

# **Baffle Filter Ventilation Systems**

## **Model PB**

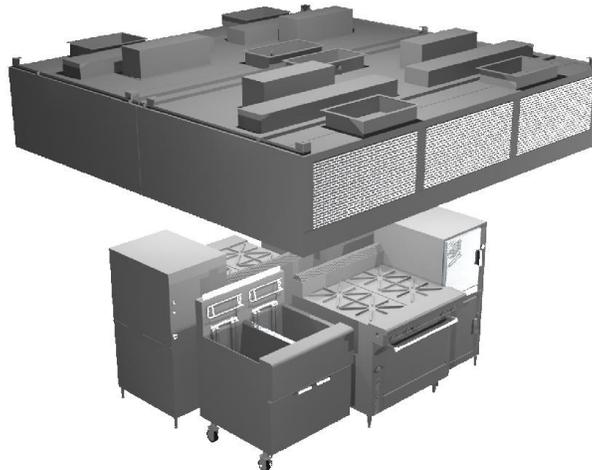
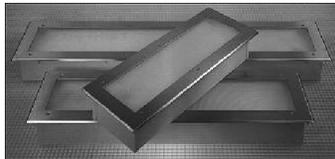
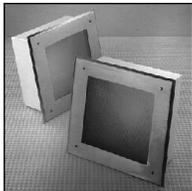
# **Operation and Maintenance Manual**

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### Introduction To The Baffle Filter "PB" Series

- The PB model is a high quality traditional design offering the economy and simplicity of a filter hood with the reliability of a U.L. Listed, pre-engineered energy efficient system
- Up to 70% grease extraction efficiency using heavy duty stainless steel U.L. classified baffle type filters.
- Caddy engineered for the highest energy savings possible.
- Standard 24" high construction, or custom fabricated to suit conditions using 18 gauge or heavier Type 304 stainless steel.
- Pre-Wired, U.L. Listed fluorescent, LED, or incandescent lights.
- Available as low volume "exhaust only" type or with various modes of make-up air, including front face and perimeter discharge designs.
- U.L. Listed with or without exhaust fire damper, listed by NSF. meets the ' requirements of NFPA 96, BOCA, ICBO. and SBCCI.



## Operation

### Fan Operation

To operate the exhaust fan, execute one of the following.

- Toggle wall/hood mounted fan switch to the on/off position
- Press the green start button on the Caddy Smart Hood System
- Press the fan button on the 3<sup>rd</sup> party demand control system

### Grease Extraction

The Caddy AirSystems Ventilator extracts 70-75% of the grease, dust and lint particles from the airstream passing through it. Grease extraction is accomplished by removable stainless steel baffle filters which incorporate a series of horizontal baffles. As the air moves through the filters, it is forced to make a series of turns around these baffles, forcing the heavier-than-air particles of grease, dust, and lint to be thrown out of the airstream by centrifugal force. The liquefied grease then drains off into a grease cup. The baffle filters come in two sizes: 16" x 14" and 20" x 14".

### Cleaning

At periodic intervals, the filters are removed and are soaked and rinsed off. These intervals are determined by site specific cooking loads.

Suggested filter cleaning schedule:

- Light Duty – every 3 months
- Medium Duty – every month
- Heavy Duty – every week
- Solid Fuel – every day

### Fire Protection

NFPA #96 requires the use of surface, duct and plenum protection on Type II ventilators. It is these systems that are the first line of defense against equipment fire.

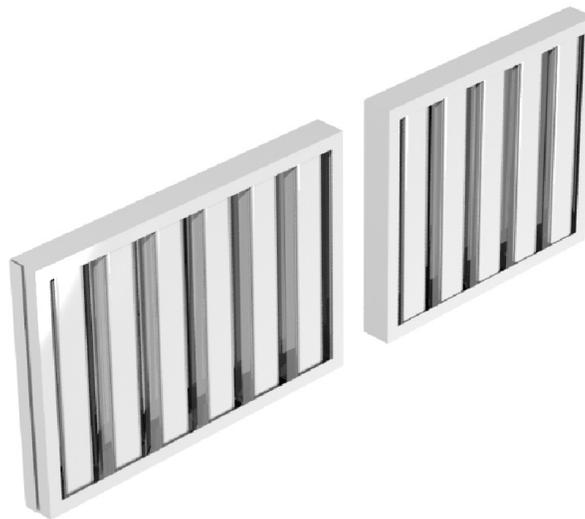
Surface, duct collar and plenum fire protection system can be factory installed, as an option.

## Maintenance And Cleaning Instructions

At the end of each day, the exposed interior surfaces of the ventilator should be wiped down and the grease cup should be checked and emptied. During the course of operation, grease particles gradually collect inside the filters. Daily, or at periodic intervals, depending on the type of cooking, the filters must be removed and cleaned. To clean, proceed as follows:

1. Remove Filters by hand by using the factory supplied filter removal tool.  
**CAUTION:** Care should be taken when removing filters, especially over fryers. It is recommended that the fryer be covered prior to removing filters. To remove, lift up slightly on filter and pull straight out.
2. Filters may be cleaned either by using a soak tank or pressure washer, using hot water and a degreasing detergent.
3. With filters removed, wipe and clean the back wall and grease gutter with hot detergent water.  
**NOTE:** If a steam or hot water pressure washer is used for periodic cleaning of the interior, connect a hose to the gutter drain and run it to a floor sink or large bucket to drain off water.

**NOTE: NEVER OPERATE THE VENTILATOR IF THE FILTERS ARE NOT IN PLACE.**



## Troubleshooting

### Poor Smoke Capture

If the ventilator is not exhausting properly and smoke is escaping, first check the filters to make sure they are in place properly. If they are, the probable cause of smoke loss is a malfunctioning fan.

If the air velocity is low, check the following:

1. Broken or slipping fan belt.
2. Duct access panels left open.
3. Proper exhaust fan size (exhaust fan must be capable of delivering specified CFM and static pressure).
4. Proper rotation of fan wheel.
5. Make-Up Air:

Air loss may be experienced if there is inadequate make-up air. Make-up air must be supplied for replacement of air exhausted through all kitchen exhaust systems. Make-up air should be delivered through the registers at ceiling height, and distributed throughout the kitchen area. A general "rule of thumb" is that 75% to 80% of the replacement air should be fresh, conditioned (heated or cooled) air brought into the kitchen area, with the remaining 20% to 25% allowed to flow into the kitchen from adjacent areas.

### Exhaust Fan Will Not Come On

If the exhaust fan does not come on when the fan switch is flipped or start button is pushed, check the following:

1. Magnetic starter for exhaust fan - It is possible that the overload protectors within the magnetic starter switch may have actuated and stopped the fan. Push the "reset" button on the magnetic starter, and then restart the exhaust fan.
2. If an H.O.A. (Hands Off/Automatic) type magnetic starter switch is used, check the selector switch to make sure it is in the automatic position.
3. Check exhaust fan motor circuit breaker and check fuses in disconnect switch normally located next to the fan.
4. Check 120V control circuit.
5. If DCV system is being used contact the appropriate customer service representative.

**Baffle Type  
Grease Filter Air Flow Characteristics  
Series F30, F31, F35, F36, F50 and F51**

**CFM vs Static Pressure**

Flow Rate CFM (m <sup>3</sup> /min)	Static Pressure							
	10x20 (250 x 500)	12x16 (300 x 400)	12x20 (300 x 500)	16x16 (400 x 400)	16x20 (400 x 500)	20x20 (500 x 500)	16x25 (400 x 625)	20x25 (500 x 625)
200 (5.6)	0.13	0.15	0.1	0.07	0.04	0.04	0.04	0.03
250 (7.0)	0.2	0.23	0.16	0.12	0.07	0.06	0.07	0.04
300 (8.5)	0.29	0.33	0.23	0.17	0.09	0.08	0.09	0.06
400 (11.3)	0.52	0.59	0.4	0.3	0.17	0.15	0.17	0.11
450 (12.7)	0.66	0.75	0.51	0.38	0.21	0.19	0.21	0.14
500 (14.1)	0.81	0.93	0.63	0.46	0.26	0.23	0.26	0.18
550 (15.6)	0.98	1.12	0.76	0.56	0.32	0.28	0.32	0.21
600 (17.0)	1.17		0.9	0.67	0.38	0.33	0.38	0.25
650 (18.4)			1.06	0.79	0.45	0.39	0.44	0.3
700 (19.8)				0.91	0.52	0.45	0.51	0.35
750 (21.2)				1.05	0.59	0.52	0.59	0.4
800 (22.6)					0.68	0.59	0.67	0.45
850 (24.0)					0.76	0.67	0.75	0.51
900 (25.5)					0.85	0.75	0.85	0.57
950 (26.9)					0.95	0.83	0.94	0.64
1000 (28.3)					1.05	0.92	1.04	0.71

**Effective Area**

**The Effective Area For Nominal Size Filters**

Filter Size: Height x Width Inches (Millimeters)	Effective Area Sq. Feet (Sq. Meters)
10"x20" (250 x 500)	1.00 (.09)
12"x16" (300 x 400)	0.97 (.09)
12"x20" (300 x 500)	1.25 (.11)
16"x16" (400 x 400)	1.36 (.12)
16"x20" (400 x 500)	1.75 (.16)
20"x20" (500 x 500)	2.25 (.20)
16"x25" (400 x 625)	2.24 (.20)
20"x25" (500 x 625)	2.88 (.26)

## Care and Cleaning of Stainless Steel Equipment

**Contrary to popular belief, stainless steels ARE susceptible to rusting and pitting.**

Corrosion on metals is everywhere. It is recognized quickly on iron and steel as unsightly yellow/orange rust. Such metals are called "active" because they actively corrode when their atoms combine with oxygen to form rust.

Stainless steels are passive metals because they contain other metals, like chromium, nickel and manganese that stabilize the atoms.

Chromium provides an invisible passive film that covers the steel's surface acting as a shield against corrosion. As long as the film is intact and not broken or contaminated, the metal is passive and stainless. If the passive film of stainless steel has been broken, equipment starts to corrode. At its end, it rusts.

### The Enemies of Stainless Steel

There are three basic things which can break down stainless steel's passivity layer and allow corrosion to occur.

1. **Mechanical Abrasion** - Steel pads, wire brushes and scrapers are prime examples of things that will scratch a steel surface.
2. **Water and Deposits** - Water has varying degrees of hardness. Depending on the area you live in, you may have hard or soft water. Hard water may leave spots, and when heated, leave deposits that will break down the passive layer and rust stainless steel. Other deposits from food preparation and service must be properly removed.
3. **Chlorides** - Chlorides are found nearly everywhere. They are in water, food and table salt. Some of the worst chloride perpetrators come from household and industrial cleaners.

**Here are a few steps that can help prevent stainless steel rust and pitting.**

1. **Use the proper tools.**

When cleaning stainless steel products, use non-abrasive tools. Soft cloths and plastic scouring pads will not harm steel's passive layer. Stainless steel pads also can be used but the scrubbing motion *must* be in the direction of the manufacturers' polishing marks.

2. **Clean with the polish lines**

Some stainless steel comes with visible polishing lines or "grain". When visible lines are present, always scrub in a motion parallel to the lines. When the grain cannot be seen, play it safe and use a soft cloth or plastic scouring pad.

3. **Use alkaline, alkaline chlorinated or non-chloride containing cleaners.**

While many traditional cleaners are loaded with chlorides, the industry is providing an ever-increasing choice of non-chloride cleaners. If you are not sure of chloride content in the cleaner used, contact your cleaner supplier. If your present cleaner contains chlorides, ask your supplier if they have an alternative. Avoid cleaners containing quaternary salts; they can attack stainless steel and cause pitting and rusting.

4. **Treat your water.**

Though this is not always practical, softening hard water can do much to reduce deposits. There are certain filters that can be installed to remove distasteful and corrosive elements. To insure proper water treatment, call a treatment specialist.

**5. Keep your food equipment clean.**

Use alkaline, alkaline chlorinated or non-chloride cleaners at recommended strength. Clean frequently to avoid build-up of hard, stubborn stains. If you boil water in stainless steel equipment, remember the single most likely cause of damage is chlorides in the water. Heating cleaners that contain chlorides have a similar effect.

**6. Rinse, rinse, rinse.**

If chlorinated cleaners are used, rinse and wipe equipment and supplies dry immediately. The sooner you wipe off standing water, especially when it contains cleaning agents, the better. After wiping equipment down, allow it to air dry; oxygen helps maintain the stainless steel's passivity film.

**7. Never use hydrochloric acid (muriatic acid) on stainless steel.****Review**

- Stainless steels rust when passivity (film-shield) breaks down as a result of scrapes, scratches, deposits and chlorides.
- Stainless steel rust starts with pits and cracks.
- Use the proper tools. Do not use steel pads, wire brushes or scrapers to clean stainless steel.
- Use non-chlorinated cleaners at recommended concentrations. Use only chloride-free cleaners.
- Soften your water. Use filters and softeners whenever possible.
- Wipe off cleaning agents and standing water as soon as possible. Prolonged contact eventually causes problems.

## WARRANTY

Products manufactured by Caddy Corporation are warranted to the original purchaser as follows.

Mechanical components are warranted to be free from defects in material and workmanship under normal use, storage and service for a period of one year from the date of installation or eighteen months from factory shipment, whichever occurs first.

Electrical components are warranted to the original purchaser to be free from defects in material and workmanship under normal use, storage and service for a period of ninety days from the date of shipment.

Caddy Corporation shall repair or replace, at our discretion, any part or product which we determine to be defective during the warranty period.

Under no circumstances will Caddy Corporation honor any repair or back charges by any party regardless of whether such equipment is within the warranty period, unless the Service Department of Caddy Corporation has authorized such work in writing.

If the equipment is repaired or altered in any way whatsoever by any person without prior written consent by Caddy Corporation, this warranty shall not apply.

The following are **NOT** covered under this warranty:

- Normal wear on parts, such as bulbs, gaskets, etc.
- Defects or damages resulting from accidents, alterations, abuse or misuse of equipment and/or any of its components.
- Damage of electrical components resulting from connecting the equipment to any power supply other than specified on the nameplate, or resulting from unauthorized altering of the equipment.
- Damage from water conditions causing malfunction of electric components and/or control equipment.

There is no other express warranty.

Any and all implied warranties are excluded to the extent permitted by law. Implied warranties, when included by law, including those merchantability and fitness for a particular purpose, are limited to one year from the date of shipment.

Liability for consequential damages under any and all warranties is excluded. This warranty is the buyer's exclusive remedy.

It is Caddy's policy to constantly improve the design and manufacture of our products. Accordingly, all equipment is subject to change consistent with such policy without prior notice and some items may be discontinued without obligation.