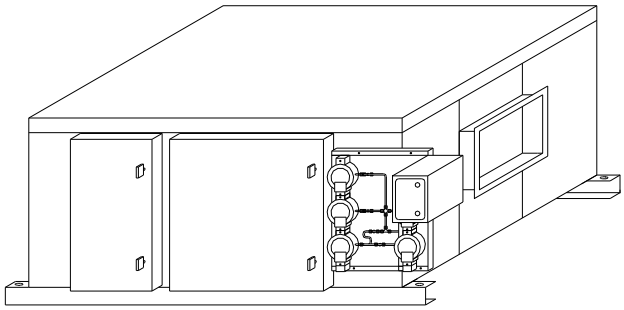
Enviro Unit Filter Box

Commercial Kitchen Exhaust

KES-ISH



1,000 to 40,000 CFM

Operation

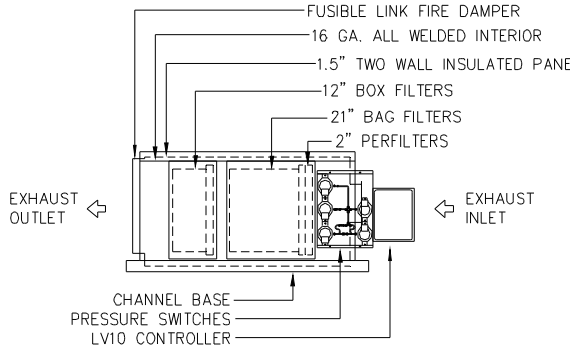
The grease-laden air rises from the cooking equipment into the NFPA-96, commercial kitchen exhaust hood. The exhaust hood will remove some of the airborne grease, lint and dirt particulate. Typically most micron and submicron particle escape into the ductwork. The exhaust air is then ducted directly to the inlet of the **KES-ISH** *Enviro Filter Unit*. The exhaust duct from the commercial kitchen exhaust hood to the inlet of the **KES-ISH** must be installed in accordance with the NFPA-96 code. The UL/ULC listing allows the exhaust discharge duct from the **KES-ISH** to be discharged to atmosphere at low levels from the building.

Within the **KES-ISH** *Enviro Filter Unit* the exhaust air travels through three stages of particulate filters.

1. Two (2) inch (51 mm) pleated - 30% ASHRAE 52-76 filters
2. Twenty-one (21) in. (525 mm) bag - 90% ASHRAE 52-76 filters
3. Twelve (12) in. (305 mm) box - 95% DOP filters, (or 99% ASHRAE 52-76)

Within the **KES-ISH** *Enviro Filter Unit* the exhaust air is cleaned of airborne grease, lint and dirt particulate. Once through the **KES-ISH** *Enviro Filter Unit* the exhaust air enters **KESF** *Enviro Fan Unit.*

KES-ISH Component Schematic



Description

The KES-ISH *Enviro Filter* unit contains the LV10 panel, pressure switches, and three stages of filters.

The unit is constructed of 16 gauge steel inner shell, continuously welded and liquid tight in accordance with the NFPA-96. The outside of the unit is wrapped in 1.5" insulation and 18 gauge steel protective covering primed and painted. The unit is supported by channels running along the length of each side. Lifting and support points are at the four corners of the KES-ISH unit, at the ends of these channels. No external isolation of the unit is required. The two access doors are double wall construction with 1.5" insulation and can lock doors fasteners per the UL/ULC fire rated listing. A fusible link fire damper is located at the outlet of the KES-ISH. The link temperature is 165F and is accessible through the prefilters/Bag filter access door.

Pressure tubing from the pressure switches is run inside along the top of the unit to pressure probes located in front and behind each filter section. The firestat is located at the exhaust inlet end and mounted on the same side as the LV10 panel.

KES-ISH Enviro Filter Box Controls

LV10 Control Panel

The main Enviro Unit control panel is the low voltage LV10 panel located on the **KES-ISH**. The KES LV10 electrical control circuit activates unit shut down upon any of the conditions listed below.

1. Operation of the KES-ISH with dirty or clogged pre-filters, bag filters, or box filters.
2. Operation of the KES-ISH with the bag for box filter removed.
3. Low air volume through the KES-ISH.
4. A fire in the KES-ISH.

The LV-10 panel is interconnected to the RPW10 or RPD10 remote panel and the KESF fan unit.

RPW10 Remote Annunciation Panels

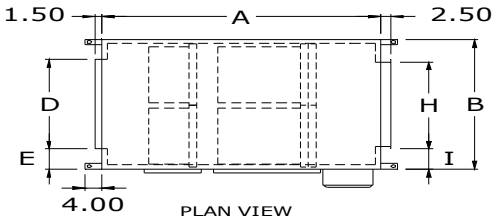
Used in conjunction with a Water Wash Ventilator

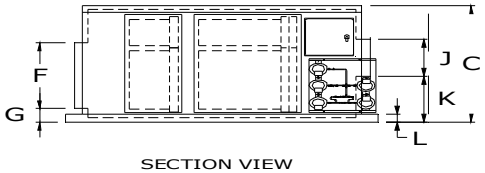
The remote annunciation panel RPW10 is located in the kitchen near the water wash control for annunciation of the following conditions: NORMAL, FIRE, PRE FILTER CLOGGED, BAG FILTERS CLOGGED, BOX FILTERS CLOGGED, FILTERS REMOVED, and WARNING. The KES Enviro on/off operation is controlled from the water wash hood panel. (See *the Spring Air Ventilator Engineering Manual* for detailed information about water wash control panels available.)

RPD10 Remote Annunciation Panels

Used in conjunction with a Dry Hood (Dry Extractor or Filter Hood)

The remote annunciation panel RPD10 is located in the kitchen near the water wash control for annunciation of the following conditions: NORMAL, FIRE, PRE FILTER CLOGGED, BAG FILTERS CLOGGED, BOX FILTERS CLOGGED, FILTERS REMOVED, WARNING and Unit on/off Switch. Rotating the Unit on/off switch turns the KES Enviro system on and off.





KES-ISH FILTER BOX DIMENSIONS

KES-ISH .	Max. CFM	A	B	C	D	E	F	G	H	I	J	K	L
10	1000	64	25.5	24.5	22.75	1.38	18	4.75	9	8.25	10	8.5	3
20	2000	64	25.5	32	23	1.25	25	5	18	3.75	10	13.25	3
30	3000	64	37.0	32	34	1.5	25	5	27	5	10	13.25	3
40	4000	67	49.0	32	34	7.5	25	5	30	9.5	12	11.75	3
50	5000	69	49.0	44	34	7.5	25	5	32	8.5	14	17.25	3
50F	5000	69	60.5	32	34	13.25	25	5	32	14.25	14	11.25	3
60	6000	69	49.0	44	38	5.5	25	5	34	7.5	16	16.25	3
60F	6000	69	72.5	32	38	17.25	25	5	30	21.25	12	11.75	3
80	8000	72	49.0	58	36	6.5	36	8	36	6.5	20	22.25	5
80F	8000	72	72.5	45	44	14.25	36	6	36	18.25	20	15.25	4
100	10000	76	60.5	58	44	8.25	48	7	36	12.25	24	20	5
120	12000	81	72.5	58	44	14.13	48	7	36	18.25	30	17.25	5
140	14000	85	72.5	70	56	8.25	54	7	40	13.25	32	21.5	5
160	16000	86	72.5	70	56	8.25	54	7	40	16.25	36	20.25	5
180	18000	86	72.5	82	60	6.25	54	7	42	15.25	40	24.25	5
200	20000	86	96.0	70	60	18.0	54	7	50	23.00	36	20.25	5
240	24000	86	96.0	82	72	12.0	54	7	60	18.00	36	26.25	5
280	28000	86	96.0	94	72	12.0	60	7	70	13.00	36	32.25	5
320	32000	86	96.0	106	72	12.0	72	7	72	12.00	40	36.25	5
360	36000	86	107.5	106	72	17.75	72	7	80	13.75	40	36.25	5
400	40000	86	119.5	106	84	17.75	72	7	90	14.75	40	36.25	5

Kitchen Enviro Filter Unit Specification

The commercial kitchen Enviro filter box shall be a SPRING AIR SYSTEMS Inc. model no. KES___-___-ISH, indoor/outdoor design, horizontal/vertical arrangement, assembled, wired and tested prior to shipment with exhaust capacity of _____ CFM at _____" W.C. internal static pressure. The KES filter box shall be listed by Underwriters Laboratories of Canada and installed in accordance to the NFPA-96, the Canadian Standards Association, and local authorities having jurisdiction.

Unit Casing:

The filter box section casing shall be double wall, sandwich insulation construction. The inner wall shall be a minimum 16-gauge liquid tight and the outer wall shall be a minimum 18-gauge construction. The sandwiched insulation shall be 1.5" fiberglass. The unit casing shall be suitably reinforced to ensure rigidity. The filter section shall have a fire damper at the exhaust exit. Double walled, insulated, hinged access doors with cam lock fasteners shall be provided for entry to the filter sections.

Filter Section:

The KES unit shall include three stages of particulate filtration. The first stage shall be a 2" pleated UL/ULC class 2 filter, rated at 30% ASHRAE 52-76. The second stage shall be a 22" bag filter, UL/ULC class 2, rated at 90% ASHRAE 52-76. The third stage shall be a 12" box filter, UL/ULC class 2, rated at 95% DOP or 99% ASHRAE 52-76.

Controls:

The unit shall have a LV10 J-Box to interlock with the RPD remote panels. The unit shall include a firestat, and pressure switch..

Remote Station Option:

Dry Hoods:

The remote control station shall be a model RPD10 with microprocessor control and indication pilot lights for NORMAL operation, FIRE, BOX FILTER CLOGGED, BAG FILTER CLOGGED, PREFILTER CLOGGED, FILTER REMOVED and a unit ON/OFF and SERVICE OVERRIDE switch.

Wash Hoods:

The remote control station shall be a model RPW10 with microprocessor control and indication pilot lights for NORMAL operation, FIRE, BOX FILTER CLOGGED, BAG FILTER CLOGGED, PREFILTER CLOGGED, FILTER REMOVED and a SERVICE OVERRIDE switch.

Mechanical Services:

All exhaust ductwork from the kitchen hood to the KES inlet shall be supplied and installed in accordance to the NFPA-96. The exhaust discharge from the KES-ISH must be in accordance to the local authority having jurisdiction.

Options: Outdoor/Indoor, Odor Reducing Section, Spray or Pellets, 24hour/7 day automatic operation. (See OP and OS Odor Specification Sheet).