

## Factory Built Double Wall Grease Duct Specification

Furnish double wall, factory built grease duct for use with Type I kitchen hoods, which conforms to the requirements of NFPA-96. Products shall be ETL listed to UL-1978 and UL-2221 for venting air and grease vapors from commercial cooking operation. Models DW-2R, 3R and 3Z are used for grease duct applications when installed in accordance with these instructions and National Fire Protection Association "NFPA 96"; Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations. Double wall grease ducts are listed for a continuous internal temperature of 500 degrees F and intermittent temperatures of 2000 degrees F.

The duct sections shall be constructed of an inner duct wall and an outer wall with insulation in between. The inner duct wall shall be constructed of .036 inch-thick, 430 type stainless steel and be available in diameters 5" through 36". The outer wall shall be constructed of stainless steel at a minimum of .024 inch-thickness. The duct, based on model number, shall include layers of Super Wool 607 Plus, Insulfrax Elite Blanket insulation, or Unifrax S16 Bulk Fiber insulation between the inner and outer wall. Grease duct joints shall be held together by means of formed V clamps and sealed with 3M Fire Barrier 2000+. The duct wall assembly shall be tested and listed at 3/4", 1" or zero-inch clearance, according to classifications.

### Classifications and Clearances

UL 2221: Standard for Fire Resistive Grease Duct Enclosure Assemblies. Chapter 7 of this standard references a test labeled Internal Fire Test. Section 7.1.1 references two installation conditions, Condition A and Condition B. Condition A represents all installation condition except for installation within non-ventilated combustible enclosures. Condition B represents installation within a non-ventilated combustible enclosure.

Model DW-3Z is classified under UL2221 (Test of Fire Resistive Duct Enclosure Assemblies) as an alternate to 2-Hr. fire resistive shaft enclosures with a minimum zero clearance to combustibles (sizes 5" to 36" diameter). Model 3Z is listed in accordance with the requirements for duct enclosure Condition A and B.

Model DW-3R is classified under UL2221 (Test of Fire Resistive Duct Enclosure Assemblies) as an alternate to 2-Hr. fire resistive shaft enclosures with a reduced clearance to combustibles (sizes 5" to 24" diameter). Model 3R is listed in accordance with the requirements for duct enclosure Condition B.

Model DW-2R is classified under UL2221 (Test of Fire Resistive Duct Enclosure Assemblies) as an alternate to 2-Hr. fire resistive shaft enclosures with a reduced clearance to combustibles (sizes 5" to 18" diameter). Model 2R is listed in accordance with the requirements for duct enclosure Condition B.

DUCT MODEL	INNER DIAMETER (ID)	OUTSIDE DIAMETER	CLEARANCE TO COMBUSTIBLES	CLEARANCE TO NON-COMBUSTIBLES
DW - 2R	5" - 16"	ID + 4	3/4" <sup>(1)</sup>	0"
	18"	ID + 4	1" <sup>(2)</sup>	0"
DW - 3R	5" - 24"	ID + 6	3/4" <sup>(3)</sup>	0"
DW - 3Z	5" - 36"	ID + 6	0" <sup>(4)</sup>	0"

- (1) DW - 2R: 3/4" clearance to combustibles from the surface of the duct outer shell; zero inch clearance from combustibles from the tip of the outer V Band.
- (2) DW - 2R: 1" clearance to combustibles from the surface of the duct outer shell; zero inch clearance from combustibles from the tip of the outer V-band.
- (3) DW - 3R: 3/4" clearance to combustibles from the surface of the duct outer shell; zero inch clearance from combustibles from the tip of the outer V Band.
- (4) DW - 3Z: 0" clearance to combustibles from the surface of the duct outer shell.

## Classifications and Clearances

Through floor fire stop support assembly are used to support duct sections that penetrate a fire-resistant floor(s). The full support ring is installed under the double V band; the struts are connected to the support ring with supplied 5/16"-18 hardware. Once the struts have been connected, they are secured to the floor using appropriate type and size fasteners supplied by others. When duct systems penetrate a fire resistance rated floor, ceiling and/or a wall, a fire stop kit is used to retain the fire resistance rating on the floor and/or wall. The double wall grease duct (2R, 3R and 3Z) and the fire stop assemblies detailed below have achieved 2-hour ratings for integrity, insulation and stability. Testing was conducted in accordance with the applicable requirements UL 2221, Test of Fire Resistive Grease Duct Enclosure Assemblies.

DUCT MODEL	INNER DIAMETER	OUTER DIAMETER	SQUARE / ROUND OPENING MIN/MAX
DW - 2R	5"	9"	11" - 12"
DW - 2R	6"	10"	12" - 13"
DW - 2R	7"	11"	13" - 14"
DW - 2R	8"	12"	14" - 15"
DW - 2R	10"	14"	16" - 17"
DW - 2R	12"	16"	18" - 19"
DW - 2R	14"	18"	20" - 21"
DW - 2R	16"	20"	22" - 23"
DW - 2R	18"	22"	24" - 25"
DW - 3R / 3Z	5"	11"	13" - 14"
DW - 3R / 3Z	6"	12"	14" - 15"
DW - 3R / 3Z	7"	13"	15" - 16"
DW - 3R / 3Z	8"	14"	16" - 17"
DW - 3R / 3Z	10"	16"	18" - 19"
DW - 3R / 3Z	12"	18"	20" - 21"
DW - 3R / 3Z	14"	20"	22" - 23"
DW - 3R / 3Z	16"	22"	24" - 25"
DW - 3R / 3Z	18"	24"	26" - 27"
DW - 3R / 3Z	20"	26"	28" - 29"
DW - 3R / 3Z	22"	28"	30" - 31"
DW - 3R / 3Z	24"	30"	32" - 33"
DW - 3Z	26"	32"	34" - 35"
DW - 3Z	28"	34"	36" - 37"
DW - 3Z	30"	36"	38" - 39"
DW - 3Z	32"	38"	40" - 41"
DW - 3Z	34"	40"	42" - 43"
DW - 3Z	36"	42"	44" - 45"

Double Wall Grease Duct shall be installed in accordance with the manufacturer's "Installation, Operation and Maintenance Manual," ETL listing, state codes and local codes. Fans shall be supported independently from the grease duct sections. Protect grease duct from twisting or movement caused by fan torque or vibration.

## Certifications

The DW Series has been certified by ITS. This certification mark indicates that the product has been tested to and has met the minimum requirements of a widely recognized (consensus) U.S. and Canadian products safety standard, that the manufacturing site has been audited, and that the applicant has agreed to a program of periodic factory follow-up inspections to verify continued performance.

Models DW-2R and DW-3R are ETL Listed under file number 1000082319SAT-006 EEV and comply with UL1978 and UL2221 Standards.

Model DW-3Z is ETL Listed under file number 1000082319SAT-006 EEV and complies with UL1978, UL2221 and CAN/ULC-S144 Standards.



## Additional Information Available

### **Operation, Installation, and Maintenance Manual**

Copy of the manual is sent with every duct order from our manufacturing facility. Additional copies, if needed, are available for download at:

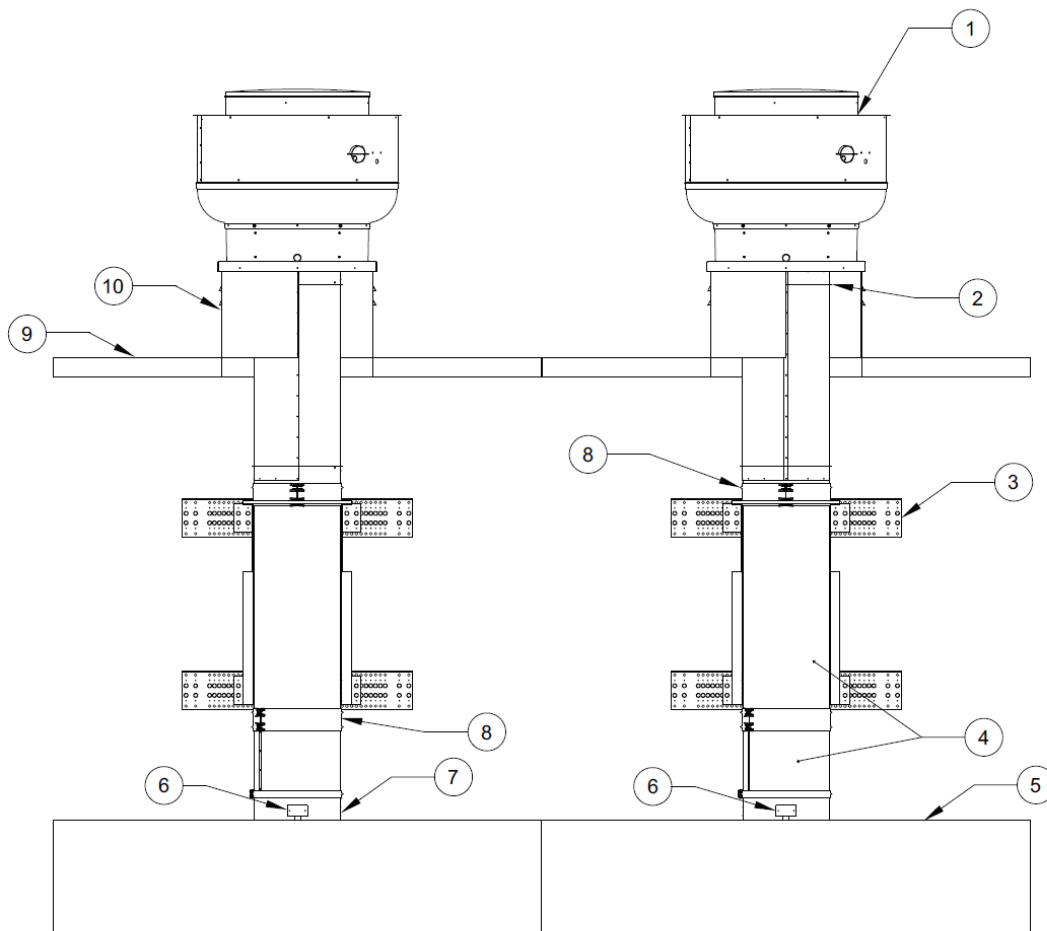
<https://www.captiveaire.com/CATALOGCONTENT/DUCTWORK/INSTALLATION.ASP?catId=306&Model=GREASE+DUCT>

Available also at the link above are recommendations for vertical and guy line support guides.

### **Grease Duct Design Guide**

The Grease Duct Design Guide gives specifics for all parts available for order including Elbows, Straight Pieces, etc. Formulas and other information to calculate static pressure through a pre-engineered system is also available. Design Guide is available for download at <https://www.captiveaire.com/catalog/genpartCatalog.asp?catId=306> or as a hard copy from your local CaptiveAire sales office.

## Sample Duct Drawing



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|---|------------------|
| 1. Exhaust Fan  | 6. Duct Sensor   |
| 2. Adjustable Section - Terminates at transition plate. | 7. Riser Cover   |
| 3. Vertical Support - Installed under V-band.           | 8. Double V-band |
| 4. Standard Duct Length                                 | 9. Roof          |
| 5. Exhaust Hood   | 10. Vented Curb  |