

KCE – Air Conditioning Ceiling for Kitchen



The KCE ventilated ceiling is a flexible solution for kitchen ventilation where the heat loads are relatively low and aesthetics are a concern.

KCE is assembled from extract supply modules and capture units; light units and ceiling panels can be designed to fit any space requirement.

The ventilated ceiling can easily integrated Halton canopies where heat loads is heavy.

- Draft free air distribution into the working zone from low velocity ceiling mounted panels.
- High efficiency grease filtration using Halton's KSA 'Multi-cyclone' filters – up to 95% on particles at a size of 8 microns or above (*UL and **NSF classified).
- Modular construction simplifies design, installation and maintenance.
- Integrated 'Capture jets ' is supplied within supply air sections – which can help to guide the heat and impurities towards the extract sections.
- Stainless steel construction (AISI 304).

QUICK DATA

Units	Recommended air flows	
	l/s / m	m ³ /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

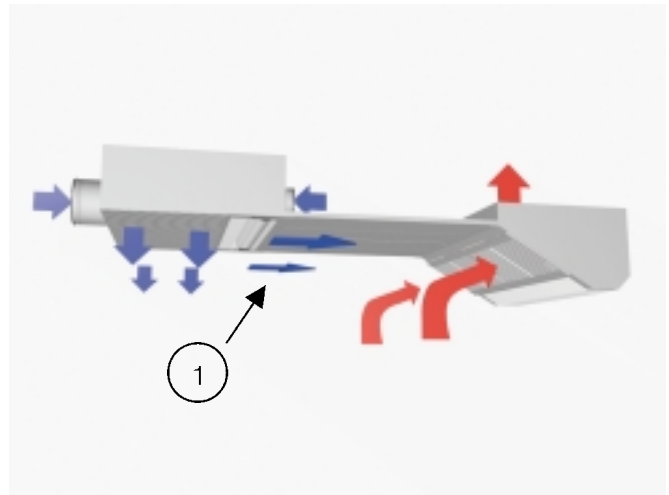
* UL =Underwriters Laboratories (UL is an independent organization founded by the insurance industry in the U.S.A, giving approvals to safety tested products).

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

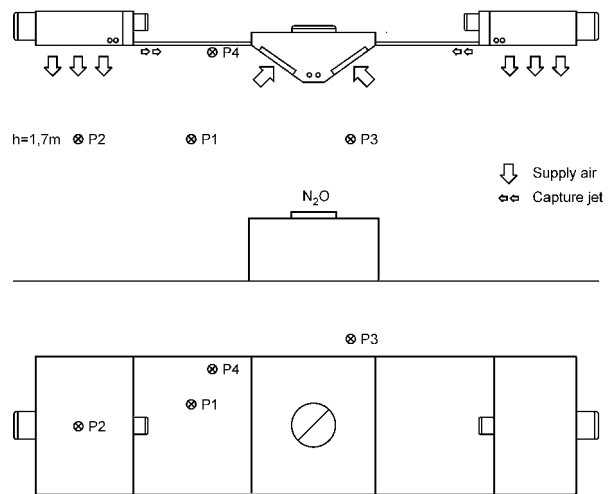
FUNCTION

The exhaust units equipped with KSA filters located in the ceiling extracts the contaminated hot air. The heat loads and impurities released from the kitchen equipment rise to the ceiling level with the warm air flow, from which they are directed with the capture air jet (1) into the exhaust air unit.

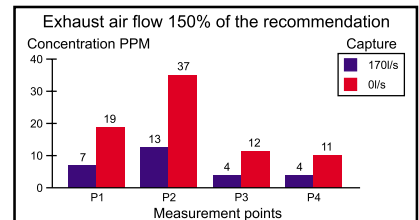
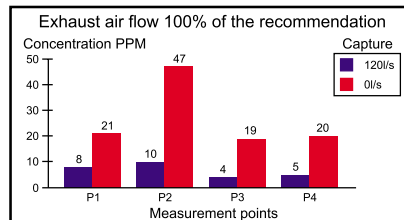
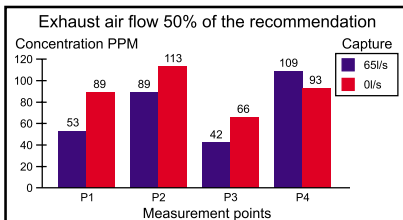
The supply air is brought without draught into the kitchen through low velocity units located at the extremities of the kitchen or between the cooking equipment, above the workers.



Measurement points



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.

DIMENSIONS

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

Contact your local Halton office or representative for special requirements

*Study conducted by the Lappeenranta Regional Occupational Health Institute.

ACCESSORIES

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



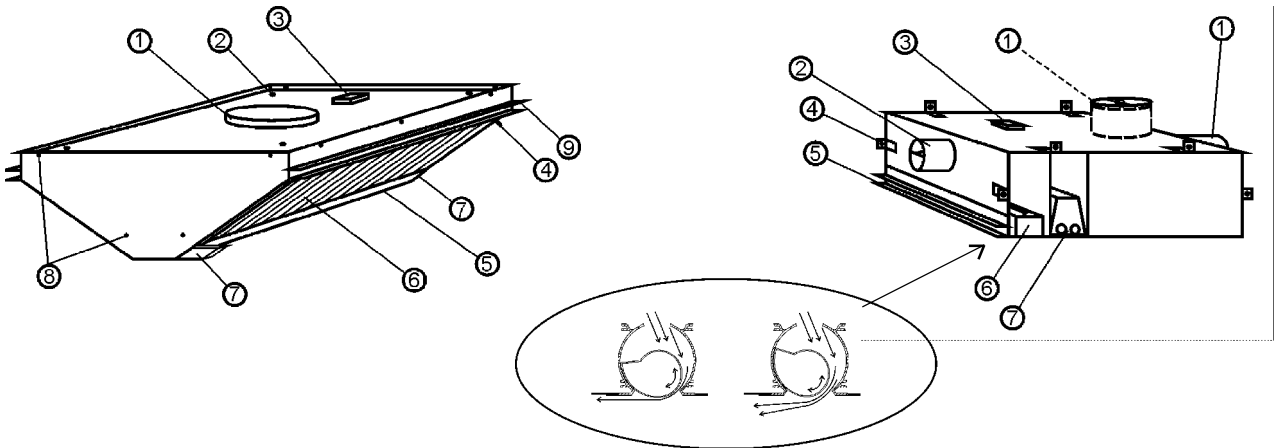
CONSTRUCTION

- E1: Exhaust wall model
- E2: Exhaust Island model

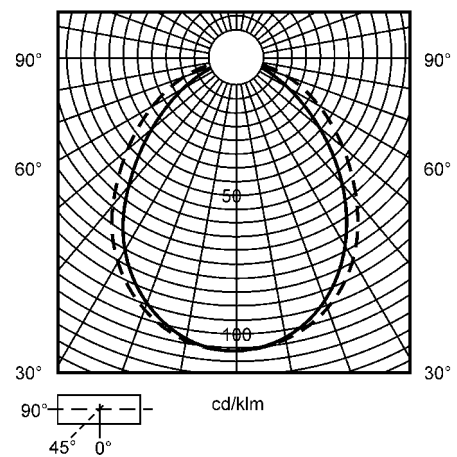
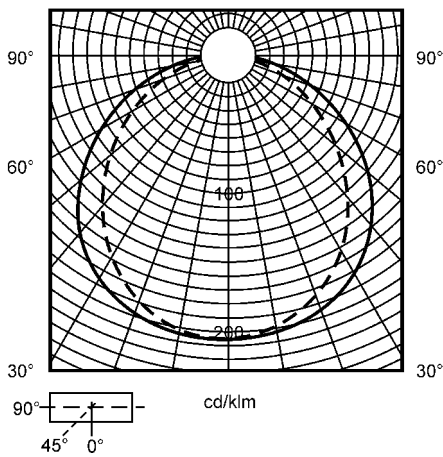
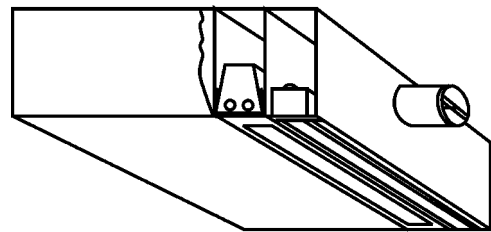
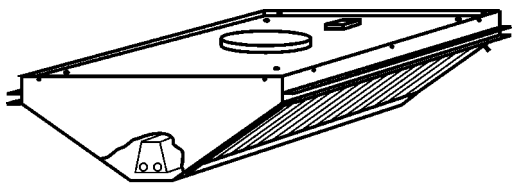
E1 and E2 units are manufactured in stainless steel AISI 304 polished. Plenum roof is in galvanized steel. The exhaust units are equipped with extract spigot and damper (1), fixing holes of modules (2), electrical junction box (3), pressure measurement tape (4), light fixture IP65 (5), KSA filters KSA (6), collection tray (7) and pre-punched holes for joining module sections (8).

- S1: Supply 1 Capture jet
- S2: Supply 2 Capture jets

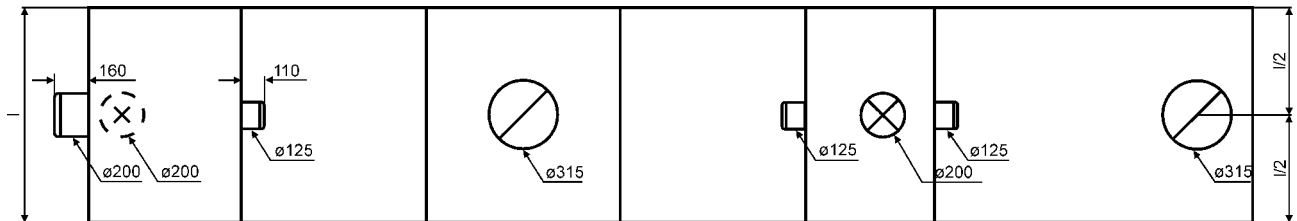
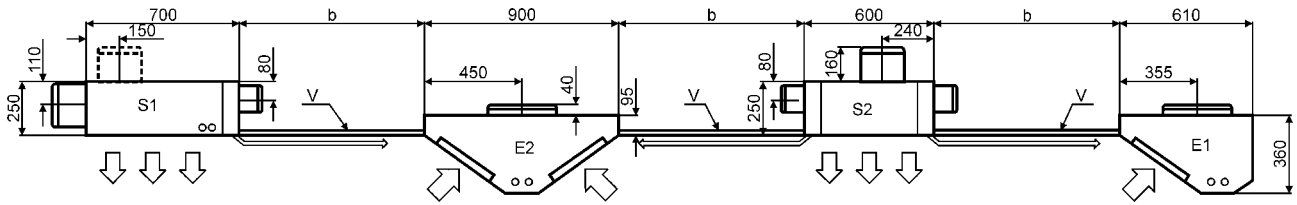
The units S1 and S2 are equipped with spigots and dampers (1) (2), stainless steel perforated front panel, electrical conduit box (3), hanging and connecting brackets (4), Support panels (5), Capture Jet (6), integrated light fixture IP55. The outer casing is manufactured from galvanized steel.



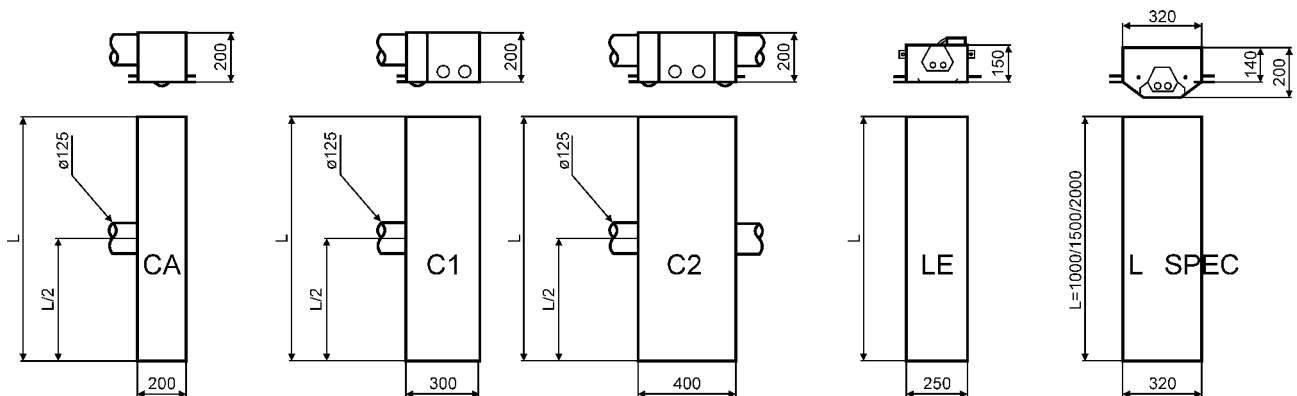
LIGHTING



DIMENSIONS (mm)



SPECIAL PARTS



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

Weights of ceiling (Kg)

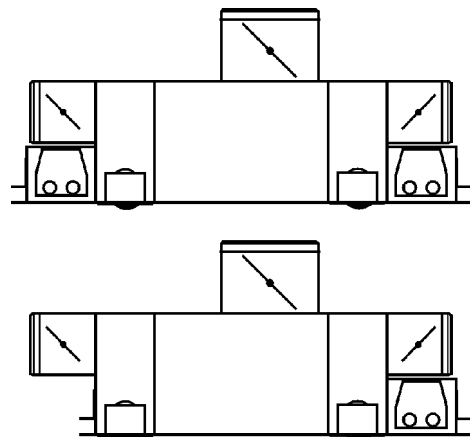
15 to 20 kg / m²

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

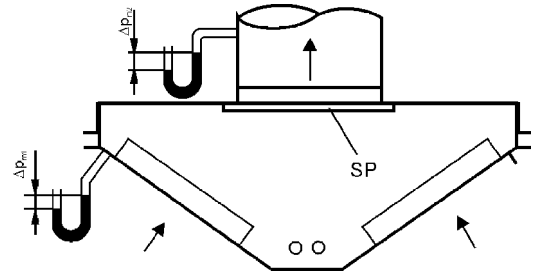


PRESSURE DROP and SOUND DATA, EXHAUST

Δp_{m1} = Pressure loss of filters measured from measuring tap, minimum exhaust pressure loss when the damper plate is open

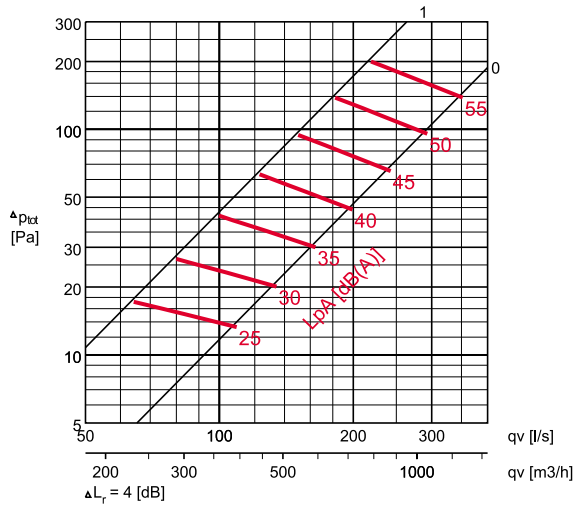
Δp_{m2} = Maximum exhaust pressure loss when the damper plate is nearly closed.

0,1. = Numbers of blind filter

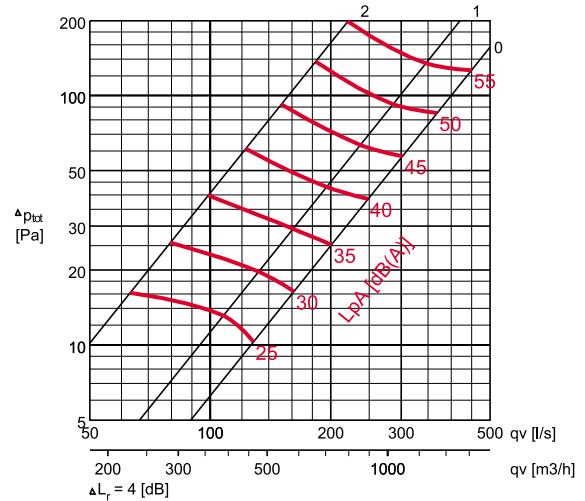


Recommended pressure loss of filters Δp_{m1} 35-120 Pa.

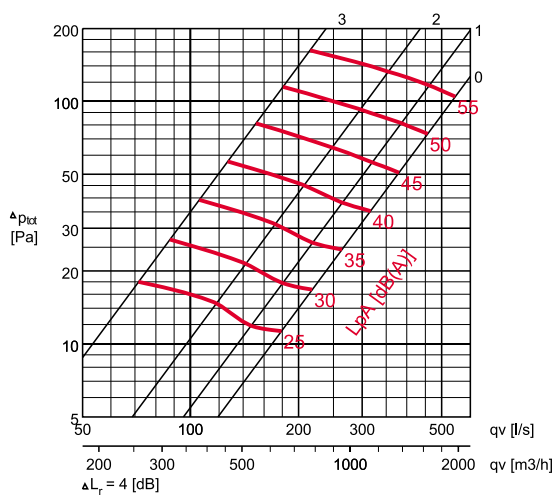
E1 1000



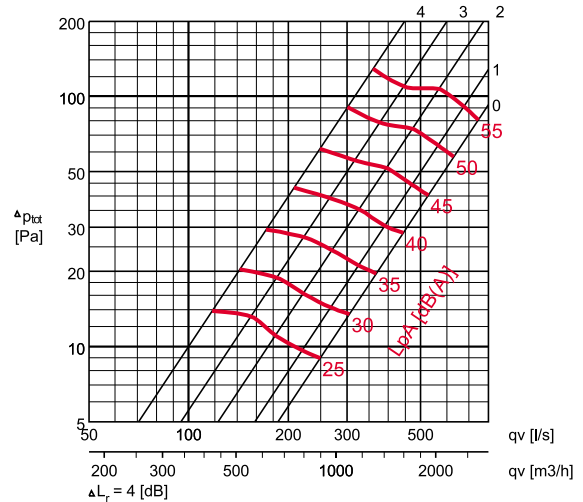
E1 1500



E2 1000

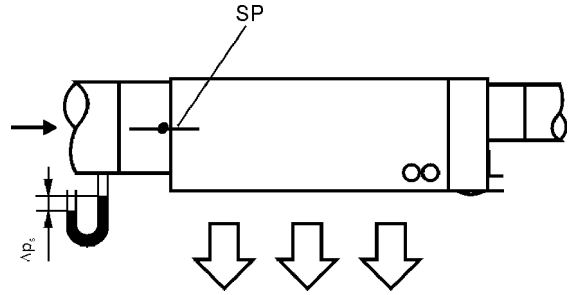


E2 1500

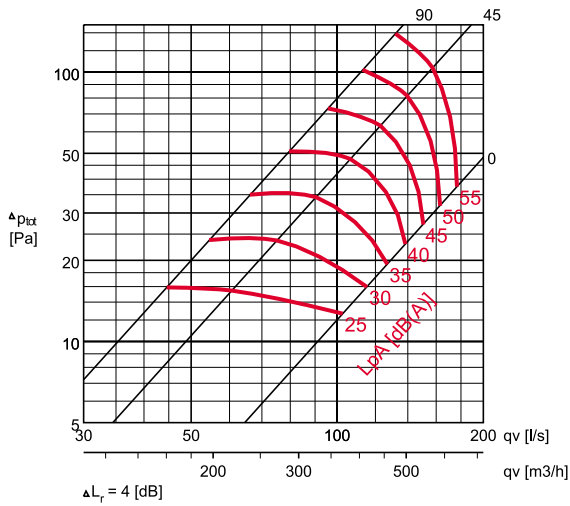


PRESSURE DROP and SOUND DATA, SUPPLY

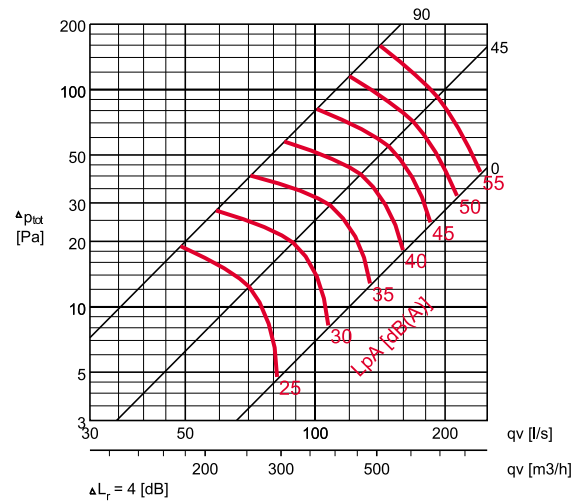
Δp_{m1} = Measured pressure difference, Pa
 Δp_{m2} = Maximum supply pressure loss when the damper plate is nearly closed



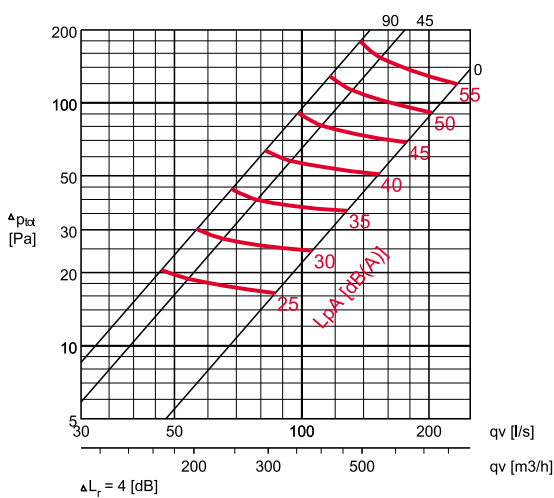
S1 1000



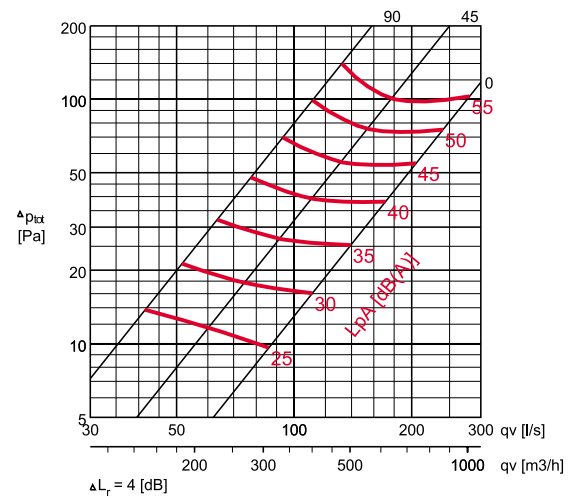
S1 1500



S2 1000



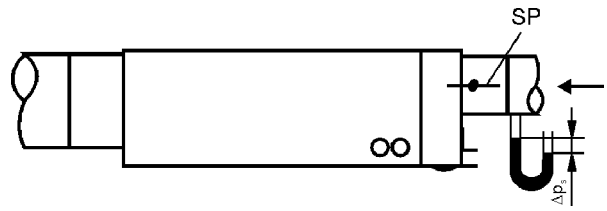
S2 1500



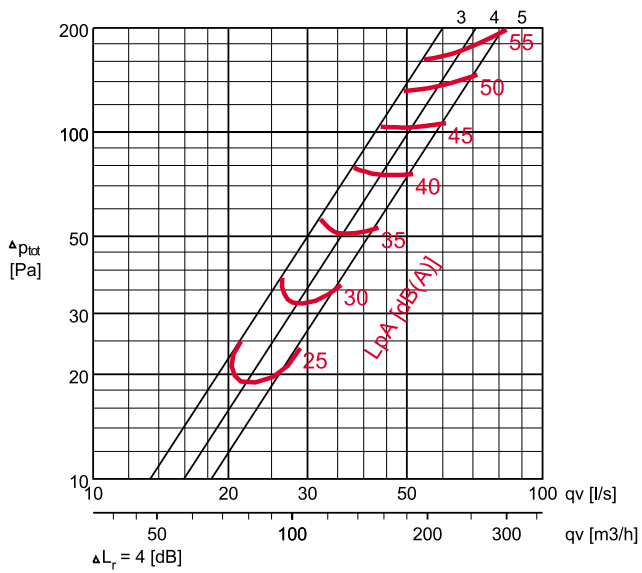
PRESSURE DROP AND SOUND DATA, Capture Jet (S)

Δp_{m1} = Measured pressure difference, Pa
 Δp_{m2} = Maximum supply pressure loss when the damper plate is nearly closed

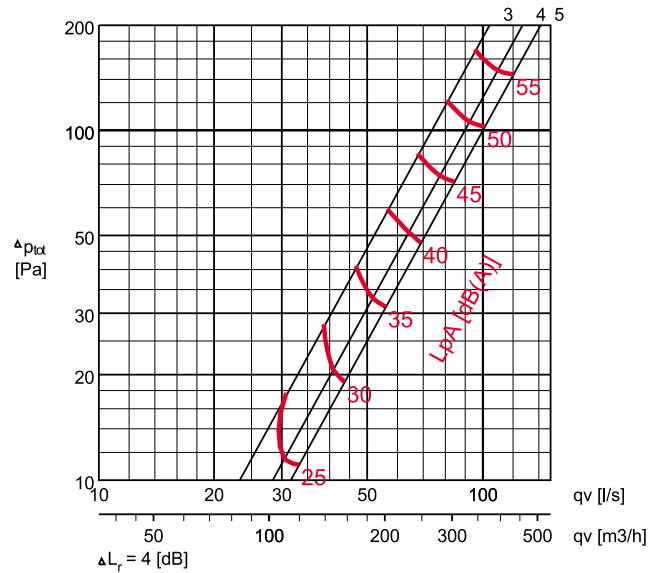
3,4,5 = Opening of jet (mm)



S-1000



S-1500



SPECIFICATIONS

General: The manufacture of all Halton kitchen canopies is to be controlled by an ISO9000 registered quality system, constructed from stainless steel to material specification AISI 304.

The kitchen ceiling shall be supplied complete with Exhaust modules (E1-E2), supply air modules (S), panels (V), pressure measurement taps, supply and extract air spigot connections with damper plates, light fixtures, KSA grease filters, collection tray, adjustment for supply air and hanging brackets.

Outer casing panels of exhaust modules shall be constructed of stainless steel sheet to AISI 304 in brushed satin finish. The modules shall be supplied with pressure measurement taps. The exhaust damper shall be adjustable and access to it is via the removal of the KSA grease filters. The KSA grease filters shall be supplied in modular size 500 x 330 x 50mm and shall be removable via two folding handles. The filters shall be constructed from stainless steel to AISI 304 and shall be NSF and UL classified. The spigot connections for extract air shall be constructed from galvanized sheet steel and shall be supplied with a sealing gasket.

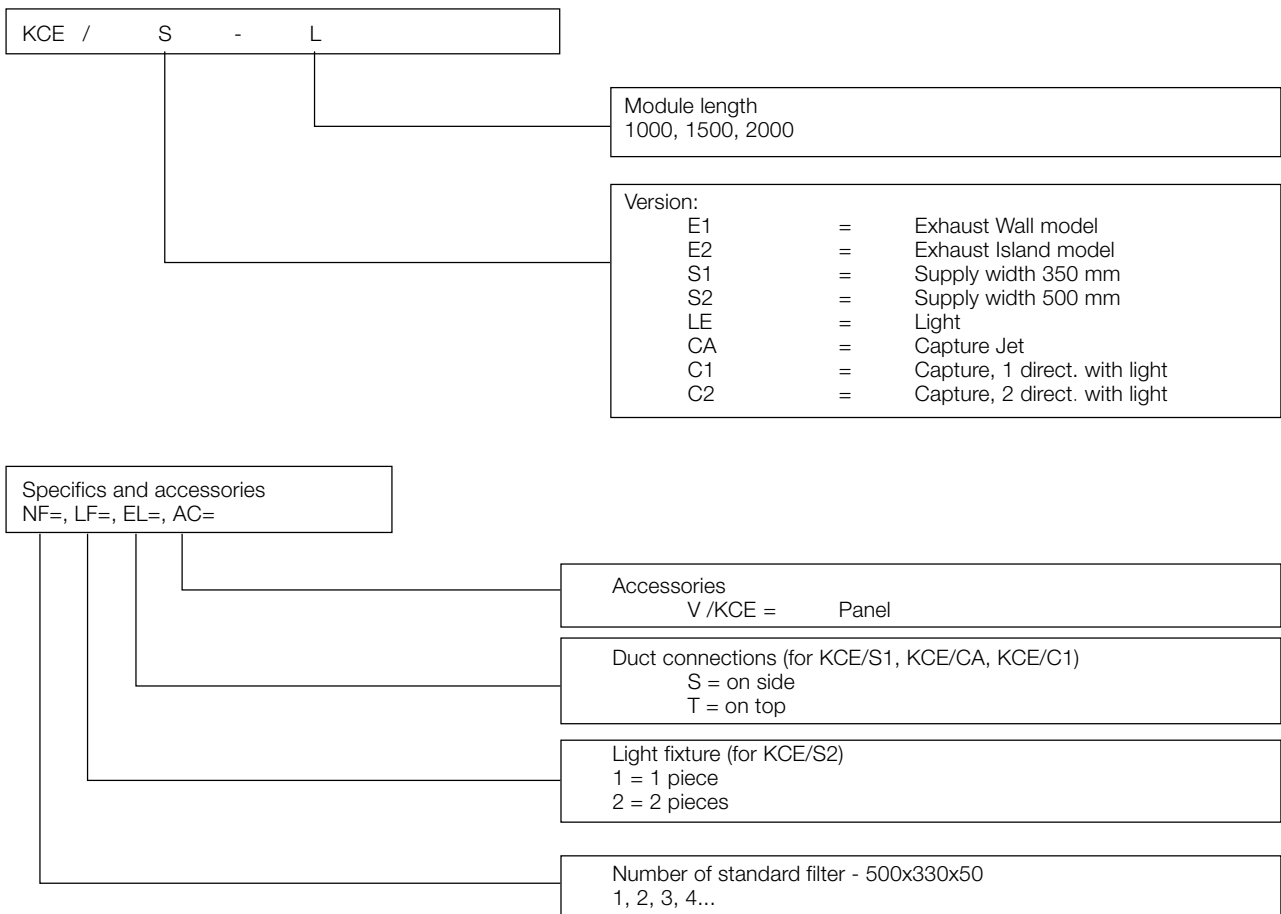
The exhaust modules shall be designed with an integrated light and shall be provided with access. The light fixture shall be suitable for single-phase 230V supply and shall be constructed to protection standard IP55. Ballast and capacitor shall be located within the light fixture housing. 3x1 mm², core electrical cable connecting the light fitting to the conduit box containing multiple connectors shall be provided.

The supply air plenum shall be provided with access by removal of main casing front panels.

The front panel shall be in perforated stainless steel that works as low velocity supply diffuser, supplying draft free air distribution directly into the working zone. The supply air sections shall be designed with 'Capture Jet' technology integrated, which can help to guide the heat and impurities towards the extract sections.

The casing plenum shall be constructed in galvanized steel. The spigot connections for supply 'Capture Jet' air shall be constructed from galvanized steel and shall be supplied with a sealing gasket

PRODUCT CODE



EXAMPLE

KCE/S1 - 1000, NF=1; EL=S
 KCE/E1 - 1500, NF=2; AC=V
 KCE/S2 - 2000, NF=3; LF=1

