	62	63	65	66	67	68
		8500	2361,1	48	47	54	58	61	63	65	66	68	69	70
6000	499	2000	555,6	2	36	43	47	50	52	54	55	57	58	59
		4000	1111,1	7	41	48	52	55	57	59	60	62	63	64
		6000	1666,7	17	44	51	55	58	60	62	63	64	66	67
		8000	2222,2	30	46	53	57	60	62	64	65	66	68	69
		10000	2777,8	47	47	54	58	61	63	65	67	68	69	70
8000	629	3250	902,8	2	37	45	49	52	54	56	57	59	60	61
		6500	1805,6	9	42	49	53	56	58	60	62	63	64	66
		9750	2708,3	20	45	52	56	59	61	63	65	66	67	68
		13000	3611,1	36	46	54	58	61	63	65	66	68	69	70
		16250	4513,9	56	48	55	59	62	64	66	68	69	70	71

Table nº1

< : sound pressure level < 20dB(A)

## Selection tables

- Terminal units type KS (Sound pressure levels in NC)

KS		Regenerated noise			NC a p =									
Tamaño	Ø [mm]	Q [m3/h]	Q [l/s]	Pmin [Pa]	100	200	300	400	500	600	700	800	900	1000
100	99	80	22,2	1	<	<	<	<	21	22	24	25	25	26
		160	44,4	1	<	22	25	27	29	30	31	32	33	34
		240	66,7	1	21	26	29	31	33	34	36	37	37	38
		320	88,9	1	24	29	32	34	36	38	39	40	41	41
		400	111,1	1	26	32	35	37	39	40	41	42	43	44
200	124	125	34,7	1	<	<	22	24	26	28	29	30	31	32
		250	69,4	1	21	26	29	32	33	35	36	37	38	39
		375	104,2	2	25	30	34	36	38	39	40	41	42	43
		500	138,9	4	28	33	36	39	41	42	43	44	45	46
		625	173,6	7	30	36	39	41	43	44	46	47	48	48
400	159	200	55,6	1	<	23	27	29	31	33	34	35	36	37
		400	111,1	2	25	30	34	36	38	39	41	42	43	44
		600	166,7	5	28	34	38	40	42	43	45	46	47	48
		800	222,2	9	31	37	40	43	45	46	47	49	50	50
		1000	277,8	13	33	39	43	45	47	48	50	51	52	53
600	179	275	76,4	1	21	26	30	32	34	36	37	38	39	40
		550	152,8	3	27	33	36	39	41	42	44	45	46	47
		825	229,2	7	31	37	40	43	45	46	47	49	50	50
		1100	305,6	13	34	40	43	45	47	49	50	51	52	53
		1375	381,9	20	36	42	45	48	49	51	52	53	54	55
800	199	325	90,3	1	22	28	31	34	36	37	39	40	41	42
		650	180,6	3	28	34	38	40	42	44	45	46	47	48
		975	270,8	8	32	38	41	44	46	47	49	50	51	52
		1300	361,1	13	35	41	44	47	48	50	51	52	53	54
		1625	451,4	21	37	43	46	49	50	52	53	55	56	56
1200	249	500	138,9	1	25	31	35	37	39	41	42	43	44	45
		1000	277,8	4	31	37	41	43	45	47	48	49	50	51
		1500	416,7	10	34	41	44	47	49	50	52	53	54	55
		2000	555,6	17	37	43	47	49	51	53	54	55	56	57
		2500	694,4	27	39	45	49	51	53	55	56	57	58	59
1600	314	800	222,2	1	28	34	38	40	43	44	46	47	48	49
		1600	444,4	5	33	40	43	46	48	50	51	53	54	55
		2400	666,7	12	37	43	47	49	51	53	55	56	57	58
		3200	888,9	22	39	45	49	52	54	55	57	58	59	60
		4000	1111,1	34	41	47	51	54	56	57	59	60	61	62
2000	354	1000	277,8	1	29	35	39	42	44	46	47	48	49	50
		2000	555,6	6	34	41	45	47	49	51	53	54	55	56
		3000	833,3	13	37	44	48	50	53	54	56	57	58	59
		4000	1111,1	23	40	46	50	53	55	56	58	59	60	61
		5000	1388,9	36	41	48	52	54	57	58	60	61	62	63
3000	399	1250	347,2	2	30	36	40	43	45	47	48	50	51	52
		2500	694,4	6	35	42	45	48	50	52	54	55	56	57
		3750	1041,7	14	38	45	49	51	53	55	57	58	59	60
		5000	1388,9	25	40	47	51	53	56	57	59	60	61	62
		6250	1736,1	38	42	48	52	55	57	59	61	62	63	64
4000	449	1700	472,2	2	31	38	42	45	47	49	50	51	53	54
		3400	944,4	8	36	43	47	50	52	54	55	57	58	59
		5100	1416,7	17	39	46	50	53	55	57	58	59	61	62
		6800	1888,9	31	41	48	52	55	57	59	60	62	63	64
		8500	2361,1	48	43	50	54	56	59	60	62	63	64	65
6000	499	2000	555,6	2	32	38	42	45	47	49	51	52	53	54
		4000	1111,1	7	36	43	47	50	52	54	56	57	58	59
		6000	1666,7	17	39	46	50	53	55	57	59	60	61	62
		8000	2222,2	30	41	48	52	55	57	59	61	62	63	64
		10000	2777,8	47	43	50	54	57	59	61	62	63	65	66
8000	629	3250	902,8	2	33	40	44	47	49	51	53	54	55	56
		6500	1805,6	9	37	44	49	52	54	56	57	59	60	61
		9750	2708,3	20	40	47	51	54	56	58	60	61	63	64
		13000	3611,1	36	42	49	53	56	58	60	62	63	64	65
		16250	4513,9	56	43	50	55	57	60	62	63	65	66	67

Table nº2

< : sound pressure level < NC 20

## Selection tables

- Terminal units type KS (Sound pressure levels in NR)

KS		Regenerated noise			NR a p =									
Tamaño	Ø [mm]	Q [m3/h]	Q (l/s)	Pmin [Pa]	100	200	300	400	500	600	700	800	900	1000
100	99	80	22,2	1	<	<	<	20	22	23	24	25	26	27
		160	44,4	1	<	22	25	28	29	31	32	33	34	35
		240	66,7	1	22	27	30	32	34	35	36	37	38	39
		320	88,9	1	25	30	33	35	37	38	39	41	41	42
		400	111,1	1	27	32	35	38	39	41	42	43	44	45
200	124	125	34,7	1	<	20	23	25	27	28	30	31	32	32
		250	69,4	1	21	27	30	32	34	36	37	38	39	40
		375	104,2	2	26	31	34	37	38	40	41	42	43	44
		500	138,9	4	29	34	37	40	41	43	44	45	46	47
		625	173,6	7	31	36	40	42	44	45	46	47	48	49
400	159	200	55,6	1	<	24	28	30	32	33	35	36	37	38
		400	111,1	2	25	31	34	37	39	40	41	43	44	44
		600	166,7	5	29	35	38	41	43	44	45	47	48	48
		800	222,2	9	32	38	41	44	45	47	48	49	50	51
		1000	277,8	13	34	40	43	46	48	49	50	52	53	53
600	179	275	76,4	1	21	27	31	33	35	36	38	39	40	41
		550	152,8	3	28	34	37	40	42	43	44	46	47	47
		825	229,2	7	32	38	41	43	45	47	48	49	50	51
		1100	305,6	13	34	40	44	46	48	50	51	52	53	54
		1375	381,9	20	37	42	46	48	50	52	53	54	55	56
800	199	325	90,3	1	23	29	32	35	36	38	39	40	41	42
		650	180,6	3	29	35	38	41	43	44	46	47	48	49
		975	270,8	8	33	39	42	45	47	48	49	51	52	53
		1300	361,1	13	35	41	45	47	49	51	52	53	54	55
		1625	451,4	21	37	43	47	49	51	53	54	55	56	57
1200	249	500	138,9	1	26	32	35	38	40	42	43	44	45	46
		1000	277,8	4	32	38	41	44	46	48	49	50	51	52
		1500	416,7	10	35	41	45	48	50	51	53	54	55	56
		2000	555,6	17	38	44	47	50	52	54	55	56	57	58
		2500	694,4	27	40	46	49	52	54	56	57	58	59	60
1600	314	800	222,2	1	28	35	39	41	43	45	46	48	49	50
		1600	444,4	5	34	40	44	47	49	51	52	53	54	55
		2400	666,7	12	37	44	48	50	52	54	55	57	58	59
		3200	888,9	22	40	46	50	53	55	56	58	59	60	61
		4000	1111,1	34	41	48	52	54	56	58	60	61	62	63
2000	354	1000	277,8	1	30	36	40	43	45	46	48	49	50	51
		2000	555,6	6	35	41	45	48	50	52	53	55	56	57
		3000	833,3	13	38	45	48	51	53	55	56	58	59	60
		4000	1111,1	23	40	47	51	53	56	57	59	60	61	62
		5000	1388,9	36	42	49	52	55	57	59	60	62	63	64
3000	399	1250	347,2	2	30	37	41	44	46	48	49	50	52	53
		2500	694,4	6	36	42	46	49	51	53	54	56	57	58
		3750	1041,7	14	39	45	49	52	54	56	57	59	60	61
		5000	1388,9	25	41	48	52	54	56	58	60	61	62	63
		6250	1736,1	38	43	49	53	56	58	60	61	63	64	65
4000	449	1700	472,2	2	32	39	43	45	48	49	51	52	53	54
		3400	944,4	8	37	44	48	51	53	54	56	57	58	59
		5100	1416,7	17	40	47	51	53	56	57	59	60	61	62
		6800	1888,9	31	42	49	53	56	58	60	61	62	64	65
		8500	2361,1	48	44	50	54	57	59	61	63	64	65	66
6000	499	2000	555,6	2	32	39	43	46	48	50	52	53	54	55
		4000	1111,1	7	37	44	48	51	53	55	56	58	59	60
		6000	1666,7	17	40	47	51	54	56	58	59	61	62	63
		8000	2222,2	30	42	49	53	56	58	60	61	63	64	65
		10000	2777,8	47	44	50	55	57	60	61	63	64	65	66
8000	629	3250	902,8	2	34	41	45	48	50	52	54	55	56	57
		6500	1805,6	9	38	45	49	52	55	57	58	59	61	62
		9750	2708,3	20	41	48	52	55	57	59	61	62	63	64
		13000	3611,1	36	43	50	54	57	59	61	63	64	65	66
		16250	4513,9	56	44	51	55	58	61	62	64	65	67	68

Table nº3

< : sound pressure level < NR 20

## Selection tables

- Terminal units type KS (Sound power levels in dB)

KS			Regenerated noise								p = 100 Pa								p = 200 Pa								p = 300 Pa								p = 400 Pa								p = 500 Pa								
Tamaño	Ø [mm]	Q [m³/h]	Q [l/s]	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
100	99	80	22,2	<	21	22	<	<	<	<	<	25	26	27	25	24	22	<	<	28	29	30	28	27	25	<	<	30	31	32	30	29	27	21	<	32	33	34	32	31	29	23	<								
		160	44,4	27	28	29	27	26	24	<	<	32	33	35	32	32	29	23	<	35	37	38	35	35	33	26	<	37	39	40	37	37	35	29	22	39	40	42	39	39	36	30	24								
		240	66,7	31	33	34	31	31	29	22	<	<	37	38	39	37	36	34	28	21	40	41	42	40	39	37	31	24	42	43	44	42	41	39	33	26	44	45	46	44	43	41	35	28							
		320	88,9	34	36	37	34	34	32	26	<	<	40	41	42	40	39	37	31	24	43	44	45	43	42	40	34	27	45	46	47	45	44	42	36	29	47	48	49	47	46	44	38	31							
		400	111,1	37	38	39	37	36	34	28	21	42	43	45	42	42	39	33	27	45	47	48	45	45	43	36	30	47	49	50	47	47	45	39	32	49	50	52	49	49	46	40	34								

Table nº4

< : sound power level < 20 dB

OCTAVE BAND								
	1	2	3	4	5	6	7	8
H <sub>z</sub>	63	125	250	500	1000	2000	4000	8000

# Selection tables

## - Terminal units type KS (Sound power levels in dB)

KS	Regenerated noise		p = 600 Pa								p = 700 Pa								p = 800 Pa								p = 900 Pa								p = 1000 Pa																
	Tamaño	Ø [mm]	Q [m3/h]	Q [l/s]	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7
100	99	80	22,2	33	34	35	33	32	30	24	<	34	35	37	34	34	31	25	<	35	36	38	35	35	32	26	<	36	37	38	36	35	33	27	20	37	38	39	37	36	34	28	21								
		160	44,4	41	42	43	41	40	38	32	25		42	43	44	42	41	39	33	26	43	44	45	43	42	40	34	27	44	45	46	44	43	41	35	28	44	46	47	44	44	42	36	29							
		240	66,7	45	46	47	45	44	42	36	29		46	47	49	46	46	43	37	31	47	48	50	47	47	44	38	32	48	49	50	48	47	45	39	32	49	50	51	49	48	46	40	33							
		320	88,9	48	49	51	48	48	45	39	33		49	51	52	49	49	47	40	34	50	52	53	50	50	48	41	35	51	53	54	51	51	49	42	36	52	53	54	52	51	49	43	36							
		400	111,1	51	52	53	51	50	48	42	35		52	53	54	52	51	49	43	36	53	54	55	53	52	50	44	37	54	55	56	54	53	51	45	38	54	56	57	54	54	52	46	39							
200	124	125	34,7	38	40	41	38	38	36	29	23	39	41	42	39	39	37	31	24	41	42	43	41	40	38	32	25	41	43	44	41	41	39	33	26	42	44	45	42	42	40	33	27								
		250	69,4	45	47	48	45	45	43	37	30	47	48	49	47	46	44	38	31	48	49	50	48	47	45	39	32	49	50	51	49	48	46	40	33	49	51	52	49	49	47	41	34								
		375	104,2	50	51	52	50	49	47	41	34		51	52	53	51	50	48	42	35	52	53	54	52	51	49	43	36	53	54	55	53	52	50	44	37	54	55	56	54	53	51	45	38							
		500	138,9	53	54	55	53	52	50	44	37		54	55	56	54	53	51	45	38	55	56	57	55	54	52	46	39	56	57	58	56	55	53	47	40	57	58	59	57	56	54	48	41							
		625	173,6	55	56	57	55	54	52	46	39		56	57	59	56	56	53	47	41	57	59	60	57	57	55	48	42	58	59	61	58	58	55	49	43	59	60	61	59	58	56	50	43							
400	159	200	55,6	43	45	46	43	43	41	34	28	44	46	47	44	44	42	36	29	46	47	48	46	45	43	37	30	47	48	49	47	46	44	38	31	47	49	50	47	47	45	39	32								
		400	111,1	50	51	52	50	49	47	41	34		51	53	54	51	51	49	42	36	52	54	55	52	52	50	43	37	53	55	56	53	53	51	44	38	54	56	57	54	54	52	45	39							
		600	166,7	54	55	56	54	53	51	45	38		55	57	58	55	55	53	46	40	56	58	59	56	56	54	47	41	57	59	60	57	57	55	48	42	58	59	61	58	58	55	49	43							
		800	222,2	57	58	59	57	56	54	48	41		58	59	60	58	57	55	49	42	59	60	62	59	59	56	50	44	60	61	63	60	60	57	51	45	61	62	63	61	60	58	52	45							
		1000	277,8	59	60	61	59	58	56	50	43		60	62	63	60	60	58	51	45	61	63	64	61	61	59	52	46	62	64	65	62	62	60	53	47	63	64	66	63	63	60	54	48							
600	179	275	76,4	46	48	49	46	46	44	37	31	48	49	50	48	47	45	39	32	49	50	51	49	48	46	40	33	50	51	52	50	49	47	41	34	51	52	53	51	50	48	42	35								
		550	152,8	53	54	55	53	52	50	44	37		54	55	57	54	54	51	45	39	55	57	58	55	55	53	46	40	56	58	59	56	56	54	47	41	57	58	60	57	57	54	48	42							
		825	229,2	57	58	59	57	56	54	48	41		58	59	60	58	57	55	49	42	59	60	62	59	59	56	50	44	60	61	63	60	60	57	51	45	61	62	63	61	60	58	52	45							
		1100	305,6	59	61	62	59	59	57	51	44		61	62	63	61	60	58	52	45	62	63	64	62	61	59	53	46	63	64	65	63	62	60	54	47	64	65	66	64	63	61	55	48							
		1375	381,9	62	63	64	62	61	59	53	46		63	64	65	63	62	60	54	47	64	65	66	64	63	61	55	48	65	66	67	65	64	62	56	49	66	67	68	66	65	63	57	50							
800	199	325	90,3	48	49	50	48	47	45	39	32	49	50	52	49	49	46	40	34	50	52	53	50	50	48	41	35	51	53	54	51	51	49	42	36	52	54	55	52	52	50	43	37								
		650	180,6	54	56	57	54	54	52	45	39		56	57	58	56	55	53	47	40	57	58	59	57	56	54	48	41	58	59	60	58	57	55	49	42	59	60	61	59	58	56	50	43							
		975	270,8	58	59	60	58	57	55	49	42		59	61	62	59	59	57	50	44	60	62	63	60	60	58	52	45	61	63	64	61	61	59	53	46	62	64	65	62	62	60	53	47							
		1300	361,1	61	62	63	61	60	58	52	45		62	63	64	62	61	59	53	46	63	64	65	63	62	60	54	47	64	65	66	64	63	61	55	48	65	66	67	65	64	62	56	49							
		1625	451,4	63	64	65	63	62	60	54	47		64	65	66	64	63	61	55	48	65	66	68	65	65	62	56	50	66	67	69	66	66	63	57	51	67	68	69	67	66	64	58	51							
1200	249	500	138,9	51	53	54	51	51	49	42	36	53	54	55	53	52	50	44	37	54	55	56	54	53	51	45	38	55	56	57	55	54	52	46	39	56	57	58	56	55	53	47	40								
		1000	277,8	57	59	60	57	57	55	49	42		59	60	61	59	58	56	50	43	60	61	62	60	59	57	51	44	61	62	63	61	60	58	52	45	62	63	64	62	61	59	53	46							
		1500	416,7	61	62	63	61	60	58	52	45		62	64	65	62	62	60	53	47	64	65	66	64	63	61	55	48	65	66	67	65	64	62	56	49	66	67	68	66	65	63	57	50							
		2000	555,6	63	65	66	63	63	61	55	48		65	66	67	65	64	62	56	49	66	67	68	66	65	63	57	50	67	68	69	67	66	64	58	51	68	69	70	68	67	65	59	52							
		2500	694,4	65	67	68	65	65	63	56	50		67	68	69	67	66	64	58	51	68	69	70	68	67	65	59	52	69	70	71	69	68	66	60	53	70	71	72	70	69	67	61	54							
1600	314	800	222,2	55	56	57	55	54	52	46	39	56	58	59	56	56	54	47	41	57	59	60	57	57	55	49	42	59	60	61	59	58	56	50	43	60	61	62	60	59	57	51	44								
		1600	444,4	60	62	63	60	60	58	52	45		62	63	64	62	61	59	53	46	63	64	66	63	63	60	54	48	64	66	67	64	64	62	55	49	65	66	68	65	65	62	56	50							
		2400	666,7	64	65	66	64	63	61	55	48		65	66	68	65	65	62	56	50	66	68	69	66	66	64	58	51	68	69	70	68	67	65	59	52	69	70	71	69	68	66	60	53							
		3200	888,9	66	67	68	66	65	63	57	50		68	69	70	68	67	65	59	52	69	70	71	69	68	66	60	53	70	71	72	70	69	67	61	54	71	72	73	71	70	68	62	55							
		4000	1111,1	68	69	70	68	67	65	59	52		69	71	72	69	69	67	60	54	71	72	73	71	70	68	62	55	72	73	74	72	71	69	63	56	73	74	75	73	72	70	64	57							
2000	354	1000	277,8	56	58	59	56	56	54	47	41	58	59	60	58	57	55	49	42	59	60	61	59	58	56	50	43	60	61	62	60	59	57	51	44	61	62	63	61	60	58	52	45								
		2000	555,6	62	63	64	62	61	59	53	46		63	64	66	63	63	60	54	48																															

## Selection tables

- Terminal units type KS (Sound pressure levels in dB(A))

KS		Radiated noise			dB(A) a p =									
Tamaño	Ø [mm]	Q [m3/h]	Q [l/s]	Pmin [Pa]	100	200	300	400	500	600	700	800	900	1000
100	99	80	22,2	1	<	<	<	<	21	22	23	23	24	24
		160	44,4	1	21	24	26	28	29	29	30	31	31	32
		240	66,7	1	25	29	31	32	33	34	35	35	36	36
		320	88,9	1	29	32	34	35	36	37	38	38	39	39
		400	111,1	1	31	34	36	38	39	40	40	41	41	42
200	124	125	34,7	1	<	<	<	21	22	23	24	24	25	25
		250	69,4	1	22	25	27	29	30	31	31	32	33	33
		375	104,2	2	27	30	32	33	34	35	36	37	37	38
		500	138,9	4	30	33	35	36	37	38	39	40	40	41
		625	173,6	7	32	36	38	39	40	41	42	42	43	43
400	159	200	55,6	1	<	<	21	22	23	24	25	25	26	27
		400	111,1	2	23	26	28	30	31	32	33	33	34	34
		600	166,7	5	28	31	33	34	36	36	37	38	38	39
		800	222,2	9	31	34	36	38	39	40	40	41	42	42
		1000	277,8	13	33	37	39	40	41	42	43	44	44	45
600	179	275	76,4	1	<	20	22	24	25	26	26	27	28	28
		550	152,8	3	25	28	30	32	33	34	34	35	36	36
		825	229,2	7	29	33	35	36	37	38	39	40	40	41
		1100	305,6	13	32	36	38	39	40	41	42	43	43	44
		1375	381,9	20	35	38	40	42	43	44	45	45	46	46
800	199	325	90,3	1	<	20	22	24	25	26	27	27	28	28
		650	180,6	3	25	28	30	32	33	34	35	35	36	36
		975	270,8	8	29	33	35	36	37	38	39	40	40	41
		1300	361,1	13	33	36	38	40	41	42	42	43	44	44
		1625	451,4	21	35	39	41	42	43	44	45	46	46	47
1200	249	500	138,9	1	<	21	24	25	26	27	28	29	29	30
		1000	277,8	4	26	29	32	33	34	35	36	37	37	38
		1500	416,7	10	31	34	36	38	39	40	41	41	42	42
		2000	555,6	17	34	37	40	41	42	43	44	45	45	46
		2500	694,4	27	36	40	42	44	45	46	46	47	48	48
1600	314	800	222,2	1	<	23	25	27	28	29	30	30	31	32
		1600	444,4	5	28	31	33	35	36	37	38	38	39	40
		2400	666,7	12	32	36	38	40	41	42	43	43	44	44
		3200	888,9	22	36	39	41	43	44	45	46	47	47	48
		4000	1111,1	34	38	42	44	46	47	48	48	49	50	50
2000	354	1000	277,8	1	20	24	26	27	29	30	30	31	32	32
		2000	555,6	6	28	32	34	36	37	38	39	39	40	40
		3000	833,3	13	33	37	39	40	42	42	43	44	45	45
		4000	1111,1	23	36	40	42	44	45	46	47	47	48	49
		5000	1388,9	36	39	43	45	46	48	48	49	50	51	51
3000	399	1250	347,2	2	21	24	27	28	29	30	31	32	33	33
		2500	694,4	6	29	33	35	36	38	39	39	40	41	41
		3750	1041,7	14	34	37	40	41	42	43	44	45	45	46
		5000	1388,9	25	37	41	43	45	46	47	48	48	49	49
		6250	1736,1	38	40	43	46	47	48	49	50	51	52	52
4000	449	1700	472,2	2	22	26	28	30	31	32	33	34	34	35
		3400	944,4	8	31	34	37	38	39	40	41	42	43	43
		5100	1416,7	17	35	39	41	43	44	45	46	47	47	48
		6800	1888,9	31	39	43	45	46	48	49	49	50	51	51
		8500	2361,1	48	42	45	48	49	50	51	52	53	53	54
6000	499	2000	555,6	2	23	26	29	30	31	32	33	34	35	35
		4000	1111,1	7	31	35	37	39	40	41	42	42	43	44
		6000	1666,7	17	36	40	42	43	45	46	46	47	48	48
		8000	2222,2	30	39	43	45	47	48	49	50	51	51	52
		10000	2777,8	47	42	46	48	49	51	52	53	53	54	54
8000	629	3250	902,8	2	25	29	31	32	34	35	36	36	37	38
		6500	1805,6	9	33	37	39	41	42	43	44	45	45	46
		9750	2708,3	20	38	42	44	46	47	48	49	50	50	51
		13000	3611,1	36	42	45	48	49	50	51	52	53	54	54
		16250	4513,9	56	44	48	50	52	53	54	55	56	56	57

Table nº6

< : sound pressure level < 20dB(A)

## Selection tables

- Terminal units type KS (Sound pressure levels in NC)

KS		Radiated noise			NC a p =									
Tamaño	Ø [mm]	Q [m3/h]	Q [l/s]	Pmin [Pa]	100	200	300	400	500	600	700	800	900	1000
100	99	80	22,2	1	<	<	<	<	<	20	20	21	21	22
		160	44,4	1	<	22	24	25	26	27	28	29	29	30
		240	66,7	1	23	26	28	30	31	32	32	33	34	34
		320	88,9	1	26	30	31	33	34	35	36	36	37	37
		400	111,1	1	29	32	34	35	36	37	38	39	39	40
200	124	125	34,7	1	<	<	<	<	20	21	21	22	23	23
		250	69,4	1	20	23	25	26	27	28	29	30	30	31
		375	104,2	2	24	28	30	31	32	33	34	34	35	35
		500	138,9	4	27	31	33	34	35	36	37	37	38	39
		625	173,6	7	30	33	35	37	38	39	39	40	41	41
400	159	200	55,6	1	<	<	<	20	21	22	23	23	24	24
		400	111,1	2	21	24	26	28	29	30	30	31	32	32
		600	166,7	5	25	29	31	32	33	34	35	36	36	37
		800	222,2	9	29	32	34	35	36	37	38	39	39	40
		1000	277,8	13	31	34	36	38	39	40	41	41	42	42
600	179	275	76,4	1	<	<	20	21	22	23	24	25	25	26
		550	152,8	3	22	26	28	29	30	31	32	33	33	34
		825	229,2	7	27	30	32	34	35	36	37	37	38	38
		1100	305,6	13	30	34	36	37	38	39	40	41	41	42
		1375	381,9	20	33	36	38	40	41	42	42	43	44	44
800	199	325	90,3	1	<	<	20	21	23	24	24	25	26	26
		650	180,6	3	22	26	28	29	31	31	32	33	33	34
		975	270,8	8	27	31	33	34	35	36	37	38	38	39
		1300	361,1	13	30	34	36	37	38	39	40	41	41	42
		1625	451,4	21	33	36	38	40	41	42	43	43	44	44
1200	249	500	138,9	1	<	<	21	23	24	25	26	26	27	27
		1000	277,8	4	24	27	29	31	32	33	34	34	35	35
		1500	416,7	10	28	32	34	35	37	38	38	39	40	40
		2000	555,6	17	32	35	37	39	40	41	42	42	43	43
		2500	694,4	27	34	38	40	41	42	43	44	45	45	46
1600	314	800	222,2	1	<	21	23	24	26	27	27	28	29	29
		1600	444,4	5	25	29	31	33	34	35	35	36	37	37
		2400	666,7	12	30	34	36	37	38	39	40	41	42	42
		3200	888,9	22	33	37	39	41	42	43	44	44	45	45
		4000	1111,1	34	36	40	42	43	44	45	46	47	47	48
2000	354	1000	277,8	1	<	21	24	25	26	27	28	29	29	30
		2000	555,6	6	26	30	32	33	34	35	36	37	38	38
		3000	833,3	13	31	34	37	38	39	40	41	42	42	43
		4000	1111,1	23	34	38	40	41	43	44	44	45	46	46
		5000	1388,9	36	37	40	43	44	45	46	47	48	48	49
3000	399	1250	347,2	2	<	22	24	26	27	28	29	30	30	31
		2500	694,4	6	27	30	33	34	35	36	37	38	38	39
		3750	1041,7	14	31	35	37	39	40	41	42	43	43	44
		5000	1388,9	25	35	39	41	42	43	44	45	46	47	47
		6250	1736,1	38	37	41	43	45	46	47	48	49	49	50
4000	449	1700	472,2	2	20	24	26	28	29	30	31	31	32	33
		3400	944,4	8	28	32	34	36	37	38	39	40	40	41
		5100	1416,7	17	33	37	39	41	42	43	44	44	45	46
		6800	1888,9	31	37	40	43	44	45	46	47	48	48	49
		8500	2361,1	48	39	43	45	47	48	49	50	51	51	52
6000	499	2000	555,6	2	20	24	26	28	29	30	31	32	32	33
		4000	1111,1	7	29	32	35	36	37	38	39	40	41	41
		6000	1666,7	17	33	37	39	41	42	43	44	45	45	46
		8000	2222,2	30	37	41	43	44	46	47	48	48	49	49
		10000	2777,8	47	40	43	46	47	48	49	50	51	52	52
8000	629	3250	902,8	2	22	26	29	30	31	32	33	34	35	35
		6500	1805,6	9	31	35	37	39	40	41	42	42	43	44
		9750	2708,3	20	36	40	42	43	45	46	47	47	48	49
		13000	3611,1	36	39	43	45	47	48	49	50	51	51	52
		16250	4513,9	56	42	46	48	50	51	52	53	53	54	55

Table nº7

< : sound pressure level < NC 20

## Selection tables

### - Terminal units type KS (Sound pressure levels in NR)

KS		Radiated noise			NR a p =									
Tamaño	Ø [mm]	Q [m3/h]	Q [l/s]	Pmin [Pa]	100	200	300	400	500	600	700	800	900	1000
100	99	80	22,2	1	<	<	<	<	<	<	<	20	21	21
		160	44,4	1	<	21	23	25	26	26	27	28	28	29
		240	66,7	1	22	26	28	29	30	31	32	32	33	33
		320	88,9	1	26	29	31	32	33	34	35	35	36	36
		400	111,1	1	28	31	33	35	36	37	37	38	38	39
200	124	125	34,7	1	<	<	<	<	<	<	21	21	22	22
		250	69,4	1	<	22	24	26	27	28	28	29	30	30
		375	104,2	2	24	27	29	30	31	32	33	34	34	35
		500	138,9	4	27	30	32	33	34	35	36	37	37	38
		625	173,6	7	29	33	35	36	37	38	39	39	40	40
400	159	200	55,6	1	<	<	<	<	20	21	22	22	23	24
		400	111,1	2	<	23	25	27	28	29	30	30	31	31
		600	166,7	5	25	28	30	31	33	33	34	35	35	36
		800	222,2	9	28	31	33	35	36	37	37	38	39	39
		1000	277,8	13	30	34	36	37	38	39	40	41	41	42
600	179	275	76,4	1	<	<	<	21	22	23	23	24	25	25
		550	152,8	3	22	25	27	29	30	31	31	32	33	33
		825	229,2	7	26	30	32	33	34	35	36	37	37	38
		1100	305,6	13	29	33	35	36	37	38	39	40	40	41
		1375	381,9	20	32	35	37	39	40	41	42	42	43	43
800	199	325	90,3	1	<	<	<	21	22	23	24	24	25	25
		650	180,6	3	22	25	27	29	30	31	32	32	33	33
		975	270,8	8	26	30	32	33	34	35	36	37	37	38
		1300	361,1	13	30	33	35	37	38	39	39	40	41	41
		1625	451,4	21	32	36	38	39	40	41	42	43	43	44
1200	249	500	138,9	1	<	<	21	22	23	24	25	26	26	27
		1000	277,8	4	23	26	29	30	31	32	33	34	34	35
		1500	416,7	10	28	31	33	35	36	37	38	38	39	39
		2000	555,6	17	31	34	37	38	39	40	41	42	42	43
		2500	694,4	27	33	37	39	41	42	43	43	44	45	45
1600	314	800	222,2	1	<	20	22	24	25	26	27	27	28	29
		1600	444,4	5	25	28	30	32	33	34	35	35	36	37
		2400	666,7	12	29	33	35	37	38	39	40	40	41	41
		3200	888,9	22	33	36	38	40	41	42	43	44	44	45
		4000	1111,1	34	35	39	41	43	44	45	45	46	47	47
2000	354	1000	277,8	1	<	21	23	24	26	27	27	28	29	29
		2000	555,6	6	25	29	31	33	34	35	36	36	37	37
		3000	833,3	13	30	34	36	37	39	39	40	41	42	42
		4000	1111,1	23	33	37	39	41	42	43	44	44	45	46
		5000	1388,9	36	36	40	42	43	45	45	46	47	48	48
3000	399	1250	347,2	2	<	21	24	25	26	27	28	29	30	30
		2500	694,4	6	26	30	32	33	35	36	36	37	38	38
		3750	1041,7	14	31	34	37	38	39	40	41	42	42	43
		5000	1388,9	25	34	38	40	42	43	44	45	45	46	46
		6250	1736,1	38	37	40	43	44	45	46	47	48	49	49
4000	449	1700	472,2	2	<	23	25	27	28	29	30	31	31	32
		3400	944,4	8	28	31	34	35	36	37	38	39	40	40
		5100	1416,7	17	32	36	38	40	41	42	43	44	44	45
		6800	1888,9	31	36	40	42	43	45	46	46	47	48	48
		8500	2361,1	48	39	42	45	46	47	48	49	50	50	51
6000	499	2000	555,6	2	<	23	26	27	28	29	30	31	32	32
		4000	1111,1	7	28	32	34	36	37	38	39	39	40	41
		6000	1666,7	17	33	37	39	40	42	43	43	44	45	45
		8000	2222,2	30	36	40	42	44	45	46	47	48	48	49
		10000	2777,8	47	39	43	45	46	48	49	50	50	51	51
8000	629	3250	902,8	2	22	26	28	29	31	32	33	33	34	35
		6500	1805,6	9	30	34	36	38	39	40	41	42	42	43
		9750	2708,3	20	35	39	41	43	44	45	46	47	47	48
		13000	3611,1	36	39	42	45	46	47	48	49	50	51	51
		16250	4513,9	56	41	45	47	49	50	51	52	53	53	54

Table nº8

< : sound pressure level < NR 20



# Selection tables

- Terminal units type KS (Sound power levels in dB)

KS	Radiated noise		p = 100 Pa								p = 200 Pa								p = 300 Pa								p = 400 Pa								p = 500 Pa																
	Tamaño	Ø [mm]	Q [m³/h]	Q [l/s]	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7
100	99	80	22,2	<	<	<	<	<	<	<	<	35	36	31	30	<	<	<	<	<	37	38	33	32	<	<	<	<	<	38	40	35	33	<	<	<	<	<	39	41	36	34	20	<	<	<	<				
		160	44,4	39	41	36	34	20	<	<	<	<	43	44	39	38	24	<	<	<	<	44	46	41	40	26	<	<	<	<	46	47	42	41	27	21	<	<	<	47	48	43	42	28	22	<	<	<			
		240	66,7	44	45	40	39	25	<	<	<	<	47	48	44	42	28	22	<	<	<	49	50	45	44	30	24	<	<	<	50	52	47	45	31	25	<	<	<	51	53	48	47	32	26	20	<	<			
		320	88,9	47	48	43	42	28	22	<	<	<	<	50	52	47	45	31	25	<	<	<	52	53	49	47	33	27	21	<	<	53	55	50	49	35	28	22	<	<	55	56	51	50	36	29	23	<	<		
		400	111,1	49	51	46	45	30	24	<	<	<	<	53	54	49	48	34	28	21	<	<	55	56	51	50	36	29	23	<	<	56	57	52	51	37	31	25	<	<	57	58	53	52	38	32	26	<	<		
200	124	125	34,7	<	<	<	<	<	<	<	<	36	37	32	31	<	<	<	<	<	38	39	34	33	<	<	<	<	<	39	41	36	34	20	<	<	<	<	40	42	37	36	21	<	<	<	<				
		250	69,4	40	42	37	35	21	<	<	<	<	44	45	40	39	25	<	<	<	<	46	47	42	41	27	21	<	<	<	47	48	43	42	28	22	<	<	<	48	49	45	43	29	23	<	<	<			
		375	104,2	45	46	41	40	26	20	<	<	<	<	48	50	45	43	29	23	<	<	<	50	52	47	45	31	25	<	<	<	52	53	48	47	33	26	20	<	<	53	54	49	48	34	27	21	<	<		
		500	138,9	48	49	45	43	29	23	<	<	<	<	51	53	48	47	32	26	20	<	<	53	55	50	49	34	28	22	<	<	55	56	51	50	36	30	23	<	<	56	57	52	51	37	31	24	<	<		
		625	173,6	50	52	47	46	32	25	<	<	<	<	54	55	50	49	35	29	23	<	<	56	57	52	51	37	31	25	<	<	57	59	54	52	38	32	26	<	<	58	60	55	53	39	33	27	20	<	<	
400	159	200	55,6	33	34	29	28	<	<	<	<	37	38	33	32	<	<	<	<	<	39	40	35	34	20	<	<	<	<	40	42	37	36	21	<	<	<	<	41	43	38	37	23	<	<	<	<				
		400	111,1	41	43	38	36	22	<	<	<	<	45	46	41	40	26	20	<	<	<	47	48	43	42	28	22	<	<	<	48	50	45	43	29	23	<	<	<	49	51	46	44	30	24	<	<	<			
		600	166,7	46	47	42	41	27	21	<	<	<	<	49	51	46	44	30	24	<	<	<	51	53	48	46	32	26	20	<	<	53	54	49	48	34	28	21	<	<	54	55	50	49	35	29	23	<	<		
		800	222,2	49	51	46	44	30	24	<	<	<	<	53	54	49	48	34	27	21	<	<	55	56	51	50	36	29	23	<	<	56	57	52	51	37	31	25	<	<	57	58	54	52	38	32	26	<	<		
		1000	277,8	52	53	48	47	33	27	20	<	<	<	55	56	52	50	36	30	24	<	<	57	58	54	52	38	32	26	<	<	59	60	55	54	40	34	27	20	<	<	60	62	57	55	41	35	29	22	<	<
600	179	275	76,4	35	36	32	30	<	<	<	<	38	40	35	34	20	<	<	<	<	41	42	37	36	22	<	<	<	<	42	43	38	37	23	<	<	<	<	43	44	40	38	24	<	<	<	<				
		550	152,8	43	44	39	38	24	<	<	<	<	46	48	43	42	27	21	<	<	<	48	50	45	44	29	23	<	<	<	50	51	46	45	31	25	<	<	<	51	52	47	46	32	26	20	<	<			
		825	229,2	47	49	44	43	29	22	<	<	<	<	51	52	47	46	32	26	20	<	<	53	54	49	48	34	28	22	<	<	54	56	51	50	36	29	23	<	<	56	57	52	51	37	30	24	<	<		
		1100	305,6	51	52	47	46	32	26	<	<	<	<	54	56	51	49	35	29	23	<	<	56	58	53	52	38	31	25	<	<	58	59	54	53	39	33	26	<	<	59	60	56	54	40	34	27	20	<	<	
		1375	381,9	53	55	50	48	34	28	22	<	<	<	57	58	53	52	38	32	25	<	<	59	60	55	54	40	34	27	20	<	<	60	62	57	55	41	35	29	22	<	<	61	63	58	57	42	36	30	23	<
800	199	325	90,3	35	36	32	30	<	<	<	<	39	40	35	34	20	<	<	<	<	41	42	37	36	22	<	<	<	<	42	43	39	37	23	<	<	<	<	43	45	40	38	24	<	<	<	<				
		650	180,6	43	44	40	38	24	<	<	<	<	47	48	43	42	28	21	<	<	<	49	50	45	44	30	23	<	<	<	50	51	46	45	31	25	<	<	<	51	53	48	46	32	26	20	<	<			
		975	270,8	48	49	44	43	29	23	<	<	<	<	51	53	48	46	32	26	20	<	<	53	55	50	48	34	28	22	<	<	55	56	51	50	36	30	23	<	<	56	57	52	51	37	31	24	<	<		
		1300	361,1	51	52	47	46	32	26	20	<	<	<	54	56	51	50	36	29	23	<	<	56	58	53	52	38	31	25	<	<	58	59	54	53	39	33	27	<	<	59	60	56	54	40	34	28	21	<	<	
		1625	451,4	53	55	50	49	35	28	22	<	<	<	57	58	53	52	38	32	26	<	<	59	60	55	54	40	34	28	20	<	<	60	62	57	56	42	35	29	22	<	<	62	63	58	57	43	36	30	23	<
1200	249	500	138,9	36	38	33	31	<	<	<	<	40	41	36	35	21	<	<	<	<	42	43	38	37	23	<	<	<	<	43	45	40	39	24	<	<	<	<	44	46	41	40	26	<	<	<	<				
		1000	277,8	44	46	41	39	25	<	<	<	<	48	49	44	43	29	23	<	<	<	50	51	46	45	31	25	<	<	<	51	53	48	47	32	26	20	<	<	52	54	49	48	34	27	21	<	<			
		1500	416,7	49	50	45	44	30	24	<	<	<	<	52	54	49	48	34	27	21	<	<	55	56	51	50	36	29	23	<	<	56	57	53	51	37	31	25	<	<	57	59	54	52	38	32	26	<	<		
		2000	555,6	52	54	49	47	33	27	21	<	<	<	56	57	52	51	37	31	24	<	<	58	59	54	53	39	33	27	<	<	59	61	56	55	40	34	28	21	<	<	60	62	57	56	42	35	29	22	<	<
		2500	694,4	55	56	51	50	36	30	23	<	<	<	58	60	55	54	39	33	27	20	<	<	60	62	57	56	42	35	29	22	<	<	62	63	58	57	43	37	31	23	<	<	63	64	60	58	44	38	32	25
1600	314	800	222,2	38	39	34	33	<	<	<	<	41	43	38	37	23	<	<	<	<	44	45	40	39	25	<	<	<	<	45	46	42	40	26	20	<	<	<	46	48	43	41	27	21	<	<	<				
		1600	444,4	46	47	42	41	27	21	<	<	<	<	49	51	46	45	31	24	<	<	<	52	53	48	47	33	27	20	<	<	53	55	50	48	34	28	22	<	<	54	56	51	50	36	29	23	<	<		
		2400	666,7	51	52	47	46	32	25	<	<	<	<	54	56	51	49	35	29	23	<	<	56	58	53	52	37	31	25	<	<	58	59	54	53	39	33	27	<	<	59	60	56	54	40	34	28	21	<	<	
		3200	888,9	54	55	50	49	35	29	23	<	<	<	58	59	54	53	39	32	26	<	<	60	61	56	55	41	35	28	21	<	<	61	63	58	56	42	36	30	23	<										

# Selection tables

- Terminal units type KS (Sound power levels in dB)

KS	Radiated noise		p = 600 Pa								p = 700 Pa								p = 800 Pa								p = 900 Pa								p = 1000 Pa																
	Tamaño	Ø [mm]	Q [m3/h]	Q [l/s]	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7
100	99	80	22,2	40	42	37	35	21	<	<	<	41	42	37	36	22	<	<	<	41	43	38	37	23	<	<	<	42	43	39	37	23	<	<	<	43	44	39	38	24	<	<	<								
		160	44,4	48	49	44	43	29	23	<	<	48	50	45	44	30	23	<	<	49	51	46	44	30	24	<	<	50	51	46	45	31	25	<	<	50	52	47	45	31	25	<	<								
		240	66,7	52	54	49	47	33	27	21	<	<	53	54	49	48	34	28	22	<	54	55	50	49	35	28	22	<	54	56	51	49	35	29	23	<	55	56	51	50	36	30	23	<							
		320	88,9	55	57	52	51	36	30	24	<	<	56	58	53	51	37	31	25	<	57	58	53	52	38	32	25	<	57	59	54	52	38	32	26	<	58	59	54	53	39	33	26	<							
		400	111,1	58	59	54	53	39	33	27	<	<	59	60	55	54	40	33	27	20	59	61	56	54	40	34	28	21	60	61	56	55	41	35	28	21	60	62	57	55	41	35	29	22							

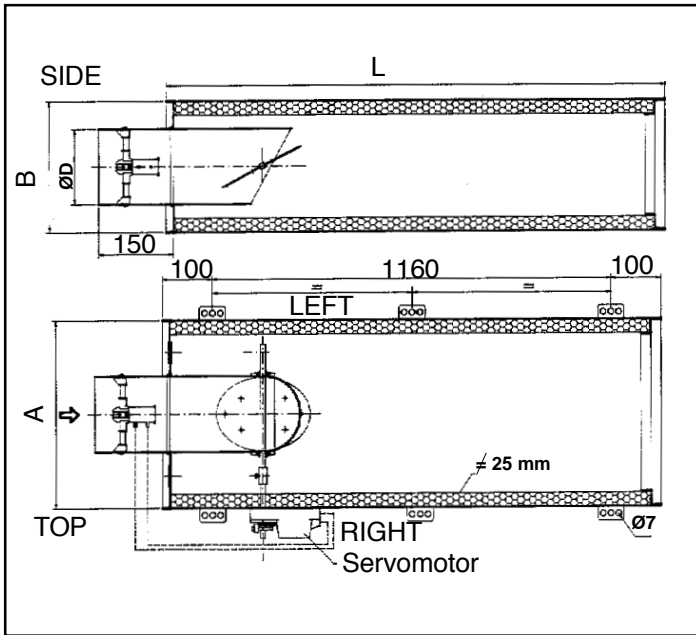
Table nº10

< : sound power level < 20 dB

OCTAVE BAND								
	1	2	3	4	5	6	7	8
H <sub>z</sub>	63	125	250	500	1000	2000	4000	8000

## Variable volume terminal units, type KSL

Koolar unit type KSL is a KS unit with an extension of the insulation part behind the damper to improve its acoustic characteristics. Therefore, all information corresponding to the KS units is common, except for dimensions and acoustic data.



Dimensions in mm					
Size	A	B	ØD	L	Weight(kg)
100	240	254	99	1360	15
200	265	254	124	1360	17
400	300	254	159	1360	17,5
600	320	254	179	1360	19,5
800	340	254	199	1360	20,5
1200	420	254	*249	1360	22
1600	520	254	*314	1360	24,5
2000	585	254	*354	1360	29
3000	655	254	*399	1360	31
4000	735	254	*449	1360	38
6000	710	458	*499	1360	41
8000	915	458	*629	1360	49

(\*) OVAL

<b>KSL</b>	Variable air volume unit for supply.
<b>KSL-R</b>	Variable air volume unit for return.
<b>Sizes</b>	Indicate size from 100 to 8000.
<b>Discharge Configuration</b>	Indicate according to table on page 6
<b>-</b>	If not indicated, the interior finish will be fibreglass with neoprene film.
<b>P</b>	Perforated plate in interior.
<b>M</b>	Protection of the insulation with "melinex".
<b>W</b>	Re-heating coil with hot water.
<b>E</b>	Electrical re-heating coil.

### Product code:

Examples:

KSL-200-1      Supply unit with insulated extension, size 200 with one rectangular discharge duct.

KSL-200-7-P-W      Supply unit with insulated extension, with two lateral discharge ducts, perforated plate in interior and re-heating coil for hot water.

For calibration of the KSL maximum and minimum air flow rates should also be indicated. If necessary the side where the controls should be mounted should be defined, looking from air inlet side.

## Selection tables

Following the same criteria used for the selection tables of the KS units, in tables n° 11 to 15, values are given for the regenerated noise of the KSL units, both sound pressure level expressed in dB(A), NC and NR, and sound power level in dB for octave bands from 63 to 8000 Hz.

KS-L size	Octave band							
	1	2	3	4	5	6	7	8
100	12	4	3	12	18	25	14	5
200	12	4	3	11	18	23	14	5
400	11	3	3	11	18	22	13	4
600	11	3	3	11	17	21	13	4
800	11	3	2	11	17	21	12	4
1200	10	3	2	10	17	18	11	4
1600	9	3	2	10	16	16	9	4
2000	9	3	1	9	16	15	9	3
3000	8	2	1	9	16	13	8	3
4000	8	2	1	9	15	12	7	3
6000	6	2	0	7	14	6	4	2
8000	5	1	0	6	13	3	2	2

Attenuation due to the KSL units

### ISO Standards

All acoustic data published in this catalogue were obtained by tests, realised in a single reverberation room, constructed according to ISO standard 3741. All tests have been realised according to ISO standards 5135 and 5220.

In tables n° 16 to 20 the values are indicated for the radiated noise of the KSL units, both for sound pressure levels, expressed in dB(A), NC and NR and for sound power in dB for each of the octave bands from 63 to 8000 Hz.

### Attenuation of the KSL units

In the adjacent table values are given for the attenuation by the KSL units, which, due to the increased length of the insulation section, are higher than the ones given for the KS unit.

### Correction factor on sound level for re-heating coil

When the KSL unit incorporates a re-heating coil, its effect on the noise generated by the box should be taken into account by using the values presented in the table below.

$\Delta$ dB(A) for n° of rows=				
Vdischarge	1	2	3	4
0-3 m/s	-3,0	-2,0	-1,5	-1,0
3-4 m/s	-1,0	0,0	0,5	1,0
> 4 m/s	1,0	2,0	2,5	3,0

## Selection tables

- Terminal units type KSL (Sound pressure levels in dB(A))

KS-L		Regenerated noise			dB(A) a p =									
Tamaño	Ø [mm]	Q [m3/h]	Q [l/s]	Pmin [Pa]	100	200	300	400	500	600	700	800	900	1000
100	99	80	22,2	1	<	<	<	<	<	<	<	<	<	<
		160	44,4	1	24	25	26	27	27	27	28	28	28	28
		240	66,7	2	29	30	31	31	32	32	32	33	33	33
		320	88,9	4	32	34	34	35	35	36	36	36	36	36
		400	111,1	6	35	36	37	38	38	38	38	39	39	39
200	124	125	34,7	1	<	<	<	20	21	22	22	23	23	23
		250	69,4	2	24	27	28	29	30	30	31	31	32	32
		375	104,2	4	29	32	33	34	35	35	36	36	36	37
		500	138,9	7	33	35	36	37	38	39	39	40	40	40
		625	173,6	11	36	38	39	40	41	41	42	42	43	43
400	159	200	55,6	1	<	<	21	23	24	25	26	26	27	27
		400	111,1	3	25	28	30	31	33	33	34	35	35	36
		600	166,7	6	30	33	35	36	38	38	39	40	40	41
		800	222,2	10	33	37	39	40	41	42	43	43	44	45
		1000	277,8	16	36	39	41	43	44	45	46	46	47	47
600	179	275	76,4	1	<	21	24	25	26	28	28	29	30	30
		550	152,8	3	26	30	32	34	35	36	37	38	39	39
		825	229,2	8	31	35	37	39	40	41	42	43	44	44
		1100	305,6	14	35	39	41	43	44	45	46	47	47	48
		1375	381,9	22	38	41	44	45	47	48	49	49	50	51
800	199	325	90,3	1	<	22	24	26	27	29	30	30	31	32
		650	180,6	4	26	30	33	35	36	37	38	39	40	41
		975	270,8	8	31	35	38	40	41	42	43	44	45	46
		1300	361,1	14	35	39	42	43	45	46	47	48	49	49
		1625	451,4	22	37	42	44	46	48	49	50	51	51	52
1200	249	500	138,9	1	<	23	26	29	30	32	33	34	35	36
		1000	277,8	4	27	32	35	37	39	41	42	43	44	45
		1500	416,7	10	32	37	40	43	44	46	47	48	49	50
		2000	555,6	17	36	41	44	46	48	50	51	52	53	54
		2500	694,4	27	38	44	47	49	51	52	54	55	56	56
1600	314	800	222,2	1	<	25	29	32	34	36	37	38	39	40
		1600	444,4	5	28	34	38	41	43	45	46	47	48	49
		2400	666,7	12	33	40	43	46	48	50	51	53	54	55
		3200	888,9	21	37	43	47	50	52	54	55	56	58	59
		4000	1111,1	33	40	46	50	53	55	57	58	59	60	61
2000	354	1000	277,8	1	<	26	30	33	36	37	39	40	42	43
		2000	555,6	5	28	35	40	42	45	47	48	50	51	52
		3000	833,3	12	34	41	45	48	50	52	54	55	56	57
		4000	1111,1	22	38	45	49	52	54	56	57	59	60	61
		5000	1388,9	34	40	48	52	55	57	59	60	62	63	64
3000	399	1250	347,2	1	27	31	34	36	37	38	39	40	41	42
		2500	694,4	6	36	40	43	44	46	47	48	49	49	50
		3750	1041,7	13	41	45	47	49	51	52	53	54	54	55
		5000	1388,9	23	44	48	51	53	54	55	56	57	58	59
		6250	1736,1	36	47	51	54	56	57	58	59	60	61	61
4000	449	1700	472,2	2	30	34	37	39	40	41	42	43	44	45
		3400	944,4	7	38	42	45	47	48	49	50	51	52	52
		5100	1416,7	16	42	47	49	51	53	54	55	56	56	57
		6800	1888,9	28	45	50	52	54	56	57	58	59	60	60
		8500	2361,1	44	48	52	55	57	58	59	60	61	62	63
6000	499	2000	555,6	2	31	35	38	40	41	42	43	44	45	46
		4000	1111,1	7	38	42	45	47	48	50	51	51	52	53
		6000	1666,7	15	42	46	49	51	53	54	55	56	56	57
		8000	2222,2	27	45	49	52	54	55	57	58	59	59	60
		10000	2777,8	43	47	52	54	56	58	59	60	61	62	62
8000	629	3250	902,8	2	32	37	40	42	43	45	46	47	47	48
		6500	1805,6	8	38	43	46	48	49	50	51	52	53	54
		9750	2708,3	18	41	46	49	51	52	54	55	56	56	57
		13000	3611,1	32	44	49	51	53	55	56	57	58	59	60
		16250	4513,9	50	46	50	53	55	57	58	59	60	61	61

Table nº11

< : sound pressure level < 20dB(A)

## Selection tables

- Terminal units type KSL (Sound pressure levels in NC)

KS-L		Regenerated noise			NC a p =									
Tamaño	Ø [mm]	Q [m3/h]	Q [l/s]	Pmin [Pa]	100	200	300	400	500	600	700	800	900	1000
100	99	80	22,2	1	<	<	<	<	<	<	<	<	<	<
		160	44,4	1	23	24	24	25	25	26	26	26	26	26
		240	66,7	2	27	29	29	30	30	30	31	31	31	31
		320	88,9	4	31	32	33	33	34	34	34	34	34	35
		400	111,1	6	33	35	35	36	36	37	37	37	37	37
200	124	125	34,7	1	<	<	<	<	20	20	21	21	21	22
		250	69,4	2	23	25	26	27	28	29	29	29	30	30
		375	104,2	4	28	30	31	32	33	33	34	34	35	35
		500	138,9	7	31	33	35	36	36	37	37	38	38	39
		625	173,6	11	34	36	37	38	39	40	40	41	41	41
400	159	200	55,6	1	<	<	20	21	22	23	24	24	25	26
		400	111,1	3	23	26	28	30	31	32	32	33	34	34
		600	166,7	6	28	31	33	35	36	37	37	38	39	39
		800	222,2	10	32	35	37	38	39	40	41	42	42	43
		1000	277,8	16	34	38	40	41	42	43	44	44	45	46
600	179	275	76,4	1	<	20	22	24	25	26	27	27	28	29
		550	152,8	3	24	28	31	32	33	34	35	36	37	37
		825	229,2	8	29	33	36	37	39	40	40	41	42	42
		1100	305,6	14	33	37	39	41	42	43	44	45	45	46
		1375	381,9	22	36	40	42	44	45	46	47	48	48	49
800	199	325	90,3	1	<	20	22	24	26	27	28	29	29	30
		650	180,6	4	24	29	31	33	34	36	37	37	38	39
		975	270,8	8	29	34	36	38	40	41	42	42	43	44
		1300	361,1	14	33	37	40	42	43	44	45	46	47	48
		1625	451,4	22	36	40	43	45	46	47	48	49	50	50
1200	249	500	138,9	1	<	21	25	27	29	30	31	32	33	34
		1000	277,8	4	25	30	33	36	37	39	40	41	42	43
		1500	416,7	10	30	36	39	41	43	44	45	46	47	48
		2000	555,6	17	34	39	42	45	46	48	49	50	51	52
		2500	694,4	27	37	42	45	48	49	51	52	53	54	55
1600	314	800	222,2	1	<	24	27	30	32	34	35	37	38	39
		1600	444,4	5	26	33	36	39	41	43	44	46	47	48
		2400	666,7	12	31	38	42	44	47	48	50	51	52	53
		3200	888,9	21	35	42	46	48	50	52	53	55	56	57
		4000	1111,1	33	38	45	48	51	53	55	56	58	59	60
2000	354	1000	277,8	1	<	24	29	32	34	36	37	39	40	41
		2000	555,6	5	27	34	38	41	43	45	46	48	49	50
		3000	833,3	12	32	39	43	46	48	50	52	53	54	55
		4000	1111,1	22	36	43	47	50	52	54	56	57	58	59
		5000	1388,9	34	39	46	50	53	55	57	58	60	61	62
3000	399	1250	347,2	1	25	30	32	34	35	37	38	38	39	40
		2500	694,4	6	34	38	41	43	44	45	46	47	48	48
		3750	1041,7	13	39	43	46	48	49	50	51	52	53	53
		5000	1388,9	23	42	47	49	51	52	54	55	55	56	57
		6250	1736,1	36	45	49	52	54	55	56	57	58	59	60
4000	449	1700	472,2	2	28	33	35	37	38	40	41	41	42	43
		3400	944,4	7	36	40	43	45	46	47	48	49	50	51
		5100	1416,7	16	40	45	48	49	51	52	53	54	55	55
		6800	1888,9	28	44	48	51	53	54	55	56	57	58	58
		8500	2361,1	44	46	51	53	55	57	58	59	60	60	61
6000	499	2000	555,6	2	29	33	36	38	39	41	42	43	43	44
		4000	1111,1	7	36	41	43	45	47	48	49	50	50	51
		6000	1666,7	15	40	45	47	49	51	52	53	54	55	55
		8000	2222,2	27	43	48	50	52	54	55	56	57	58	58
		10000	2777,8	43	45	50	53	55	56	57	58	59	60	61
8000	629	3250	902,8	2	31	35	38	40	42	43	44	45	46	46
		6500	1805,6	8	36	41	44	46	47	49	50	50	51	52
		9750	2708,3	18	40	44	47	49	51	52	53	54	55	55
		13000	3611,1	32	42	47	50	51	53	54	55	56	57	58
		16250	4513,9	50	44	49	51	53	55	56	57	58	59	60

Table nº12

< : sound pressure level < NC 20

## Selection tables

- Terminal units type KSL (Sound pressure levels in NR)

KS-L		Regenerated noise			NR a p =										
Tamaño	Ø [mm]	Q [m3/h]	Q [l/s]	Pmin [Pa]	100	200	300	400	500	600	700	800	900	1000	
100	99	80	22,2	1	<	<	<	<	<	<	<	<	<	<	
		160	44,4	1	22	23	24	24	25	25	25	25	26	26	
		240	66,7	2	27	28	29	29	29	30	30	30	30	30	31
		320	88,9	4	30	31	32	32	33	33	33	34	34	34	34
		400	111,1	6	33	34	35	35	36	36	36	36	36	37	37
200	124	125	34,7	1	<	<	<	<	<	<	20	20	21	21	
		250	69,4	2	22	24	26	27	27	28	28	29	29	29	
		375	104,2	4	27	29	31	31	32	33	33	34	34	34	
		500	138,9	7	31	33	34	35	36	36	37	37	38	38	
		625	173,6	11	33	35	37	38	38	39	39	40	40	41	
400	159	200	55,6	1	<	<	<	20	22	22	23	24	24	25	
		400	111,1	3	22	26	28	29	30	31	32	32	33	33	
		600	166,7	6	27	31	33	34	35	36	37	37	38	38	
		800	222,2	10	31	34	36	38	39	40	40	41	42	42	
		1000	277,8	16	34	37	39	40	41	42	43	44	44	45	
600	179	275	76,4	1	<	<	21	23	24	25	26	27	27	28	
		550	152,8	3	24	28	30	31	33	34	35	35	36	37	
		825	229,2	8	29	33	35	37	38	39	40	40	41	42	
		1100	305,6	14	32	36	39	40	41	42	43	44	45	45	
		1375	381,9	22	35	39	41	43	44	45	46	47	48	48	
800	199	325	90,3	1	<	<	22	24	25	26	27	28	29	29	
		650	180,6	4	23	28	30	32	34	35	36	37	37	38	
		975	270,8	8	29	33	36	37	39	40	41	42	43	43	
		1300	361,1	14	32	37	39	41	42	44	45	45	46	47	
		1625	451,4	22	35	39	42	44	45	46	47	48	49	50	
1200	249	500	138,9	1	<	21	24	26	28	29	30	32	32	33	
		1000	277,8	4	24	30	33	35	37	38	39	40	41	42	
		1500	416,7	10	29	35	38	40	42	43	45	46	47	47	
		2000	555,6	17	33	39	42	44	46	47	48	49	50	51	
		2500	694,4	27	36	41	45	47	49	50	51	52	53	54	
1600	314	800	222,2	1	<	23	27	29	31	33	35	36	37	38	
		1600	444,4	5	25	32	36	38	41	42	44	45	46	47	
		2400	666,7	12	31	37	41	44	46	48	49	50	51	52	
		3200	888,9	21	35	41	45	47	50	51	53	54	55	56	
		4000	1111,1	33	37	44	48	50	53	54	56	57	58	59	
2000	354	1000	277,8	1	<	24	28	31	33	35	37	38	39	40	
		2000	555,6	5	26	33	37	40	42	44	46	47	48	49	
		3000	833,3	12	31	38	42	45	48	49	51	52	54	55	
		4000	1111,1	22	35	42	46	49	51	53	55	56	57	58	
		5000	1388,9	34	38	45	49	52	54	56	58	59	60	61	
3000	399	1250	347,2	1	25	29	32	33	35	36	37	38	38	39	
		2500	694,4	6	33	38	40	42	43	44	45	46	47	48	
		3750	1041,7	13	38	42	45	47	48	49	50	51	52	53	
		5000	1388,9	23	42	46	49	50	52	53	54	55	55	56	
		6250	1736,1	36	44	49	51	53	55	56	57	57	58	59	
4000	449	1700	472,2	2	27	32	34	36	38	39	40	41	42	42	
		3400	944,4	7	35	40	42	44	46	47	48	49	49	50	
		5100	1416,7	16	40	44	47	49	50	51	52	53	54	55	
		6800	1888,9	28	43	47	50	52	53	54	55	56	57	58	
		8500	2361,1	44	45	50	53	54	56	57	58	59	60	60	
6000	499	2000	555,6	2	28	33	35	37	39	40	41	42	43	43	
		4000	1111,1	7	35	40	43	44	46	47	48	49	50	50	
		6000	1666,7	15	39	44	47	49	50	51	52	53	54	55	
		8000	2222,2	27	42	47	50	52	53	54	55	56	57	58	
		10000	2777,8	43	45	49	52	54	55	57	58	58	59	60	
8000	629	3250	902,8	2	30	35	37	39	41	42	43	44	45	46	
		6500	1805,6	8	36	40	43	45	47	48	49	50	51	51	
		9750	2708,3	18	39	44	46	48	50	51	52	53	54	55	
		13000	3611,1	32	41	46	49	51	52	54	55	56	56	57	
		16250	4513,9	50	43	48	51	53	54	55	56	57	58	59	

Table nº13

< : sound pressure level < NR 20

# Selection tables

- Terminal units type KSL (Sound power levels in dB)

KS-L	Regenerated noise		p = 100 Pa								p = 200 Pa								p = 300 Pa								p = 400 Pa								p = 500 Pa																
	Tamaño	Ø [mm]	Q [m³/h]	Q [l/s]	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7
100	99	80	22,2	26	30	31	25	<	<	<	<	27	31	32	26	<	<	<	<	28	32	33	27	<	<	<	<	28	33	33	27	<	<	<	<	29	33	34	28	<	<	<	<								
		160	44,4	34	38	39	33	24	<	<	<	<	35	40	40	34	25	<	<	<	36	40	41	35	25	<	<	<	36	41	41	35	26	<	<	<	37	41	42	36	26	<	<	<							
		240	66,7	39	43	44	38	28	21	22	<	<	40	44	45	39	30	22	23	21	41	45	46	40	30	23	24	22	41	46	46	40	31	23	24	22	42	46	47	41	31	24	25	23							
		320	88,9	42	47	47	41	32	24	25	23	43	48	49	42	33	26	27	24	44	49	49	43	34	26	27	25	45	49	50	44	34	27	28	26	45	50	50	44	35	27	28	26								
		400	111,1	45	49	50	44	34	27	28	26	46	51	51	45	36	28	29	27	47	51	52	46	36	29	30	28	47	52	52	46	37	29	30	28	48	52	53	47	37	30	31	29								

Table nº14

< : sound power level < 20 dB

OCTAVE BAND								
	1	2	3	4	5	6	7	8
H <sub>z</sub>	63	125	250	500	1000	2000	4000	8000



# Selection tables

- Terminal units type KSL (Sound power levels in dB)

KS-L	Regenerated noise		p = 600 Pa								p = 700 Pa								p = 800 Pa								p = 900 Pa								p = 1000 Pa									
	Tamaño	Ø [mm]	Q [m3/h]	Q [l/s]	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
100	99	80	22,2	29	33	34	28	<	<	<	<	29	34	34	28	<	<	<	<	29	34	34	28	<	<	<	<	30	34	35	29	<	<	<	<	30	34	35	29	<	<	<	<	
		160	44,4	37	42	42	36	27	<	20	<	<	37	42	42	36	27	<	20	<	38	42	43	37	27	<	21	<	38	42	43	37	27	<	21	<	38	43	43	37	28	20	21	<
		240	66,7	42	46	47	41	32	24	25	23		42	47	47	41	32	24	25	23	42	47	48	41	32	25	26	23	43	47	48	42	32	25	26	24	43	47	48	42	32	25	26	24
		320	88,9	45	50	50	44	35	27	28	26		46	50	51	45	35	28	29	27	46	50	51	45	35	28	29	27	46	51	51	45	36	28	29	27	46	51	51	45	36	28	29	27
		400	111,1	48	53	53	47	38	30	31	29		48	53	53	47	38	30	31	29	49	53	54	48	38	31	32	30	49	53	54	48	38	31	32	30	49	53	54	48	39	31	32	30

Table nº15

< : sound power level < 20 dB

OCTAVE BAND								
	1	2	3	4	5	6	7	8
H <sub>z</sub>	63	125	250	500	1000	2000	4000	8000

## Selection tables

- Terminal units type KSL (Sound pressure levels in dB(A))

KS-L		Radiated noise			dB(A) a p =									
Tamaño	Ø [mm]	Q [m3/h]	Q [l/s]	Pmin [Pa]	100	200	300	400	500	600	700	800	900	1000
100	99	80	22,2	1	<	<	<	<	<	<	<	20	21	21
		160	44,4	1	<	22	23	25	26	27	27	28	29	29
		240	66,7	2	23	26	28	29	30	31	32	33	33	34
		320	88,9	4	26	29	31	32	33	34	35	36	36	37
		400	111,1	6	28	32	34	35	36	37	38	38	39	39
200	124	125	34,7	1	<	<	<	<	<	21	21	22	23	23
		250	69,4	2	<	23	25	26	27	28	29	30	30	31
		375	104,2	4	24	28	29	31	32	33	34	34	35	35
		500	138,9	7	27	31	33	34	35	36	37	37	38	38
		625	173,6	11	30	33	35	37	38	39	39	40	40	41
400	159	200	55,6	1	<	<	<	20	21	22	23	24	24	25
		400	111,1	3	21	25	27	28	29	30	31	31	32	32
		600	166,7	6	26	29	31	33	34	35	35	36	37	37
		800	222,2	10	29	32	34	36	37	38	39	39	40	40
		1000	277,8	16	31	35	37	38	39	40	41	42	42	43
600	179	275	76,4	1	<	<	21	22	23	24	25	25	26	27
		550	152,8	3	23	26	28	30	31	32	33	33	34	34
		825	229,2	8	27	31	33	34	36	36	37	38	38	39
		1100	305,6	14	31	34	36	38	39	40	40	41	42	42
		1375	381,9	22	33	37	39	40	41	42	43	44	44	45
800	199	325	90,3	1	<	<	21	22	23	24	25	26	26	27
		650	180,6	4	23	27	29	30	31	32	33	34	34	35
		975	270,8	8	28	31	33	35	36	37	38	38	39	39
		1300	361,1	14	31	35	37	38	39	40	41	42	42	43
		1625	451,4	22	34	37	39	41	42	43	43	44	45	45
1200	249	500	138,9	1	<	20	22	24	25	26	27	28	28	29
		1000	277,8	4	25	28	30	32	33	34	35	36	36	37
		1500	416,7	10	29	33	35	37	38	39	40	40	41	41
		2000	555,6	17	33	36	38	40	41	42	43	44	44	45
		2500	694,4	27	35	39	41	43	44	45	45	46	47	47
1600	314	800	222,2	1	<	22	25	26	27	28	29	30	30	31
		1600	444,4	5	27	31	33	34	35	36	37	38	38	39
		2400	666,7	12	32	35	37	39	40	41	42	43	43	44
		3200	888,9	21	35	39	41	42	43	44	45	46	47	47
		4000	1111,1	33	38	41	43	45	46	47	48	48	49	50
2000	354	1000	277,8	1	<	23	25	27	28	29	30	31	31	32
		2000	555,6	5	28	31	34	35	36	37	38	39	39	40
		3000	833,3	12	33	36	38	40	41	42	43	44	44	45
		4000	1111,1	22	36	40	42	43	44	45	46	47	48	48
		5000	1388,9	34	39	42	44	46	47	48	49	50	50	51
3000	399	1250	347,2	1	20	24	26	28	29	30	31	32	32	33
		2500	694,4	6	29	32	35	36	37	38	39	40	40	41
		3750	1041,7	13	33	37	39	41	42	43	44	45	45	46
		5000	1388,9	23	37	41	43	44	45	46	47	48	49	49
		6250	1736,1	36	39	43	45	47	48	49	50	51	51	52
4000	449	1700	472,2	2	22	26	28	30	31	32	33	34	34	35
		3400	944,4	7	31	34	37	38	39	40	41	42	43	43
		5100	1416,7	16	35	39	41	43	44	45	46	47	47	48
		6800	1888,9	28	39	43	45	46	48	49	49	50	51	51
		8500	2361,1	44	42	45	47	49	50	51	52	53	53	54
6000	499	2000	555,6	2	23	27	29	30	32	33	33	34	35	35
		4000	1111,1	7	31	35	37	39	40	41	42	42	43	44
		6000	1666,7	15	36	40	42	44	45	46	47	47	48	49
		8000	2222,2	27	39	43	45	47	48	49	50	51	51	52
		10000	2777,8	43	42	46	48	50	51	52	53	53	54	55
8000	629	3250	902,8	2	25	29	31	33	34	35	36	37	38	38
		6500	1805,6	8	34	38	40	41	43	44	45	45	46	47
		9750	2708,3	18	39	42	45	46	48	49	49	50	51	51
		13000	3611,1	32	42	46	48	50	51	52	53	54	54	55
		16250	4513,9	50	45	49	51	52	54	55	56	56	57	58

Table nº16

< : sound pressure level < 20dB(A)

## Selection tables

### - Terminal units type KSL (Sound pressure levels in NC)

KS-L		Radiated noise			NC a p =									
Tamaño	Ø [mm]	Q [m3/h]	Q [l/s]	Pmin [Pa]	100	200	300	400	500	600	700	800	900	1000
100	99	80	22,2	1	<	<	<	<	<	<	<	<	<	<
		160	44,4	1	<	<	21	22	24	24	25	26	26	27
		240	66,7	2	20	24	26	27	28	29	30	30	31	31
		320	88,9	4	24	27	29	30	31	32	33	33	34	34
		400	111,1	6	26	29	31	33	34	34	35	36	36	37
200	124	125	34,7	1	<	<	<	<	<	<	<	<	<	20
		250	69,4	2	<	21	23	24	25	26	27	27	28	28
		375	104,2	4	22	25	27	29	30	31	31	32	32	33
		500	138,9	7	25	28	30	32	33	34	34	35	36	36
		625	173,6	11	28	31	33	34	35	36	37	38	38	39
400	159	200	55,6	1	<	<	<	<	<	<	21	21	22	22
		400	111,1	3	<	22	24	26	27	28	28	29	30	30
		600	166,7	6	23	27	29	30	31	32	33	34	34	35
		800	222,2	10	27	30	32	33	35	35	36	37	37	38
		1000	277,8	16	29	33	35	36	37	38	39	39	40	41
600	179	275	76,4	1	<	<	<	<	21	22	22	23	24	24
		550	152,8	3	21	24	26	28	29	30	30	31	32	32
		825	229,2	8	25	29	31	32	33	34	35	36	36	37
		1100	305,6	14	28	32	34	35	37	37	38	39	39	40
		1375	381,9	22	31	34	36	38	39	40	41	41	42	43
800	199	325	90,3	1	<	<	<	<	21	22	23	23	24	25
		650	180,6	4	21	24	26	28	29	30	31	31	32	33
		975	270,8	8	26	29	31	33	34	35	35	36	37	37
		1300	361,1	14	29	32	34	36	37	38	39	39	40	40
		1625	451,4	22	31	35	37	38	39	40	41	42	42	43
1200	249	500	138,9	1	<	<	20	22	23	24	25	25	26	26
		1000	277,8	4	23	26	28	30	31	32	33	33	34	34
		1500	416,7	10	27	31	33	34	35	36	37	38	39	39
		2000	555,6	17	31	34	36	38	39	40	41	41	42	42
		2500	694,4	27	33	37	39	40	41	42	43	44	44	45
1600	314	800	222,2	1	<	20	22	24	25	26	27	27	28	29
		1600	444,4	5	25	28	30	32	33	34	35	35	36	37
		2400	666,7	12	29	33	35	37	38	39	40	40	41	41
		3200	888,9	21	33	36	38	40	41	42	43	44	44	45
		4000	1111,1	33	35	39	41	43	44	45	45	46	47	47
2000	354	1000	277,8	1	<	21	23	25	26	27	28	28	29	30
		2000	555,6	5	25	29	31	33	34	35	36	36	37	38
		3000	833,3	12	30	34	36	38	39	40	41	41	42	42
		4000	1111,1	22	34	37	39	41	42	43	44	45	45	46
		5000	1388,9	34	36	40	42	44	45	46	47	47	48	48
3000	399	1250	347,2	1	<	22	24	26	27	28	29	29	30	31
		2500	694,4	6	26	30	32	34	35	36	37	38	38	39
		3750	1041,7	13	31	35	37	39	40	41	42	42	43	44
		5000	1388,9	23	35	38	40	42	43	44	45	46	46	47
		6250	1736,1	36	37	41	43	45	46	47	48	48	49	50
4000	449	1700	472,2	2	20	24	26	28	29	30	31	31	32	33
		3400	944,4	7	28	32	34	36	37	38	39	40	40	41
		5100	1416,7	16	33	37	39	41	42	43	44	44	45	46
		6800	1888,9	28	37	40	43	44	45	46	47	48	48	49
		8500	2361,1	44	39	43	45	47	48	49	50	50	51	52
6000	499	2000	555,6	2	21	24	27	28	29	30	31	32	33	33
		4000	1111,1	7	29	33	35	36	38	39	39	40	41	41
		6000	1666,7	15	34	37	40	41	42	43	44	45	46	46
		8000	2222,2	27	37	41	43	45	46	47	48	48	49	50
		10000	2777,8	43	40	44	46	47	49	50	50	51	52	52
8000	629	3250	902,8	2	23	27	29	31	32	33	34	35	35	36
		6500	1805,6	8	31	35	38	39	40	41	42	43	44	44
		9750	2708,3	18	36	40	42	44	45	46	47	48	49	49
		13000	3611,1	32	40	44	46	48	49	50	51	51	52	53
		16250	4513,9	50	42	46	49	50	51	52	53	54	55	55

Table nº17

< : sound pressure level < NC 20

## Selection tables

- Terminal units type KSL (Sound pressure levels in NR)

KS-L		Radiated noise			NR a p =										
Tamaño	Ø [mm]	Q [m3/h]	Q [l/s]	Pmin [Pa]	100	200	300	400	500	600	700	800	900	1000	
100	99	80	22,2	1	<	<	<	<	<	<	<	<	<	<	
		160	44,4	1	<	<	20	21	23	23	24	25	25	26	
		240	66,7	2	<	23	25	26	27	28	29	29	30	30	30
		320	88,9	4	23	26	28	29	30	31	32	32	33	33	33
		400	111,1	6	25	28	30	32	33	33	34	35	35	36	36
200	124	125	34,7	1	<	<	<	<	<	<	<	<	<	<	
		250	69,4	2	<	<	22	23	24	25	26	26	27	27	
		375	104,2	4	21	24	26	28	29	30	30	31	31	32	32
		500	138,9	7	24	27	29	31	32	33	33	34	35	35	35
		625	173,6	11	27	30	32	33	34	35	36	37	37	38	38
400	159	200	55,6	1	<	<	<	<	<	<	<	20	21	21	
		400	111,1	3	<	21	23	25	26	27	27	28	29	29	
		600	166,7	6	22	26	28	29	30	31	32	33	33	34	34
		800	222,2	10	26	29	31	32	34	34	35	36	36	37	37
		1000	277,8	16	28	32	34	35	36	37	38	38	39	40	40
600	179	275	76,4	1	<	<	<	<	<	21	21	22	23	23	
		550	152,8	3	<	23	25	27	28	29	29	30	31	31	
		825	229,2	8	24	28	30	31	32	33	34	35	35	36	36
		1100	305,6	14	27	31	33	34	36	36	37	38	38	39	39
		1375	381,9	22	30	33	35	37	38	39	40	40	41	42	42
800	199	325	90,3	1	<	<	<	<	20	21	22	22	23	24	
		650	180,6	4	<	23	25	27	28	29	30	30	31	32	
		975	270,8	8	25	28	30	32	33	34	34	35	36	36	
		1300	361,1	14	28	31	33	35	36	37	38	38	39	39	
		1625	451,4	22	30	34	36	37	38	39	40	41	41	42	
1200	249	500	138,9	1	<	<	<	21	22	23	24	24	25	25	
		1000	277,8	4	22	25	27	29	30	31	32	32	33	33	
		1500	416,7	10	26	30	32	33	34	35	36	37	38	38	
		2000	555,6	17	30	33	35	37	38	39	40	40	41	41	
		2500	694,4	27	32	36	38	39	40	41	42	43	43	44	
1600	314	800	222,2	1	<	<	21	23	24	25	26	26	27	28	
		1600	444,4	5	24	27	29	31	32	33	34	34	35	36	
		2400	666,7	12	28	32	34	36	37	38	39	39	40	40	
		3200	888,9	21	32	35	37	39	40	41	42	43	43	44	
		4000	1111,1	33	34	38	40	42	43	44	44	45	46	46	
2000	354	1000	277,8	1	<	20	22	24	25	26	27	27	28	29	
		2000	555,6	5	24	28	30	32	33	34	35	35	36	37	
		3000	833,3	12	29	33	35	37	38	39	40	40	41	41	
		4000	1111,1	22	33	36	38	40	41	42	43	44	44	45	
		5000	1388,9	34	35	39	41	43	44	45	46	46	47	47	
3000	399	1250	347,2	1	<	21	23	25	26	27	28	28	29	30	
		2500	694,4	6	25	29	31	33	34	35	36	37	37	38	
		3750	1041,7	13	30	34	36	38	39	40	41	41	42	43	
		5000	1388,9	23	34	37	39	41	42	43	44	45	45	46	
		6250	1736,1	36	36	40	42	44	45	46	47	47	48	49	
4000	449	1700	472,2	2	<	23	25	27	28	29	30	30	31	32	
		3400	944,4	7	27	31	33	35	36	37	38	39	39	40	
		5100	1416,7	16	32	36	38	40	41	42	43	43	44	45	
		6800	1888,9	28	36	39	42	43	44	45	46	47	47	48	
		8500	2361,1	44	38	42	44	46	47	48	49	49	50	51	
6000	499	2000	555,6	2	<	23	26	27	28	29	30	31	32	32	
		4000	1111,1	7	28	32	34	35	37	38	38	39	40	40	
		6000	1666,7	15	33	36	39	40	41	42	43	44	45	45	
		8000	2222,2	27	36	40	42	44	45	46	47	47	48	49	
		10000	2777,8	43	39	43	45	46	48	49	49	50	51	51	
8000	629	3250	902,8	2	22	26	28	30	31	32	33	34	34	35	
		6500	1805,6	8	30	34	37	38	39	40	41	42	43	43	
		9750	2708,3	18	35	39	41	43	44	45	46	47	48	48	
		13000	3611,1	32	39	43	45	47	48	49	50	50	51	52	
		16250	4513,9	50	41	45	48	49	50	51	52	53	54	54	

Table nº18

< : sound pressure level < NR 20

# Selection tables

- Terminal units type KSL (Sound power levels in dB)

KS-L	Radiated noise		p = 100 Pa								p = 200 Pa								p = 300 Pa								p = 400 Pa								p = 500 Pa																
	Tamaño	Ø [mm]	Q [m³/h]	Q [l/s]	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7
100	99	80	22,2	26	27	22	<	<	<	<	<	30	30	25	<	<	<	<	<	<	32	32	27	<	<	<	<	<	<	33	34	29	<	<	<	<	<	<	34	35	30	21	<	<	<	<	<				
		160	44,4	34	35	30	21	<	<	<	<	<	38	38	33	24	<	<	<	<	<	39	40	35	26	<	<	<	<	<	41	41	36	28	<	<	<	<	<	42	43	37	29	20	<	<	<	<			
		240	66,7	39	39	34	25	<	<	<	<	<	42	43	38	29	20	<	<	<	<	44	45	40	31	22	<	<	<	<	45	46	41	32	24	<	<	<	<	46	47	42	33	25	<	<	<	<			
		320	88,9	42	42	37	29	20	<	<	<	<	45	46	41	32	24	<	<	<	<	47	48	43	34	26	20	<	<	<	49	49	44	35	27	21	<	<	<	50	50	45	36	28	22	<	<	<			
		400	111,1	44	45	40	31	23	<	<	<	<	48	48	43	34	26	21	<	<	<	50	50	45	36	28	22	<	<	<	51	52	47	38	29	24	<	<	<	52	53	48	39	31	25	<	<	<			

Table nº19

< : sound power level < 20 dB

OCTAVE BAND								
	1	2	3	4	5	6	7	8
H <sub>z</sub>	63	125	250	500	1000	2000	4000	8000

# Selection tables

- Terminal units type KSL (Sound power levels in dB)

KS-L	Radiated noise		p = 600 Pa								p = 700 Pa								p = 800 Pa								p = 900 Pa								p = 1000 Pa																
	Tamaño	Ø [mm]	Q [m³/h]	Q [l/s]	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7
100	99	80	22,2	35	36	31	22	<	<	<	<	36	36	31	23	<	<	<	<	37	37	32	23	<	<	<	<	37	38	33	24	<	<	<	<	38	38	33	24	<	<	<	<								
		160	44,4	43	43	38	30	21	<	<	<	<	44	44	39	30	22	<	<	<	44	45	40	31	23	<	<	<	45	45	40	32	23	<	<	<	45	46	41	32	24	<	<	<							
		240	66,7	47	48	43	34	26	20	<	<	<	<	48	49	44	35	27	21	<	<	49	49	44	35	27	22	<	<	49	50	45	36	28	22	<	<	50	50	45	37	28	23	<	<						
		320	88,9	51	51	46	37	29	23	<	<	<	<	51	52	47	38	30	24	<	<	52	53	47	39	30	25	<	<	53	53	48	39	31	25	<	<	53	54	49	40	31	26	<	<						
		400	111,1	53	54	49	40	31	26	<	<	<	<	54	54	49	40	32	27	20	<	54	55	50	41	33	27	21	<	55	56	51	42	33	28	22	<	56	56	51	42	34	28	22	<						

Table nº20

< : sound power level < 20 dB

OCTAVE BAND								
	1	2	3	4	5	6	7	8
H <sub>z</sub>	63	125	250	500	1000	2000	4000	8000





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