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CSI: DIVISION: 23 00 00—MECHANICAL
Section: 23 38 13—Commercial-Kitchen Hoods

Product certification system:

The ICC-ES product certification system includes testing samples taken from the market or supplier's stock, or a combination of both, to verify compliance with applicable codes and standards. The system also involves factory inspections, and assessment and surveillance of the supplier's quality system.

Product: Fire Suppression Range Hood

Listee: Denlar Fire Protection
10 Denlar Dr.
Chester, CT 06412
www.denlarhoods.com

Additional Listees:

Halton Company
101 Industrial Dr.
Scottsville, KY 42164
www.halton.com

Zink Food Service Group
10 Denlar Dr.
Chester, CT 06412
www.zventilationsolutions.com

Compliance with the following codes:

2024, 2021, 2018, 2015, 2012 and 2009 International Mechanical Code® (IMC)
2024, 2021, 2018, 2015, 2012 and 2009 International Fire Code® (IFC)
2024, 2021, 2018, 2015, 2012 and 2009 Uniform Mechanical Code® (UMC)*

** Uniform Mechanical Code is a copyrighted publication of the International Association of Plumbing and Mechanical Officials*

Compliance with the following standards:

ICC-ES LC1031-2012 (editorial revised March, 2018) – Exhaust Type II Hood with an Integrated Fire Suppression System for Domestic Cooking Appliances in Commercial Applications
UL Subject 300A (3rd Ed., 11-21-2006), Extinguishing System Units for Residential Top Cooking Surfaces
UL 507 (10th Ed., 08-24-2023), Standard for Electric Fans

Identification:

The Fire Suppression Range Hoods shall be marked with:
a) manufacturer's recognized name or trademark

www.zventilationsolutions.com

Compliance with the following codes:

2024, 2021, 2018, 2015, 2012 and 2009 International Mechanical Code® (IMC)
2024, 2021, 2018, 2015, 2012 and 2009 International Fire Code® (IFC)
2024, 2021, 2018, 2015, 2012 and 2009 Uniform Mechanical Code® (UMC)*

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Compliance with the following standards:

ICC-ES LC1031-2012 (editorial revised March, 2018) – Exhaust Type II Hood with an Integrated Fire Suppression System for Domestic Cooking Appliances in Commercial Applications
UL Subject 300A (3rd Ed., 11-21-2006), Extinguishing System Units for Residential Top Cooking Surfaces
UL 507 (10th Ed., 05-27-2020), Standard for Electric Fans

Identification:

The Fire Suppression Range Hoods shall be marked with:
a) manufacturer's recognized name or trademark

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- b) product name for the equipment qualified for use with each exhaust Type II hood with an integrated fire suppression system.
c) the ICC-ES PMG listing mark

Installation:

The Fire Suppression Range Hoods shall be installed in accordance with the manufacturer's instructions and applicable codes.

Examples of sample installations are depicted in figures 1a through 1d.

Models:

Denlar Fire Protection

The Denlar D1000, Fully Integrated, Self-Contained Fire Suppression Range Hood for Residential Appliances for use in protecting residential-grade appliances when used in public or otherwise (quasi-) commercial spaces. Figures 2 and 3 depict examples of the Denlar D1000.

The D1000 is constructed with 304 stainless steel, having a fire suppression system pre-engineered into the design of the hood. Actuation of the fire suppression system is completely mechanical being based on industry standard "fail safe" fusible link technology. The system uses a wet chemical agent and has been tested and demonstrated to conform to UL subject 300A. The D1000 also includes a centrifugal fan, tested and demonstrated to conform to UL 507.

The D1000 features an Advanced Programmable Logic Control Driven Self-Monitoring System that interacts with the cooking environment to minimize the risk of a fire event while also monitoring the suppression system for continuity.

This system starts with a set of heat sensors just within the face of the hood; one at a medium set point, the other at high. Under cooking conditions, when the medium set point is reached, the fan is turned on high. This feature dissipates the heat from the area but also draws it into the unit, past the fusible links in the system. If temperatures continue to rise and the high temperature set point is reached, the system reacts by shutting down power to the range *prior to suppression system release*. When this occurs, the unit's internal alarm is activated so that occupants are notified that the system is working to prevent further escalation of a potential fire. This is considered two stages of Pre-Suppression, where the unit is interacting with the cooking environment - working to minimize the risk of a fire event

Should temperatures continue to rise, fire is present. The fusible links will melt, mechanically actuating the suppression system and releasing a low PH wet chemical agent across the cook-top. At actuation, the system will also make a second attempt to shut down power to the range; in the event of a flash-fire, or something that happens too quickly to register with the temperature sensors. The D-1000 will continue to sound its internal alarm while also communicating a "fire code" back to a monitored alarm panel.

The PLC Self-Monitoring-System also monitors the entire suppression assembly for completeness and continuity. If the suppression system is ever compromised through a loss of pressure or broken connection, or tampering of any kind, the unit reacts by shutting down power to the range. In this case the suppression system is compromised therefor the range shouldn't be in use. Under this condition, the system communicates a separate "maintenance code" saying that the unit is down and needs service.

When preemptive shutdown occurs, the system and the cooking equipment will not come back on-line until the D-1000 is reset.

The D1000 is available in multiple ducting sizing calibrations, 30" and 36" sizes.

Model	Width (inch)	Fan	Vent	CFM	Stove Power
D1030-FE	30	Internal	Recirculating	140	Electric
D1030-FG	30	Internal	Recirculating	140	Gas
D1036-FE	36	Internal	Recirculating	140	Electric
D1036-FG	36	Internal	Recirculating	140	Gas
D1030-RE	30	Internal	Rear	250	Electric
D1030-RG	30	Internal	Rear	250	Gas

D1036-RE	36	Internal	Rear	250	Electric
D1036-RG	36	Internal	Rear	250	Gas
D1030-IE-DF	30	Duct In-Line	Top	470	Electric
D1030-IG-DF	30	Duct In-Line	Top	470	Gas
D1036-IE-DF	36	Duct In-Line	Top	470	Electric
D1036-IG-DF	36	Duct In-Line	Top	470	Gas
D1030-IE-WM	30	Wall Mount Fan	Top	150	Electric
D1030-IG-WM	30	Wall Mount Fan	Top	150	Gas
D1036-IE-WM	36	Wall Mount Fan	Top	150	Electric
D1036-IG-WM	36	Wall Mount Fan	Top	150	Gas

Standard calibrations of the D1000 are combined with additional air delivery capabilities, a Mechanical Pull Station and The CLOCKBOX Cooking Element Control System to offer a packaged upgrade designed to comply with section 18.3.2.5.3 of The NFPA Life Safety Code (NFPA101).

Model	Width (inch)	Fan	Vent	CFM	Stove Power
D1030-FE-NFPA101	30	Internal	Recirculating	500	Electric
D1030-FG-NFPA101	30	Internal	Recirculating	500	Gas
D1036-FE-NFPA101	36	Internal	Recirculating	500	Electric
D1036-FG-NFPA101	36	Internal	Recirculating	500	Gas
D1030-RE-NFPA101	30	Internal	Rear	500	Electric
D1030-RG-NFPA101	30	Internal	Rear	500	Gas
D1036-RE-NFPA101	36	Internal	Rear	500	Electric
D1036-RG-NFPA101	36	Internal	Rear	500	Gas
D1030-IE-DF-NFPA101	30	Duct In-Line	Top	510	Electric
D1030-IG-DF-NFPA101	30	Duct In-Line	Top	510	Gas
D1036-IE-DF-NFPA101	36	Duct In-Line	Top	510	Electric
D1036-IG-DF-NFPA101	36	Duct In-Line	Top	510	Gas
D1030-IE-WM-NFPA101	30	Wall Mount Fan	Top	550	Electric
D1030-IG-WM-NFPA101	30	Wall Mount Fan	Top	550	Gas
D1036-IE-WM-NFPA101	36	Wall Mount Fan	Top	550	Electric
D1036-IG-WM-NFPA101	36	Wall Mount Fan	Top	550	Gas

Model	Width (inch)	Fan	Vent	CFM	Stove Power
HHR1030-FE	30	Internal	Recirculating	140	Electric
HHR1030-FG	30	Internal	Recirculating	140	Gas
HHR1036-FE	36	Internal	Recirculating	140	Electric
HHR1036-FG	36	Internal	Recirculating	140	Gas
HHR1030-RE	30	Internal	Rear	250	Electric
HHR1030-RG	30	Internal	Rear	250	Gas
HHR1036-RE	36	Internal	Rear	250	Electric
HHR1036-RG	36	Internal	Rear	250	Gas
HHR1030-IE-DF	30	Duct In-Line	Top	470	Electric
HHR1030-IG-DF	30	Duct In-Line	Top	470	Gas
HHR1036-IE-DF	36	Duct In-Line	Top	470	Electric
HHR1036-IG-DF	36	Duct In-Line	Top	470	Gas
HHR1030-IE-WM	30	Wall Mount Fan	Top	150	Electric
HHR1030-IG-WM	30	Wall Mount Fan	Top	150	Gas
HHR1036-IE-WM	36	Wall Mount Fan	Top	150	Electric
HHR1036-IG-WM	36	Wall Mount Fan	Top	150	Gas
HHR1030-FE-NFPA101	30	Internal	Recirculating	500	Electric
HHR1030-FG-NFPA101	30	Internal	Recirculating	500	Gas
HHR1036-FE-NFPA101	36	Internal	Recirculating	500	Electric
HHR1036-FG-NFPA101	36	Internal	Recirculating	500	Gas
HHR1030-RE-NFPA101	30	Internal	Rear	500	Electric
HHR1030-RG-NFPA101	30	Internal	Rear	500	Gas
HHR1036-RE-NFPA101	36	Internal	Rear	500	Electric
HHR1036-RG-NFPA101	36	Internal	Rear	500	Gas
HHR1030-IE-DF-NFPA101	30	Duct In-Line	Top	510	Electric
HHR1030-IG-DF-NFPA101	30	Duct In-Line	Top	510	Gas
HHR1036-IE-DF-NFPA101	36	Duct In-Line	Top	510	Electric
HHR1036-IG-DF-NFPA101	36	Duct In-Line	Top	510	Gas

HHR1030-IE-WM-NFPA101	30	Wall Mount Fan	Top	550	Electric
HHR1030-IG-WM-NFPA101	30	Wall Mount Fan	Top	550	Gas
HHR1036-IE-WM-NFPA101	36	Wall Mount Fan	Top	550	Electric
HHR1036-IG-WM-NFPA101	36	Wall Mount Fan	Top	550	Gas

Zink Food Service Group

Model	Width (inch)	Fan	Vent	CFM	Stove Power
Z1030-FE	30	Internal	Recirculating	140	Electric
Z1030-FG	30	Internal	Recirculating	140	Gas
Z1036-FE	36	Internal	Recirculating	140	Electric
Z1036-FG	36	Internal	Recirculating	140	Gas
Z1030-RE	30	Internal	Rear	250	Electric
Z1030-RG	30	Internal	Rear	250	Gas
Z1036-RE	36	Internal	Rear	250	Electric
Z1036-RG	36	Internal	Rear	250	Gas
Z1030-IE-DF	30	Duct In-Line	Top	470	Electric
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Z1036-IE-DF	36	Duct In-Line	Top	470	Electric
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Z1036-FE-NFPA101	36	Internal	Recirculating	500	Electric
Z1036-FG-NFPA101	36	Internal	Recirculating	500	Gas
Z1030-RE-NFPA101	30	Internal	Rear	500	Electric
Z1030-RG-NFPA101	30	Internal	Rear	500	Gas
Z1036-RE-NFPA101	36	Internal	Rear	500	Electric
Z1036-RG-NFPA101	36	Internal	Rear	500	Gas
Z1030-IE-DF-NFPA101	30	Duct In-Line	Top	510	Electric
Z1030-IG-DF-NFPA101	30	Duct In-Line	Top	510	Gas
Z1036-IE-DF-NFPA101	36	Duct In-Line	Top	510	Electric
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Z1030-IE-WM-NFPA101	30	Wall Mount Fan	Top	550	Electric
Z1030-IG-WM-NFPA101	30	Wall Mount Fan	Top	550	Gas
Z1036-IE-WM-NFPA101	36	Wall Mount Fan	Top	550	Electric
Z1036-IG-WM-NFPA101	36	Wall Mount Fan	Top	550	Gas

Conditions of Listing:

1. The Fire Suppression Range Hoods recognized in this listing must be installed in accordance with the manufacturer's published installation instructions and the applicable codes.
2. An automatic activation for fire suppression system is required, if provided the manual activation device shall be in accordance with Section 904.11.1 of the IBC.
3. The Fire Suppression Range Hood is not to be used over cooking appliances which are used for commercial purposes when appliances is primarily used for the preparation of food for compensation, trade or services rendered.
4. The Fire Suppression Range Hood recognized in this listing is manufactured under a quality control program with annual surveillance inspections by ICC-ES.