

# FLE/FLU

## Floor Grille



- Vertical supply from floor, also suitable for exhaust
- Fixed horizontal vanes streamlined to provide stable flow pattern with 15° angle deflection: FLE, no deflection from the jet centreline: FLU
- Strong aluminium construction
- Detachable grille enables cleaning of the grille and ductwork
- Continuous grilles available with modular design

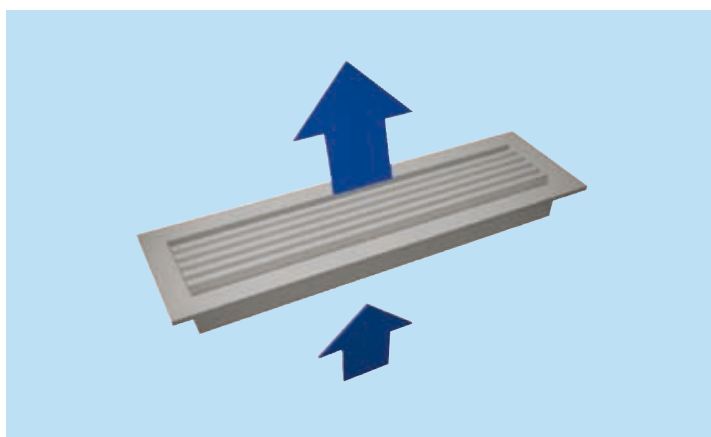
### Product Models and Accessories

- Model with removable core vanes
- Airflow adjustment damper
- Installation frame

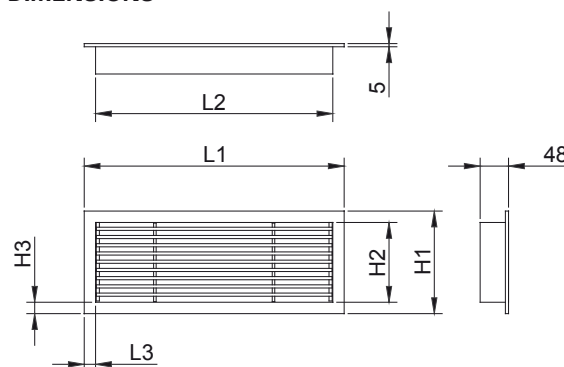
### MATERIAL AND FINISHING

PART	MATERIAL	FINISHING
Frame	Aluminium	Anodised, Mill finished
Vanes	Aluminium	Anodised, Mill finished
Installation frame	Galvanised steel	

The bevel angles of the outer frame have been welded so that the joints are almost invisible.



## DIMENSIONS



## Function

FLE: Supply air is supplied with a 15° angle deflection through the horizontal vanes into the space. The air jet can be directed towards the wall to obtain a longer throw length.

FLU: Supply air is supplied without deflection through the horizontal vanes into the space.

The grille can also be used as an exhaust unit.

## PRODUCT MODELS AND ACCESSORIES

PRODUCT MODEL	CODE	DESCRIPTION
Model with removable core vanes	AV	Vanes can be removed to allow access to plenum

ACCESSORY	CODE	DESCRIPTION
Flow adjustment damper	OD	Aluminium opposite blade damper for airflow adjustment
Installation frame	IF	For the installation of the grille
Concealed screw fastening	CC	For installation with IF frame
Visible screw fastening	SF	Screw fastening with 25 mm wide frame
Flat installation frame	A	18 mm wide - 48 mm high frame
Rounded installation frame	B	25 mm wide - 48 mm high frame

## Flat frame

LxH	L1	L2	L3	H1	H2	H3
300x100	312	276	18	112	76	18
600x100	612	576	18	112	76	18
1000x100	1012	976	18	112	76	18
300x150	312	276	18	162	126	18
400x150	412	376	18	162	126	18
600x150	612	576	18	162	126	18
800x150	812	776	18	162	126	18
1000x150	1012	976	18	162	126	18
1000x200	1012	976	18	212	176	18

## Rounded frame

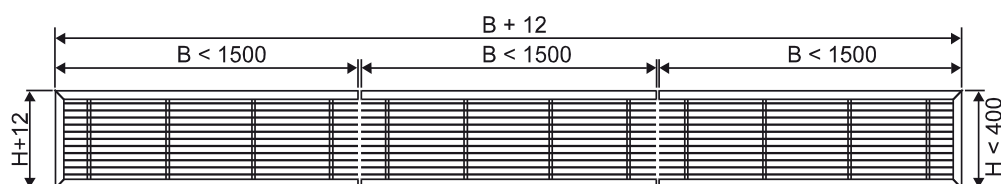
LxH	L1	L2	L3	H1	H2	H3
300x100	326	276	25	126	76	25
600x100	626	576	25	126	76	25
1000x100	1026	976	25	126	76	25
300x150	326	276	25	176	126	25
400x150	426	376	25	176	126	25
600x150	626	576	25	176	126	25
800x150	826	776	25	176	126	25
1000x150	1026	976	25	176	126	25
1000x200	1026	976	25	226	176	25

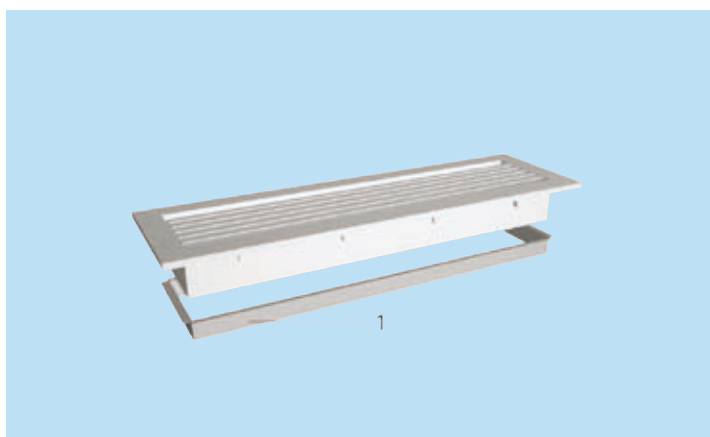
With flow control damper OD total depth = 48 mm + 45 mm.

## Special dimensions

In addition to standard sizes, other sizes can be specially ordered. The maximum size is 1500x300 mm (LxH).

It is possible to have a continuous grille of modular design when the installation length is greater than 1500 mm. The maximum total length is 20 m.

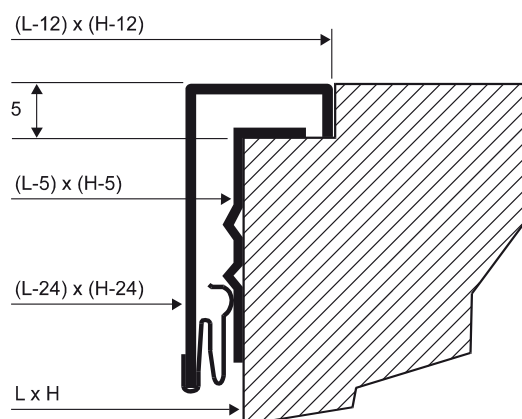




## Installation

The grille is connected directly to the duct using the IF installation frame (1).

### Clips fastening (standard)



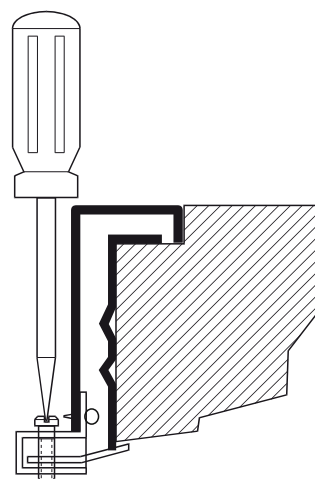
The grilles are supplied with clips fastening as standard with the IF installation frame.

## Adjustment

Airflow adjustment damper OD

The airflow rate is adjusted by turning the damper blades behind the grille with a screwdriver. The measurement is carried out when grille is installed.

### Concealed screw fastening (option)



Concealed screw fastening is possible when the grille is installed with an installation frame (IF).

### Visible screw fastening (option)

Visible screw fastening is possible with the 25 mm wide frame.

The auto screws, 4.2x25 (bevel headed screw) are supplied.

The size of the installation hole is LxH when an installation frame is used, and (L-5)x(H-5) without an installation frame.

## Servicing

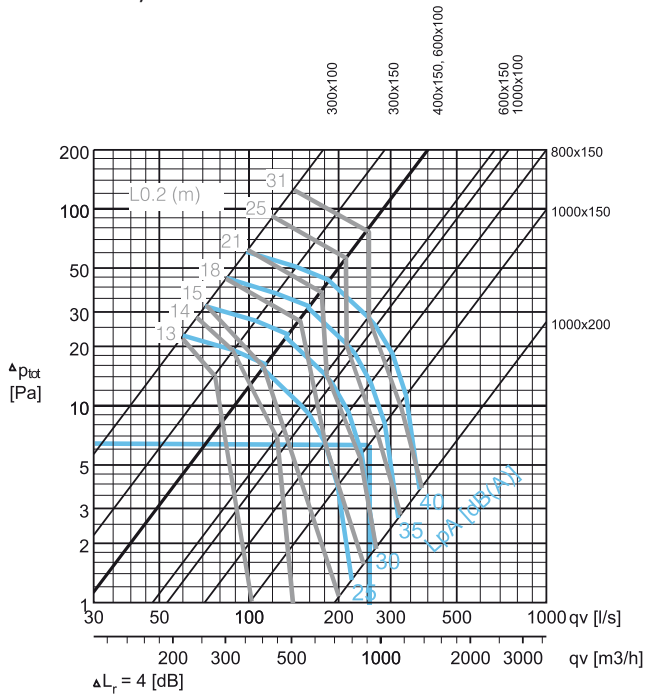
The grille can be removed for cleaning.

Remove from the floor, by gently pulling the grille from the outer frame. Use a screwdriver, if necessary. Clean the components with a damp cloth. They must not be immersed in water.

Push the grille back into place, so that the springs lock.

**Pressure drop, throw pattern and sound data**

FLE or FLU, floor installation



Selection example :

Requirements :

qv = 250 l/s  
 LpA < 35 dB(A)  
 L0,2 < 5 m  
 ΔT = -10 °C  
 Floor installation

Selection : FLU-1000x150  
 LpA < 31 dB(A)  
 L0,2 = 23 m x 0.21 = 4,8 m  
 ΔPtot = 6 Pa

**Vertical throw pattern with non isothermal air, floor installation**

Vertical throw patterns shown in the diagrams are based on isothermal air. When heated or chilled jets are considered, the distance of projection changes due to the change in air density.

From the table below the correct multifunction factor can be determined for each specific application. Multiply the factor by the isothermal throw pattern (L0.2) to determine estimated projection distance:

ΔT (°C)	±0	±5	±8	±10	±12	±14	±16
K heating	1,00	1,30	1,40	1,45	1,50	1,52	1,55
K cooling	1,00	0,27	0,23	0,21	0,20	0,19	0,18

## Floor supply design

Floor grilles are usually used to supply warm or fresh air along windows in large spaces (halls, swimming pool, etc). Wall to wall installation, all along the window is the best solution. Air velocity must be high. Grille sizes must be selected for the jet to reach the top of the glass wall.

### Selection example :

#### Window size :

L=10 m x H = 6 m                      10 No. FLU 1000x100  
 $\Delta T = -10 \text{ }^\circ\text{C}$                        $qv = 300 \text{ l/s per unit}$   
 $qv = 3000 \text{ l/s}$                        $L0.2 = 29 \times 0.21 = 6.1 \text{ m}$

Floor grilles can be used in auditoriums, conference rooms and offices. Velocity must be very low to reduce as much as possible the near zone. We recommend designing as a displacement system with a maximum supply temperature  $4^\circ\text{C}$  below room. The grille size must be selected so that supply air velocity is about 1 m/s.

## Sound power level with od damper

Use of an OD opposite blade damper, will result in increased pressure loss. The resulting increase in sound level is computed from the selection chart value and the formula below:

$$L_{pA} = \Delta L_p + L_{pA}$$

$$K_p = \frac{\text{Adjusted pressure drop}}{\text{Pressure drop in selection chart}}$$

### Example :

FLU-1000x150 + OD

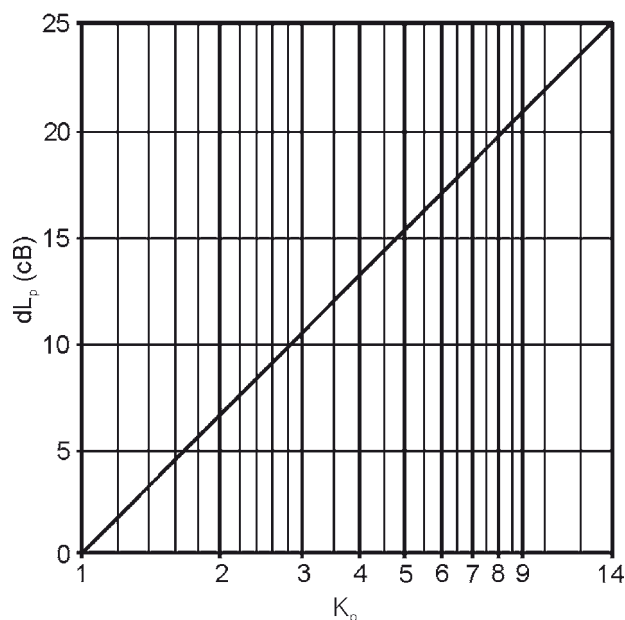
$qv = 250 \text{ l/s}$

$L_{pA} = 31 \text{ dB(A)}$  without damper OD/FLU

$\Delta P_s = 40 \text{ Pa}$  (desired pressure drop)

$K_p = 48/6 = 6.3$

$L_{pA} = 31 + 17 = 48 \text{ dB(A)}$



## SOUND LEVEL DATA

	qv	$\Delta P_{st}$	$\Delta P_{tot}$	F (Hz)						LpA [dB(A)]	NR	NC	
	(l/s)			(m <sup>3</sup> /h)	(Pa)	(Pa)	125	250	500				1000
300x100	60	216	20	23	36	34	27	20	10	9	25	19	17
	71	256	29	32	40	38	32	27	18	12	30	24	23
	84	302	40	45	44	42	38	33	25	14	35	30	29
	98	353	54	61	48	45	43	39	32	16	40	35	34
300x150	89	320	17	19	35	34	27	20	10	9	25	19	17
	105	378	24	27	40	38	33	27	18	12	30	25	23
	123	443	33	37	44	42	38	33	25	14	35	30	29
	144	518	45	51	48	45	43	39	32	16	40	35	34
400x150	112	403	13	15	35	34	27	19	10	9	25	20	17
	134	482	19	22	40	38	32	26	18	12	30	24	23
	159	572	27	31	44	42	38	32	25	14	35	30	29
	186	670	37	43	49	45	43	38	32	17	40	35	34
600x100	113	407	14	16	36	34	28	19	11	9	25	19	17
	135	486	20	23	41	38	33	26	18	12	30	25	23
	159	572	28	32	45	41	38	32	26	15	35	30	29
	185	666	38	44	48	45	43	38	32	17	40	35	34
600x150	151	544	8	10	37	34	27	19	9	10	25	20	17
	182	655	12	14	41	38	33	26	17	13	30	25	23
	216	778	17	20	46	42	39	32	25	15	35	31	29
	254	914	24	28	49	46	44	38	32	18	40	36	35
800x150	180	648	5	6	36	34	27	18	7	11	25	20	17
	216	778	7	9	41	38	33	25	15	13	30	25	23
	256	922	10	13	45	42	38	31	23	16	35	30	29
	304	1094	15	18	50	46	44	37	30	18	40	36	35
1000x100	159	572	8	9	37	34	27	18	8	10	25	20	17
	191	688	11	13	41	38	33	25	16	13	30	24	23
	227	817	15	18	46	42	38	32	24	15	35	30	29
	267	961	21	25	49	46	43	38	31	18	40	35	34
1000x150	198	713	3	4	37	34	27	17	6	11	25	19	16
	239	860	4	6	42	38	33	24	15	14	30	25	23
	285	1026	6	8	46	42	38	30	22	16	35	30	29
	337	1213	8	11	50	46	44	37	30	18	40	36	35
1000x200	219	788	1	1	37	34	25	15	4	11	25	19	16
	262	943	1	2	42	38	31	22	12	14	30	24	21
	311	1120	1	3	46	42	37	28	20	16	35	29	27
	369	1328	2	4	51	46	42	35	27	19	40	34	33

LpA values presented with room attenuation 4 dB (red 10m<sup>2</sup> - sab). When using room attenuation 8 dB (red 10m<sup>2</sup> - sab): LpA - 4dB.  
NR/NC noise criteria

## Suggested Specifications

The floor grille shall have horizontal fixed vanes with a 15° angle deflection: FLE, without deflection: FLU, and an 18 mm wide flat or 25 mm rounded frame, with an anodised standard finishing.

The floor grille can be used for both supply or exhaust air.

The bevel angles of the outer frame shall be welded so that the joints are almost invisible.

The floor grille shall be mechanically strong in order to bear external loads.

The floor grille shall be detachable in order to provide access to the duct.

## Product Code

FLE/S-LH

FLU/S-LH

S = Frame option

A Frame 18 x 45

B Frame 25 x 45

L = Length

200,+1,...,20000

H = Height

100,+1,...,300

Specifics and accessories

FS = Fastening

CL Clips

CC Concealed screw fastening

SF Screw fastening

FI = Finishing

AN Anodised

MF Mill finished

Code example

FLE/A-200-100, FS=CL,FI=AN

Sub products

BDR Plenum

PRI Plenum

IF Installation frame (Grilles)

OD Opposed blade damper (Grilles)