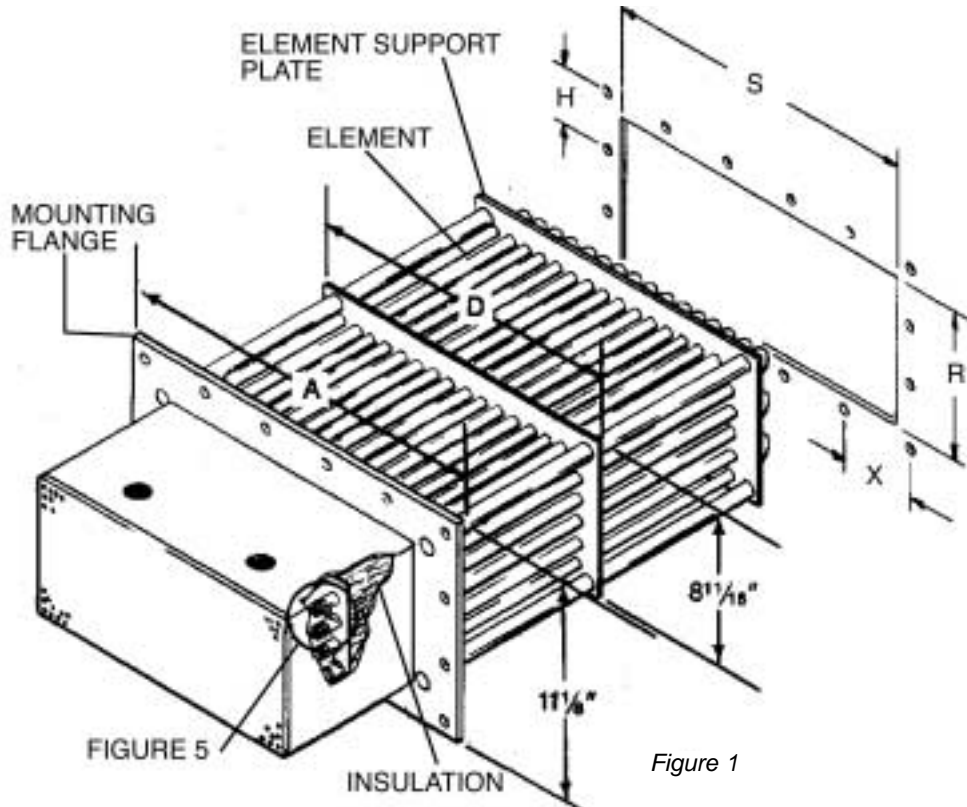




# INSTALLATION AND OPERATION INSTRUCTIONS FOR OGDEN PROCESS AIR HEATERS



**TABLE A – HIGH TEMPERATURE PROCESS AIR HEATERS**

CAT. NO.	A	D	H	X	R	S	MTG HOLES
ODHT-5	5 5/8"	4"	2 1/2"	3 1/2"	9 1/8"	4 1/4"	10
ODHT-10	7 7/8"	6"	3 1/2"	3 1/2"	9 1/8"	6 1/4"	10
ODHT-15	9 1/8"	8"	3"	3 1/2"	9 1/8"	8 1/4"	12
ODHT-20	11 1/8"	10"	2 3/4"	3 1/2"	9 1/8"	10 1/4"	14
ODHT-25	13 1/8"	12"	3 1/4"	3 1/2"	9 1/8"	12 1/4"	14
ODHT-30	15 1/8"	14"	3 3/4"	3 1/2"	9 1/8"	14 1/4"	14
ODHT-35	17 1/8"	16"	4 1/4"	3 1/2"	9 1/8"	16 1/4"	14
ODHT-40	19 1/8"	18"	4 3/4"	3 1/2"	9 1/8"	18 1/4"	14
ODHT-45	21 1/8"	20"	5 1/4"	3 1/2"	9 1/8"	20 1/4"	14
ODHT-50	23 1/8"	22"	5 3/4"	3 1/2"	9 1/8"	22 1/4"	14
ODHT-60	27 1/8"	26"	4 1/2"	3 1/2"	9 1/8"	26 1/4"	18
ODHT-80	35 1/8"	34"	4 5/8"	3 1/2"	9 1/8"	34 1/4"	22
ODHT-90	39 1/8"	38"	4 7/8"	3 1/2"	9 1/8"	38 1/4"	22
ODHT-100B	43 1/8"	42"	5 1/8"	3 1/2"	9 1/8"	42 1/4"	22
ODHT-120B	27 1/8"	26"	4 1/2"	3 1/2"	9 1/8"	26 1/4"	18
ODHT-144B	35 1/8"	34"	4 5/8"	3 1/2"	9 1/8"	34 1/4"	22
ODHT-160B	35 1/8"	34"	4 3/4"	3 1/2"	9 1/8"	34 1/4"	22
ODHT-162B	39 1/8"	38"	4 5/8"	3 1/2"	9 1/8"	38 1/4"	22
ODHT-180B	39 1/8"	38"	4 5/8"	3 1/2"	9 1/8"	38 1/4"	22
ODHT-216B	27 3/8"	26"	4 1/2"	3 5/8"	18 5/8"	26 1/4"	22
ODHT-240B	27 1/8"	26"	4 1/2"	3 3/8"	18 5/8"	26 1/4"	22
ODHT-270B	33 1/8"	32"	5 1/2"	3 5/8"	18 5/8"	32 1/4"	22
ODHT-300B	33 1/8"	32"	5 1/2"	3 3/8"	18 5/8"	32 1/4"	22

**TABLE B – PROCESS AIR HEATERS**

CAT. NO.	A	D	H	X	R	S	MTG HOLES
ODH-6	5 5/8"	4"	3 1/2"	2 1/2"	9"	4 1/4"	10
ODH-12	7 7/8"	6"	3 1/2"	3 1/2"	9"	6 1/4"	10
ODH-18	9 1/8"	8"	3 1/2"	3"	9"	8 1/4"	12
ODH-24	11 1/8"	10"	3 1/2"	2 3/4"	9"	10 1/4"	14
ODH-30	13 1/8"	12"	3 1/2"	3 1/4"	9"	12 1/4"	14
ODH-36	15 1/8"	14"	3 1/2"	3 1/4"	9"	14 1/4"	14
ODH-42	17 1/8"	16"	3 1/2"	4 1/4"	9"	16 1/4"	14
ODH-48	19 1/8"	18"	3 1/2"	4 3/4"	9"	18 1/4"	14
ODH-54	21 1/8"	20"	3 1/2"	5 1/4"	9"	20 1/4"	14
ODH-60	23 1/8"	22"	3 1/2"	5 3/4"	9"	22 1/4"	14

## READ AND FOLLOW ALL INSTRUCTIONS

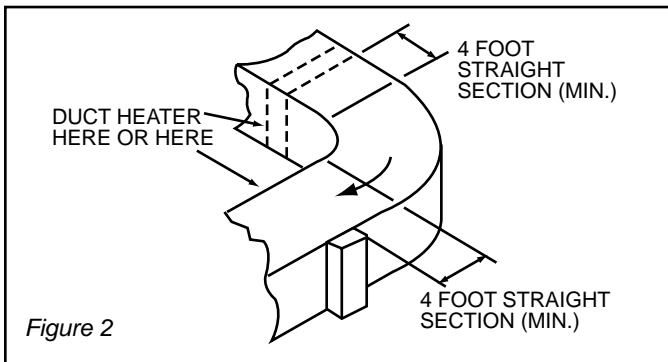
### BEFORE INSTALLING:

1. Unpackage the heater at the place of installation. Inspect the heater for shipping damages and report any claims to the carrier. **Do not operate damaged equipment.** Consult OGDEN for instructions.
2. Check the nameplate watt and volt rating against your supply voltage and capacity and the requirements of your installation.

## INSTALLATION INSTRUCTION

### Mounting

1. The heater may be mounted in the ductwork with the flange and terminal housing positioned at the bottom, top or either side
2. To provide uniform air flow across the elements, the inlet side of the heater should be located at least 4 feet downstream from any turns or transitions in duct size, or from the outlet of any air handling equipment. Turning vanes must be installed in duct if less than 4 feet.
3. Determine the location and position of the heater in the ductwork. Refer to Figure 1 and Table A or B for cutout dimensions and bolting pattern, and cut an opening in the duct.
4. If the ductwork is of sufficient strength, the heater may be mounted directly in the opening using sheet metal screws. Most installations, however, will require either reinforcement of the duct or the construction of a framework to support the weight of the heater, Figure 4 and 5.
5. A gasket, constructed of material capable of withstanding the process temperature, should be inserted between the flange and the duct.
6. In some cases, it may be desirable to cut an access panel in the duct to ease installation and facilitate servicing of the heater.
7. Installation Near Turns: If heaters must be installed closer than 4 feet from the downstream side of a turn, turning vanes must be installed in the turn. The turning vanes will straighten out the air flow so it will be uniform over the face of the heater. Figure 2.
8. Installation with Transitions: The duct heater may



be larger than the duct. The duct area must be increased by a sheet metal transition. The slope of the upstream and the leaving side should not be more than 30°. Figure 3.

### WIRING

1. All wiring should be done in accordance with the National Electrical Code and applicable local codes.
2. The current carrying capacity of the power supply leads should exceed the heater amperage by at least 25%. Be sure to consider the ambient temperature and apply the appropriate correction factor to the ampacity rating of the wire.
3. When the ambient temperature exceeds the temperature rating of the insulated wire, use bare nickel-plated copper wire with ceramic insulating beads.
4. A typical control circuit normally includes a temperature controller or thermostat, a primary thermal cut-out for overheat protection and an interlock with the blower motor. This is usually a pressure or air flow switch, which will prevent operation of the heater without sufficient air flow.
6. It is recommended that the blower continue to run on a 15-30 second time delay after the heater is de-energized. This will allow the elements to cool and prevent overheating of the terminal enclosure and nearby duct area.

### BEFORE ENERGIZING

1. Check that the heater is securely mounted in the duct and all bolts or screws are tight.
2. Check that power supply connections are made according to the wiring diagram. Also check for positive connection of all bus bars and power supply leads.
3. The insulating material used in electric heaters may absorb moisture during shipping, while in storage or when subjected to a humid environment. Because this moisture can lead to eventual failure of the heater, it is recommended that the heater be subjected to a high potential test and/or checked with a megohmmeter before energizing. A test voltage of 1000 volts plus twice the rated voltage should be used for the hi-pot test ( ex.: heater voltage = 480V, test voltage = 1000V + [2 x 480V] = 1960V). A reading of 50 megohms or greater can be consid-

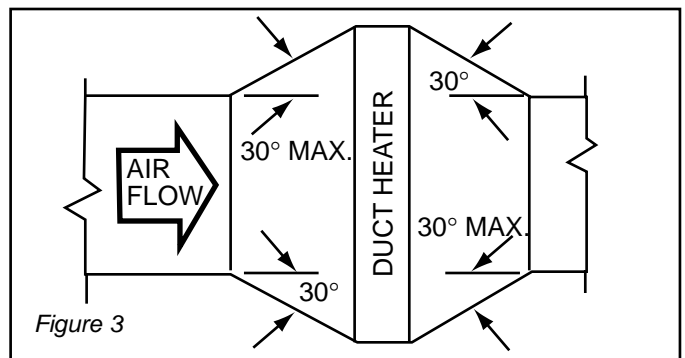


FIGURE 4

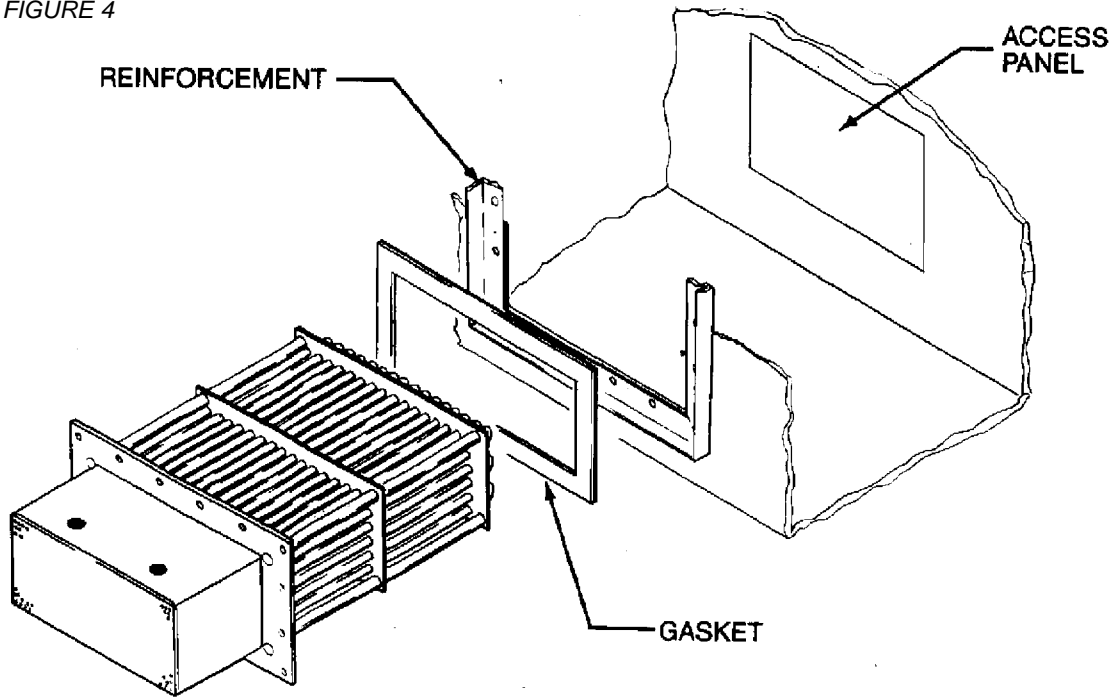
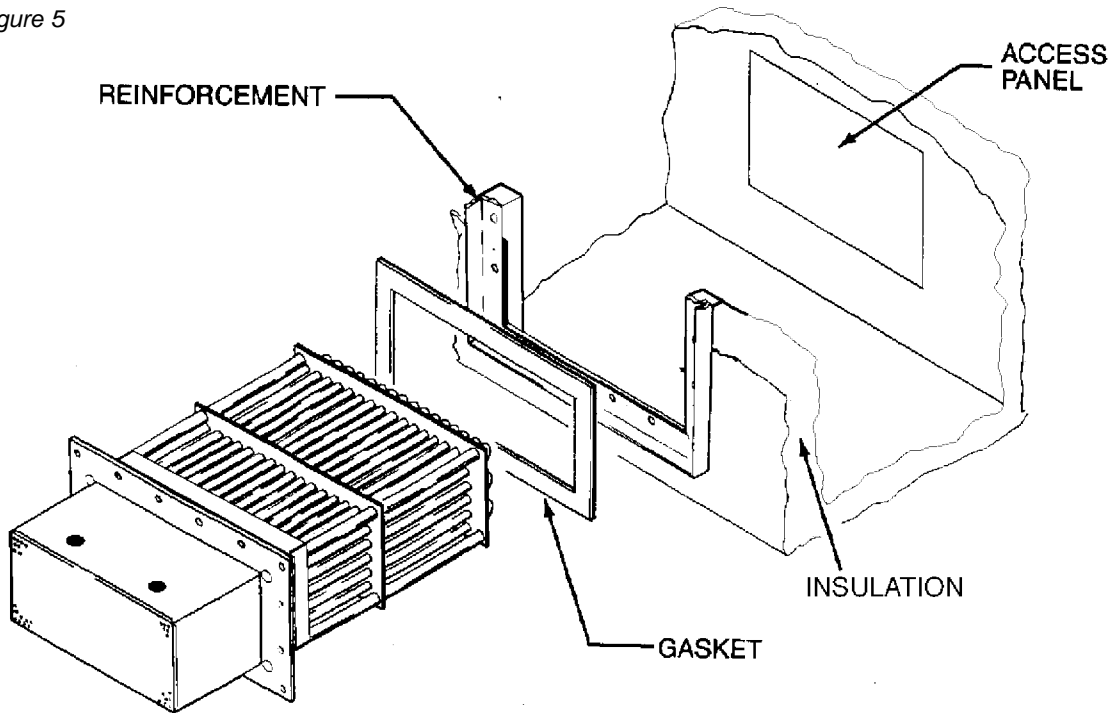


Figure 5



ered acceptable if checking insulation resistance.

4. If a moisture condition exists, energize the heater for 15 minutes at half-voltage and repeat test. Heating cycles may be repeated until satisfactory results are obtained.

#### OPERATION AND MAINTENANCE

1. **CAUTION:** Do not energize the heater in air with a velocity of less than 1 foot per second.

2. The maximum recommended outlet air temperature is 750°F. Consult OGDEN if higher operating temperatures are required.
3. When a higher power output is required, two or more heaters may be mounted in tandem provided the maximum recommended outlet air temperature is not exceeded.
4. To keep corrosive action and oxidation of the terminals to a minimum, mount the heater with the termi-

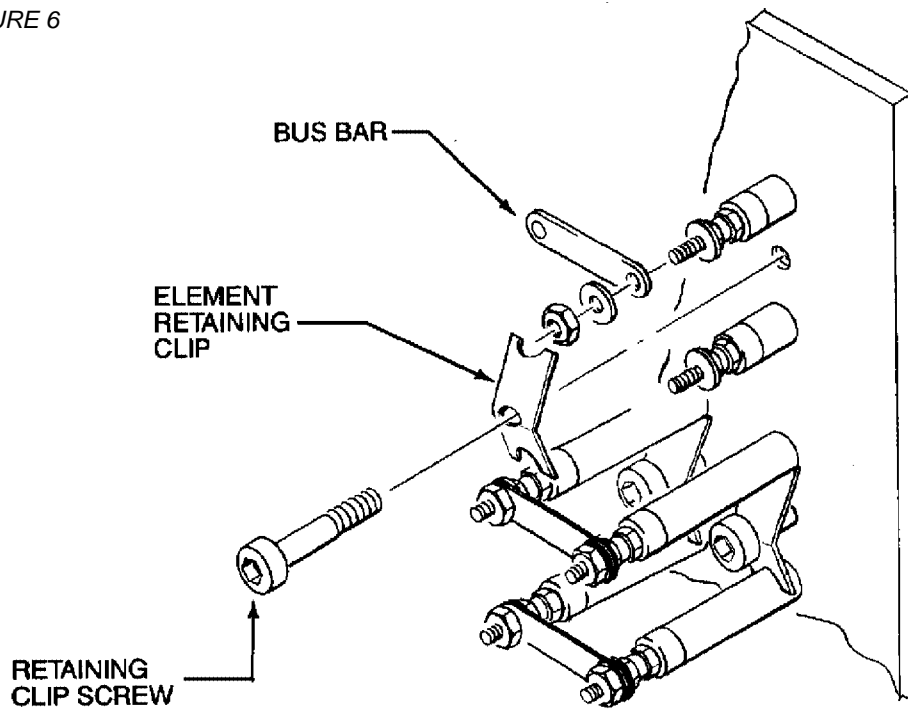
nals in the coolest possible ambient. This is, in worst cases, on the bottom side of the duct.

5. A moisture proof terminal enclosure should be used when the heater may be subjected to conditions of excessive moisture, such as spray, vapors or dripping.
6. If heater is to be operated in the presence of explosive vapors or dust, an explosion resistant enclosure must be provided.
7. Clean dust and corrosion from terminals regularly to maintain good electrical contact.
8. Keep terminal enclosure free of dust and well ventilated to allow heat to dissipate.

#### REPLACING AN ELEMENT (Figure 7)

1. Disconnect the power to the heater and remove the heater from the duct.
2. Open the terminal enclosure and locate the failed element.
3. Remove the hardware and bus bars attached to the element.
4. Loosen the screw holding the element retaining clip until the element is released and can be pulled out of the assembly.
5. Insert the replacement element so that it is positioned evenly with the other elements.
6. Replace the element retaining clip and tighten the screw until the element is held firmly in place.
7. Replace bus bars and terminal hardware.
8. Install the heater in the duct.

FIGURE 6



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