

SECTION 23 31 00

RECTANGULAR, FACTORY BUILT, ZERO-CLEARANCE, FIRE-RESISTANT GREASE DUCT

PART 1 – GENERAL

1.1 SUMMARY

Factory built, double wall rectangular and square grease duct, listed for fire-resistance and zero-clearance to combustibles. Model GRZ factory built grease ducts are intended to be a part of a complete grease duct system which connects the hood or grease extractor with the outdoors by means of an exhaustor or blower system.

1.2 REFERENCE STANDARDS

- A. The latest published edition of a standard shall be applicable to this project unless identified by a specific edition date.
- B. All materials and installation shall comply with the applicable requirements and standards.
 - 1. Underwriters Laboratories, Inc. (UL):
 - a. Provide products which have been listed and labeled to the following UL standards:
 - 1. UL 1978 – *Standard for Grease Ducts*
 - 2. UL 2221 – *Standard for Safety for Tests of Fire Resistive Grease Duct Enclosure Assemblies*
 - 2. ASTM International:
 - a. Provide products which have been listed and labeled to the following ASTM standards:
 - 1. ASTM E814 - *Standard Test Method for Fire Tests of Penetration Firestop Systems*
 - 3. National Fire Protection Association (NFPA):
 - a. Comply with NFPA 96 – *Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations*
 - 4. International Code Congress (ICC)
 - a. When applicable to the project site, comply with:
 - 1. *International Mechanical Code*
 - 2. *International Building Code*
 - 5. International Association of Plumbing and Mechanical Officials (IAPMO):
 - a. When applicable to the project site, comply with:
 - 1. *Uniform Mechanical Code*

1.3 QUALITY ASSURANCE

- A. Obtain listed system components from a single manufacturer.
- B. Comply with NFPA 96, unless otherwise indicated, or comply with local authority having jurisdiction.
- C. Grease duct system shall be installed in accordance with the manufacturer's listings and written instructions.

1.4 WARRANTY

- A. Listed grease duct shall have a limited 1 year warranty starting at the date of installation.

PART 2 – PRODUCTS

2.1 AVAILABLE MANUFACTURERS

- A. Listed Double Wall insulated rectangular grease duct shall be Model GRZ, as manufactured by the Van-Packer Co.

2.2 LISTED GREASE DUCT

- A. The grease duct shall be insulated, double-wall factory built type for use with Type I kitchen hoods, as described in NFPA 96, for the transportation of grease laden vapors from commercial cooking operations.
- B. Product Description:
 - a. Zero Clearance, 2-hr Fire-Resistance rated model GRZ Rectangular Grease Duct by Van-Packer Co.
 - b. Factory built, double-wall type, listed and labeled to UL 1978 and UL 2221 for the venting of grease laden vapors from Type 1 kitchen hoods requiring grease duct as described in NFPA 96.
 - c. Grease Duct shall be rated for continuous operation at 500°F and for intermittent operation at 2000°F.
 - d. All components of the grease duct system, including duct supports, guides, fittings, cleanouts, expansion joints, and through penetration fire-stops, shall be provided by a single manufacturer to ensure the system meets the requirements of the listing.
 - e. The grease duct system, along with its supports and through penetration firestops, shall an “F” rating of at least 2 Hours and a “T” rating of at least 2 Hours as proven by test to ASTM Standard E814.
 - f. Listed access doors shall be provided, spaced, and located in accordance the requirements of NFPA 96.
 - g. The grease duct sections shall be constructed of a liner and shell with ceramic fiber insulation in the annular space.
 - a. The liner shall be constructed of Type 304 Stainless Steel. Liner (inner wall) thickness for all sizes is 0.035"
 - b. The shell shall be constructed of (**Aluminized Steel, or Type 430 Stainless Steel**).
 - 1. Shell (outer wall) thickness, where all sides are 36” or less, are 0.025” material.
 - 2. Shell (outer wall) thickness, where any side exceeds 36”, are 0.035”
 - h. The duct shall include a 3” thickness of ceramic fiber insulation between the liner and shell.
 - i. The grease duct assembly shall be tested and listed to UL 2221 for 0 inch clearance to combustibles.
 - j. Rectangular duct is to be listed up to a 6:1 ratio. Maximum duct size under ETL listing is 48 inches x 27 inches rectangular, 36 inches x 36 inches square, or not to exceed a total of 1,296 square inches.
 - k. Duct shall be installed at a slope not less than 1/8 unit vertical in 12 units horizontal toward the hood or toward grease reservoir. Where horizontal ducts exceed 75 feet in length, the slope shall not be less than 1/2 unit vertical in 12 units horizontal.

PART 3 – EXECUTION

3.1 INSTALLATION OF FACTORY BUILT GREASE DUCT

- A. Inner duct joints shall be held together by means formed bolted flanges and sealed with P/N 101087A sealant.
- B. Connection to hood will be made with a hood collar provided to hood manufacturer to assure proper fit with duct.
- C. Connection to curb mounted fans shall be by means of a fan adapter plate provided by the duct manufacturer.
- D. Support duct in accordance with Van-Packer's installation instructions.
- E. All supports and guides shall be designed for installation with no required welding.
- F. Store grease duct components inside or covered adequately to protect from weather or accidental damage.
- G. Follow installation instructions and contact local building and fire officials about jurisdiction and installation inspections in your area.