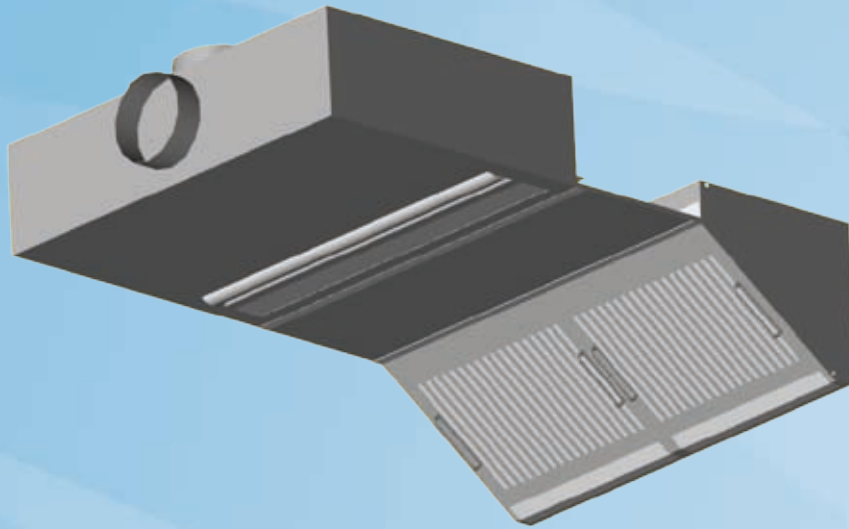


## KCE

### Ventilated Ceiling with Capture Jet

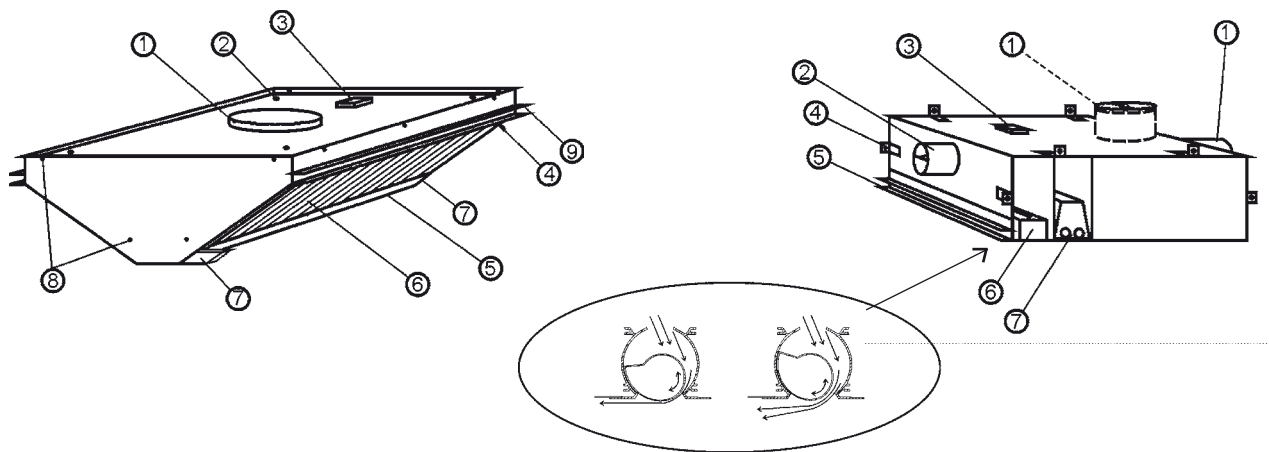


The KCE ventilated ceiling is a flexible solution for kitchens where heat loads are relatively low and where good indoor environmental conditions and the aesthetics of the installation are appreciated. The KCE ceiling system comprises exhaust and supply air units and Capture Jet™ units, light fitting units and ceiling panels adaptable for a great variety of space requirements.

The Halton Capture Jet™ canopies can be easily integrated with the KCE ventilated ceiling in order to take care of local ventilation for cooking processes with very high heat load levels.

- Draught-free air distribution into the work area from ceiling-mounted low-velocity supply units
- High-efficiency grease filtration using \*UL- and \*\*NSF-classified Halton KSA multi-cyclone filters - removal of up to 95% of particles with a size of 8 microns and above
- Modular construction, simplifying design, installation and maintenance
- Capture Jet™ air supply integrated with supply air units, directing the excess heat and impurities released from kitchen appliances toward the exhaust air units
- Stainless steel (AISI 304) design

The KCE kitchen ceiling layout is designed on demand, based on the customer's drawings and equipment list.



## Construction

E1: Exhaust wall model  
E2: Exhaust Island model

E1 and E2 units are manufactured in stainless steel AISI 304 polished. Plenum roof is in galvanized steel. The exhaust units are equipped with extract spigot and damper (1), fixing holes of modules (2), electrical junction box (3), pressure measurement tape (4), light fixture IP55 (5), KSA filters KSA (6), collection tray (7) and pre-punched holes for joining module sections (8).

S1: Supply 1 Capture Jet  
S2: Supply 2 Capture Jets

The units S1 and S2 are equipped with spigots and dampers (1) (2), stainless steel perforated front panel, electrical conduit box (3), hanging and connecting brackets (4), Support panels (5), Capture Jet (6), integrated light fixture IP55. The outer casing is manufactured from galvanized steel.

## DIMENSIONS

Units	Lenght L, mm
E1	1000-1500-2000
E2	1000-1500-2000
S	1000-1500-2000
V	700 to 1700

## Accessories

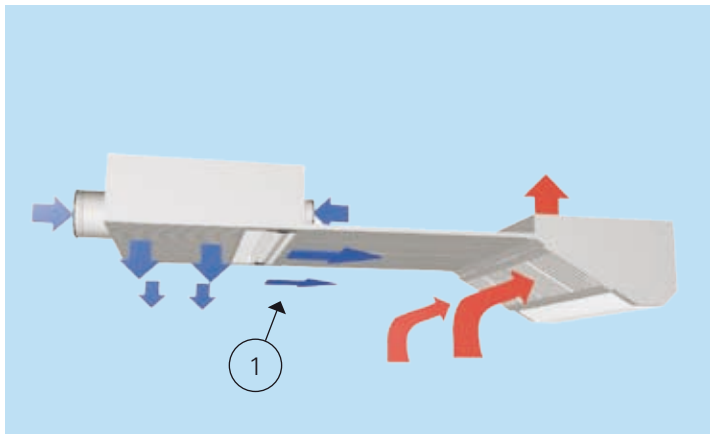
- Infill Panels
- Light fixture – IP55
- KSA grease filter
- Blind Filter in stainless steel
- Non standard spigots
- Exhaust/supply roof in stainless steel

## QUICK DATA

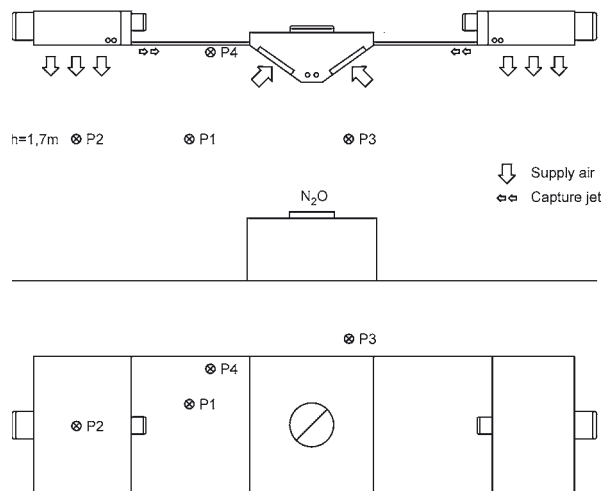
Units	Recommended air flows	
	l/s / m	m <sup>3</sup> /h / m
E1 (Exhaust, Wall model)	60-200	216-720
E2 (Exhaust, Island model)	60-350	216-1260
S1 (Supply, 1 Capture Jet)	40-90	144-324
S2 (Supply, 2 Capture Jets)	40-80	144-288
Capture Jets	10-40	36-144

\* UL = Underwriters Laboratories (UL is an independent organization founded by the insurance industry in the U.S.A, giving approvals to safety tested products).

\*\* NSF = National Sanitation Foundation (promoting hygiene and sanitation in the U.S.A)



Measurement points



**Function**

The warm, contaminated air released in the cooking process rises to ceiling level, where it is directed toward exhaust air units equipped with KSA grease filters by the capture air jets (1).

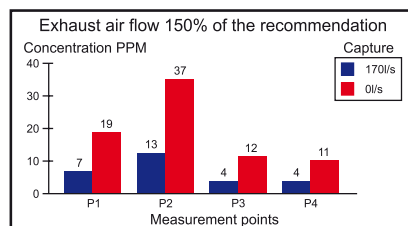
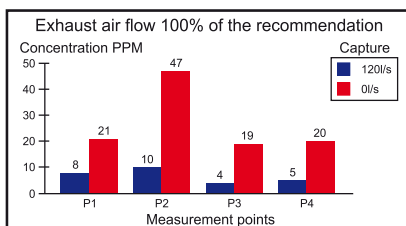
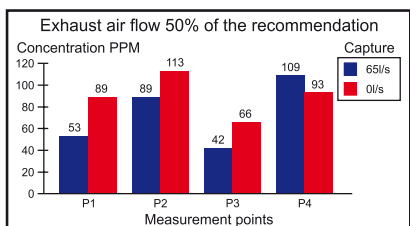
Grease particles and other impurities are separated from the exhaust air in the KSA grease filters, using the cyclone separation principle.

The extracted grease and other air contaminants flow into a drain channel and toward the collection tray.

The supply air is introduced into the kitchen draught-free from supply air units at low velocity. Supply air units are located at the perimeter of the kitchen appliance zone or above the working space between the pieces of cooking equipment.

Graphs\* below show the concentration in different measurement points with different airflow rates (50, 100, 150%) and with different Capture Jet airflow

rates. The column on the left side shows the tracer gas concentration with Capture Jet and the right column without capture air.



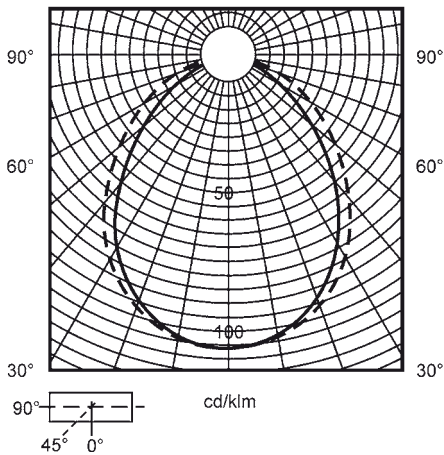
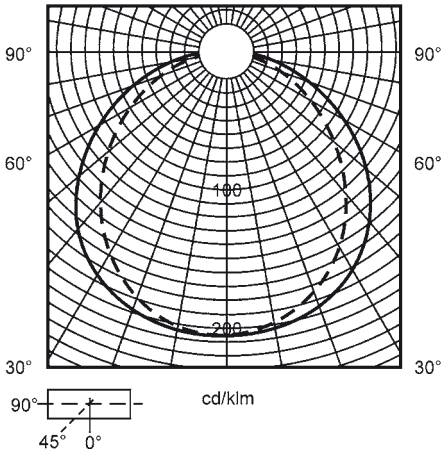
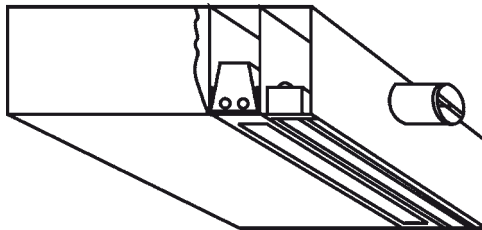
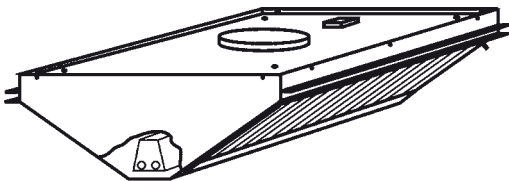
The study shows that:

- The same level of concentration was achieved with the Capture Jet on as with 150% exhaust airflow rate and Capture Jet off, thus the increase of exhaust air volume increases only the energy consumption.

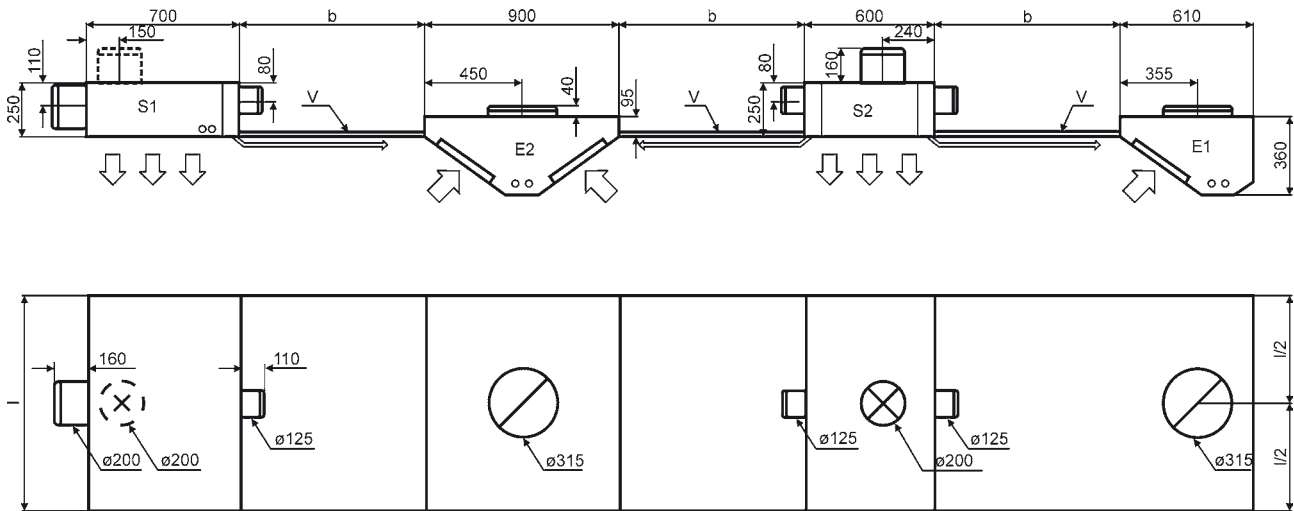
- The capture air prevents effectively the impurities from spreading into the space.
- The use of capture jet is crucial to the proper function of the ventilated ceiling.

\* Study conducted by Lappeenranta Regional Occupational Health Institute.

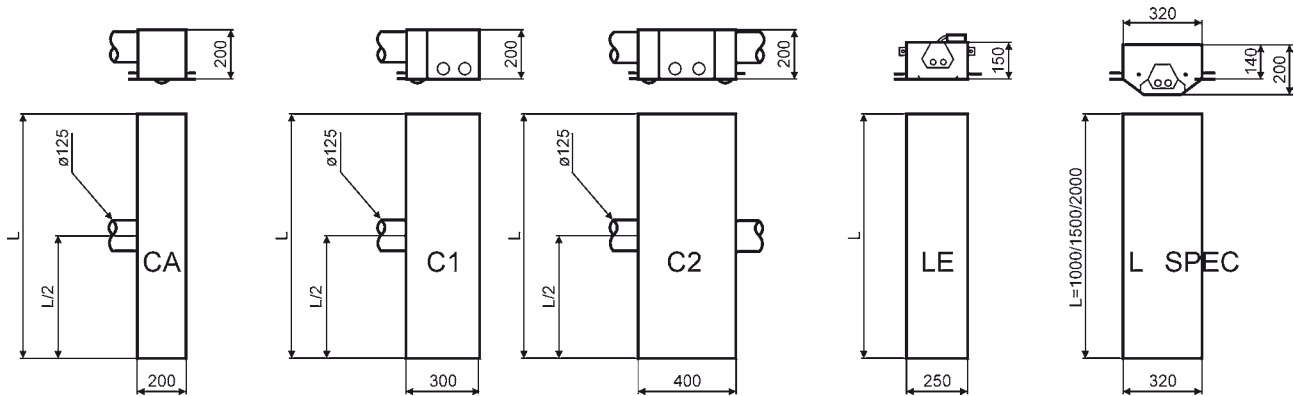
LIGHTING



**DIMENSIONS (mm)**



**SPECIAL PARTS**



l	b
1000, 1500, 2000	700...1700

**Weights of ceiling (Kg)**

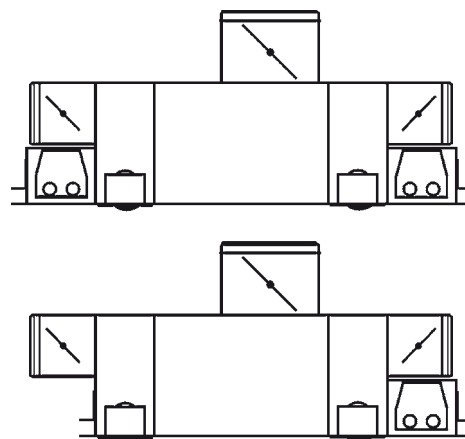
15 to 20 kg / m<sup>2</sup>

**ACCESSORIES**

Light for supply air unit S2.

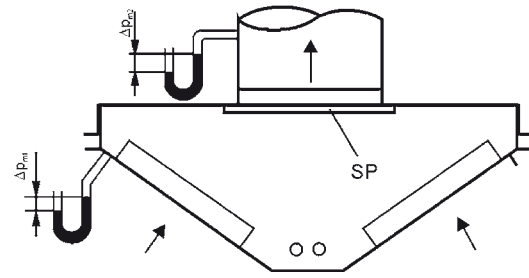
- S2 – 1000, 2 no. 2x18 w
- S2 – 1500, 2 no. 2x36 w
- S2 – 2000, 2 no. 2x58 w

- S2 – 1000, 1 no. 2x18 w
- S2 – 1500, 1 no. 2x36w
- S2 – 2000, 1 no. 2x58w



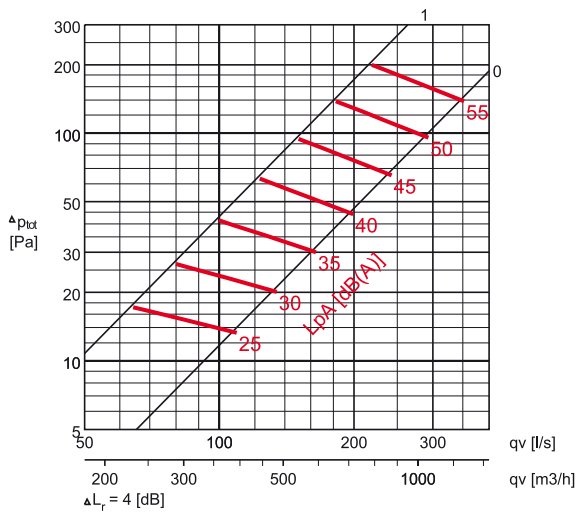
**Pressure drop and sound data, exhaust**

- $\Delta p_{m1}$  = Pressure loss of filters measured from measuring tap, minimum exhaust pressure loss when the damper plate is open
- $\Delta p_{m2}$  = Maximum exhaust pressure loss when the damper plate is nearly closed.
- 0,1. = Numbers of blind filter

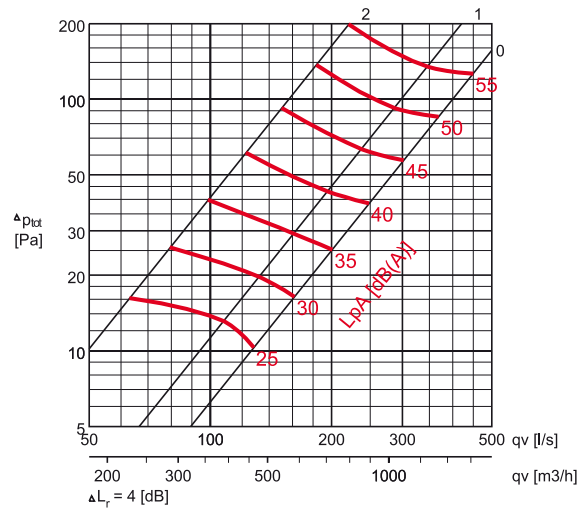


Recommended pressure loss of filter  $\Delta p_{m1}$  35-120 Pa

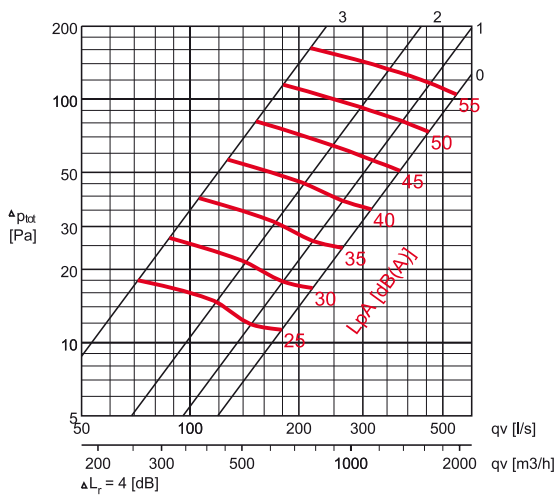
**E1 1000**



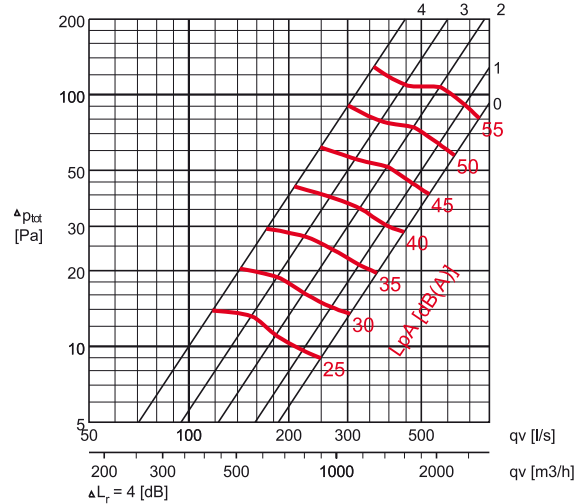
**E1 1500**



**E2 1000**

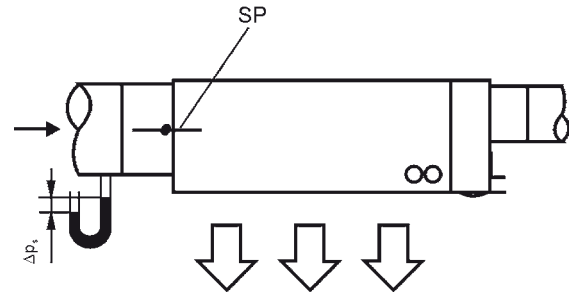


**E2 1500**

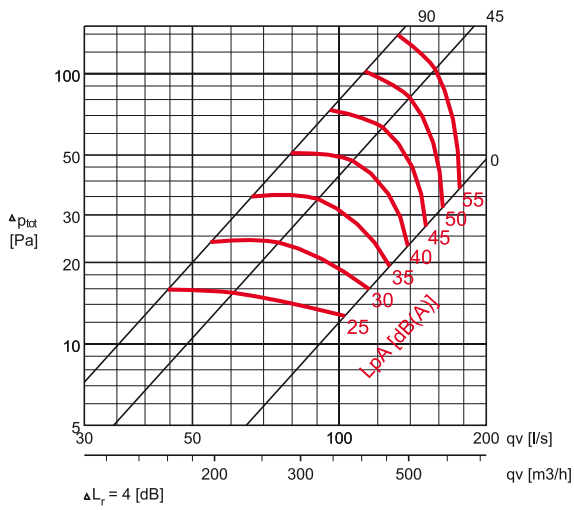


**Pressure drop and sound data, supply**

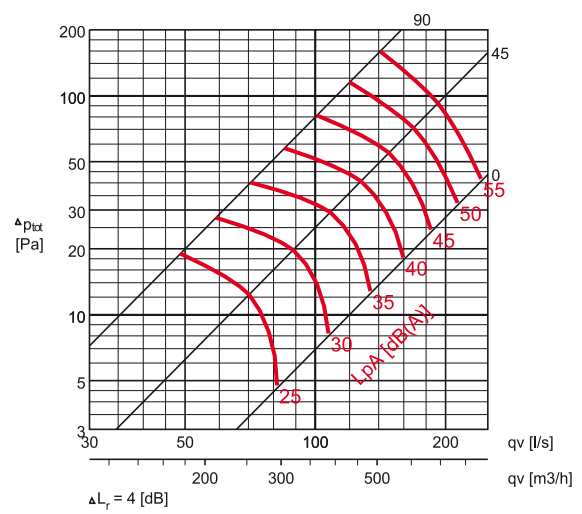
$\Delta p_{m1}$  = Measured pressure difference, Pa  
 $\Delta p_{m2}$  = Maximum supply pressure loss when the damper plate is nearly closed.



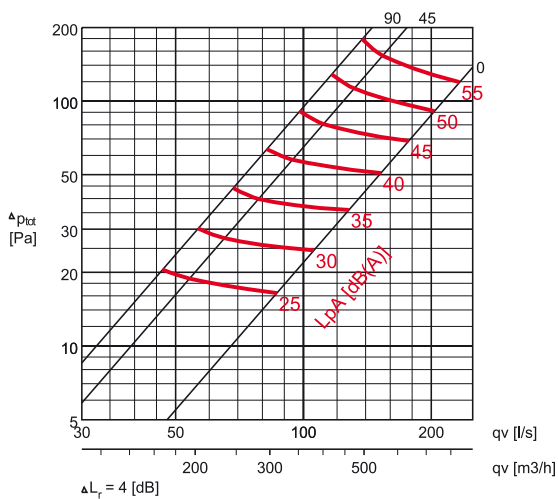
**S1 1000**



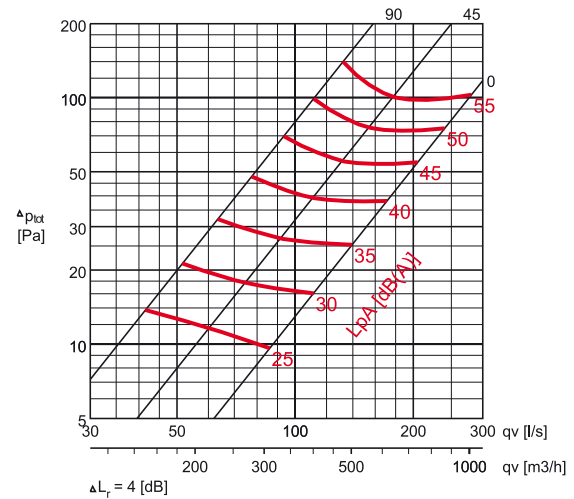
**S1 1500**



**S2 1000**

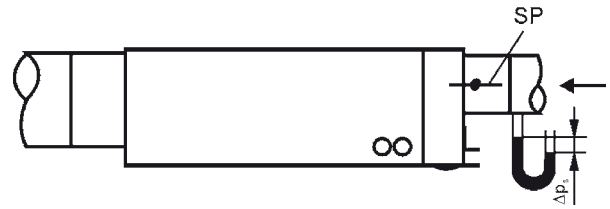


**S2 1500**

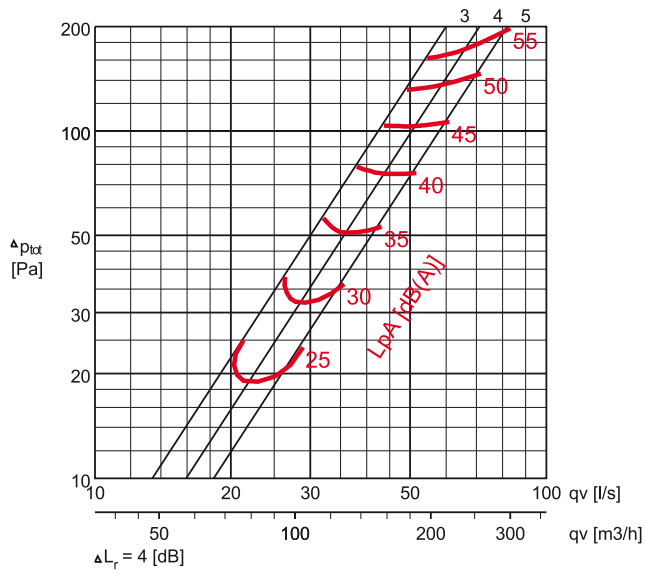


**Pressure drop and sound data, Capture Jet (S)**

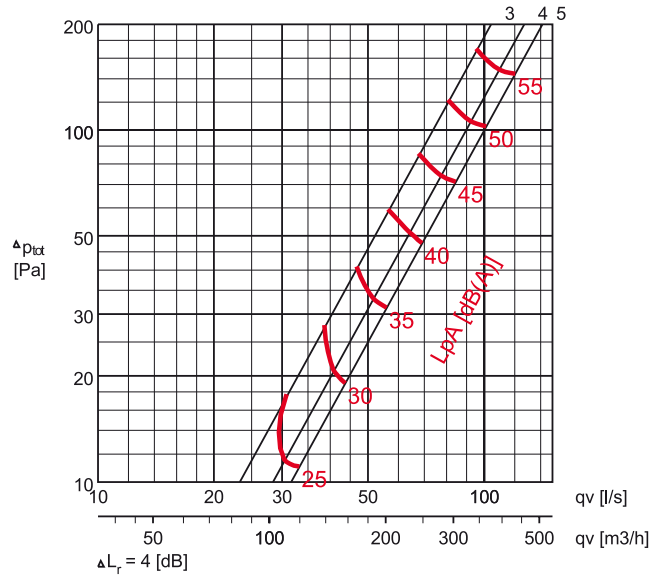
- $\Delta p_{m1}$  = Measured pressure difference, Pa
- $\Delta p_{m2}$  = Maximum supply pressure loss when the damper plate is nearly closed.
- 3, 4, 5 = Opening of jet (mm)



S-1000



S-1500



## Suggested specifications

### General

The kitchen ceiling shall be supplied complete with exhaust air units, supply air units, ceiling panels, pressure measurement taps, supply and exhaust air spigots with adjustment dampers, a light fitting, grease filters using the cyclone separation principle, a grease collection tray, an adjustment damper for supply air and assembly brackets.

### Exhaust air units

Outer casing panels of exhaust air units shall be constructed from stainless steel AISI 304 with a brushed satin finish.

The exhaust air units shall be supplied with pressure measurement taps.

The exhaust air adjustment damper shall be adjustable.

Access to the exhaust air adjustment damper shall be arranged via the removal of the grease filters.

The NSF- and UL-classified grease filters shall be constructed from stainless steel AISI 304.

The grease filters shall be supplied in modular size 500 x 330 x 50 mm and shall be removable via two folding handles.

The exhaust air spigots shall be constructed from galvanised steel and shall be supplied with a gasket.

The exhaust air units shall have an integrated light.

The light fitting shall be suitable for a single-phase 230-VAC power supply.

The light fitting shall be manufactured to be of protection class IP 65, and access shall be provided.

The ballast and capacitor shall be located within the light fitting housing.

A core electrical cable (3 x 1 mm<sup>2</sup>) connecting the light fitting to the junction box shall be provided.

### Supply air units

The supply air plenum shall be provided with access through the removal of the main casing's front panels.

The casing of the supply air plenum shall be constructed from galvanised steel.

The front panel shall be manufactured from perforated stainless steel.

The front panel shall be a low-velocity supply air unit for the draught-free distribution of air directly to the work area.

The supply air units shall be integrated with capture air jets for directing the convection flows and impurities toward the exhaust air units.

The Capture Jet™ supply air spigots shall be constructed from galvanised steel and shall be supplied with a sealing gasket.

The supply air units shall have an integrated light fitting.

The light fitting shall be suitable for a single-phase 230-VAC power supply.

The light fitting shall be manufactured to be of protection class IP 55, and access shall be provided.

**Product code**

KCE/S-L

S = Model

E1	Exhaust, wall model
E2	Exhaust, island model
S1	Supply unit with 1 capture jet
S2	Supply unit with 2 capture jets
LE	Integrated light
CA	Capture jet unit
C1	Capture jet unit, 1 direction with light
C2	Capture jet unit, 2 directions with light

L = Length

1000, 1500, 2000

## Specifics and accessories

EL = Direction of duct connection

S	Side
T	Top

LF = Light fittings for S2

1	1 piece
2	2 pieces

## Code example

KCE/E1-1000

## Sub products

KC	Kitchen ceiling panel
PT/KCF	= Profile T
PL/KCF	= Profile L
J/KCE	= External Skirt