



# UNIT HEATERS

High Efficiency  
Heating Equipment



## **Efficient Heating Solutions for all Applications**

Sterling unit heaters provide efficient heating solutions for all residential and commercial applications. Choose from several model configurations using the latest high efficiency tubular heat exchangers in both propeller and blower models with capacities from 30 MBH to 400 MBH.

Our complete line of unit heaters allows customers to order the exact size and options needed to ensure optimum energy saving performance. From residential and commercial garages and workshops to warehouses, factories, shipping areas and public buildings, Sterling HVAC has the perfect-fit unit heater solution for all applications.

## **Heat Exchanger Technology**

Sterling's high efficiency heat exchangers surpass the competition in every facet. From composition to performance Sterling heat exchangers are designed to be the most reliable and energy efficient on the market. From our standard 20-gauge stainless steel tubular heat exchangers to our Nexus ultra-high efficiency tri-metal heat exchangers, Sterling is the industry leader in cutting-edge technology.

## **Ease of Service and Installation**

All Sterling unit heaters are designed for ease of installation, service and annual maintenance. All components are easily accessed to save time and money on all maintenance calls.

## **Warranty and Factory Assurance**

All unit heaters are covered by a full 10-year warranty (unless otherwise noted) covering the heat exchanger, flue collector and burners. Each unit is factory fire-tested to ensure proper operation at the time of installation.



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# Nexus

## Industry Leading Thermal Efficiency, State-of-the-Art Control Platform

Nexus is a high efficiency condensing unit heater with advanced tri-metal heat exchanger technology, proprietary pre-mix burner design and fully modulating control configurations. Available in 6 sizes (50-400 MBH) in either natural gas or LP gas, field convertible to separated combustion, and compatible with PVC or CPVC venting, Nexus offers unparalleled application flexibility.

### STANDARD FEATURES

- 2-Stage, Modulating with Room Sensing, and Outdoor/Indoor Reset Self Modulating Settings
- Modbus Communication to Building Automation System
- NG/LP Single Orifice Field Conversion (Kit Included with Every Unit)
- Electronically Air/Fuel Coupled for Optimal Efficiency
- 3:1 Full Modulation
- Auto-Adjusts for Altitude
- SafeSense Blocked Inlet and Flue Sensing Technology
- Operate as Single-Unit, Multi-Unit Network, or Linked to Building Management System
- 95%+ Efficiency at Full Input
- Condensate Float Switch and Trap
- Durable Brushed Stainless Steel Cabinet





## GG Series

### Low-Profile, Residential Garage and Commercial Certified

The GG heater is a tubular design propeller type unit heater that utilizes a single orifice burner. Low profile design and sizes ranging from 30-120 MBH make it ideal for all applications.

### STANDARD FEATURES

- 20-Gauge Aluminized Steel Tubular Heat Exchangers
- 7 Sizes Ranging from 30 to 120 MBH
- Single Orifice Burner
- Direct Spark Ignition System
- 20-Gauge Jacket Panels w/Baked Enamel Finish
- Easy Access Control Panel
- Certified for Category I and III Venting
- 82+% Thermal Efficiency
- ETL Certified
- OSHA Type Fan Guard
- Field Convertible to Separated Combustion with Combustion Air Inlet Kit (Optional)



## XF/XC Series

### Convertible Venting Type Tubular

The “XF/XC” Series units are highly efficient, extremely durable and designed so they can be installed in either standard or separated combustion venting configurations without requiring modification to the unit itself.

### STANDARD FEATURES

- Standard or Separated Combustion All-In-One Units
- 20-Gauge Aluminized Steel Tubular Heat Exchanger
- 83% Thermal Efficiency
- Power Venter
- 20-Gauge Steel Cabinetry with Baked Enamel Finish
- Direct Spark Ignition System
- Redundant Single Stage Gas Valve
- Rear Burner Access for Ease of Service
- Individually Adjustable and Removable Horizontal Louvers
- 10-Year Heat Exchanger, Flue Collector and Burner Warranty



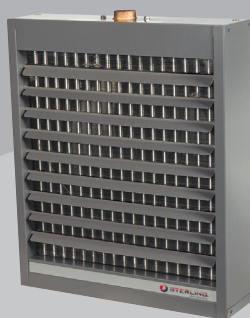
## GF SERIES

### Resists Moisture and Rust for Greenhouse Applications

The Shield® gas fired tubular unit heaters are built better by design. Stainless steel construction provides maximum protection against moisture and rust. They are the ideal heating solution for both glass and poly greenhouses. Durable tubular heat exchanger provides maximum and uniform heat transfer and significantly longer service life. Available in sizes 150, 250, and 400 MBH, Shield® unit heaters are backed by a full 5-year warranty on the heat exchanger, flue collector and burners.

### STANDARD FEATURES

- Stainless Steel Construction for Maximum Corrosion Resistance
- 150, 250 and 400 MBH
- Individually Adjustable and Locking Louvers
- Power Vented
- In-Shot Burner Technology
- Easy Access Control Panel
- Single Stage Combination Gas Valve
- 5-Year Heat Exchanger, Flue Collector and Burner Warranty



## HS Series

### Header Type and Serpentine Type Models are Ideal for Hot Water Installations

HS Series horizontal unit heaters are ideal for hot water installations. A wide range of outputs and airflows allows virtually unlimited flexibility in job design. Sterling horizontal unit heaters are available in both serpentine and header type units. Serpentine units offer outputs from 8,030 to 35,900 BTU's and are ideal for hot water installations with limited clearances. Header type horizontal units range from 18,000 to 360,000 and can operate with either hot water or steam. Both units are furnished with totally enclosed motors as standard equipment, explosion proof motors are optional.

### STANDARD FEATURES

- Horizontal Louvers Standard
- Thermostats Feature 'Off-Auto' and 'Auto-Fan-Off'
- Copper Tube-Aluminum Fin Hydronic Coil
- ETL Certified
- Strap-On Water Control (Optional)
- Steam Pressure Control (Optional)
- Vertical Louvers (Optional)
- 1-Year Warranty



## **VS Series**

### **Vertical Unit Heater**

VS Series vertical unit heaters are designed for installations requiring down flow air delivery. Offered in 15 sizes ranging from 41,300 to 705,000 BTU units are field convertible to low output (increased airflow) for high ceiling applications. All units are compatible with Steam or Hot Water operation.

### **STANDARD FEATURES**

- Copper Tube-Aluminum Fin Hydronic Coil
- Totally Enclosed Motor
- Thermostats Feature 'Off-Auto' and 'Auto-Fan-Off'
- Strap-On Water Control (Optional)
- Steam Pressure Control (Optional)
- OSHA Fan Guard (Optional)
- Explosion-Proof Motors (Optional)
- 1-Year Warranty



## TD Series

### Tubular Duct Furnace

The TD duct furnace is designed with ease of service in mind, and provides the efficiency and durability of Sterling's tubular heat exchanger. The TD offers left side access and is field convertible to right hand access.

### STANDARD FEATURES

- 20-gauge Aluminized Steel Tubular Heat Exchanger
- 7 Sizes Ranging from 100 to 400 MBH
- In-shot Burner Technology
- Direct Spark Ignition
- 20 Gauge Jacket Panels with Double Wall Construction and Baked Enamel Finish
- Power Vented
- Easy Access Control Panel
- Certified for Category III Venting
- Terminal Strip Low Voltage Wiring
- 82% Thermal Efficiency
- ETL Certified
- 10-Year Heat Exchanger, Flue Collector & Burner Warranty
- Single Stage Gas Valve
- 2-Stage and Modulating Gas Valve (Optional)
- Stainless Steel Tubular Heat Exchanger (Optional)
- Field Convertible to Separated Combustion with Air Inlet Kit (Optional)



## **QVED/QVES Series**

Power Vented Duct Furnaces

## **QVSD Series**

Separated Combustion for  
Mildly Hostile Environments

QVED and QVES are power vented indoor duct furnaces. Model QVED offers bottom burner access and is typically ceiling suspended. The model QVES offers side access and is typically mounted on a non-combustible floor. QVSD separated combustion indoor duct furnace is designed to be installed in mildly hostile environments.

### **STANDARD FEATURES**

- ETL Certified for 80% Thermal Efficiencies
- 7 Sizes Ranging from 100-400 MBH
- Aluminized Steel Heat Exchanger - 20-Gauge
- Single Stage Gas Valve
- Spark Ignition
- Natural or LP Gas Available
- Easy Burner Access with Individually Removable Burners
- 2-Stage and Modulating Gas Valves (Optional)
- 409 and 321 Stainless Steel Heat Exchangers (Optional)
- 1-Year Warranty



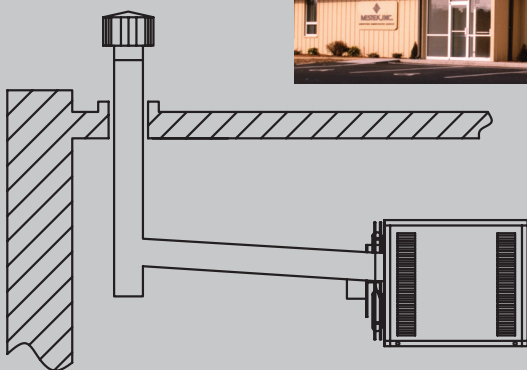
## QVOF Series

QVOF Series oil-fired unit heater is designed to operate on number 1 & 2 fuel oils. Available in seven sizes ranging from 70 – 560 MBH (.50 to 4.00 GPH) all units are factory assembled and ready to install.

### STANDARD FEATURES

- Heavy Duty 18-Gauge Heat Exchanger
- Energy Efficient Flame Retention Beckett Burner
- Adjustable Discharge Louvers
- Fan/Limit Control
- Four Point Suspension
- CAD Cell Burner Safeguard Control
- 115/1/60
- 5-Year Pro-rated Heat Exchanger Warranty





## Vent Pipe Sizes

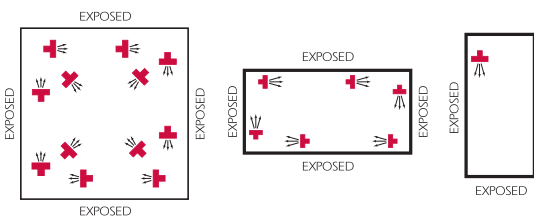
| Model                       | Sizes   | Vent Pipe Diameter |
|-----------------------------|---------|--------------------|
| <b>STANDARD VENTING</b>     |         |                    |
| NEXUS                       | 050-150 | 2"                 |
|                             | 200     | 3"                 |
|                             | 300-400 | 4"                 |
| GG                          | 030-120 | 4"                 |
| XF/XC/GF                    | 100-250 | 5"                 |
|                             | 300-400 | 6"                 |
| TD                          | 100-200 | 5"                 |
|                             | 250-400 | 6"                 |
| QVED, QVES                  | 100-150 | 4"                 |
|                             | 200-250 | 5"                 |
|                             | 300-400 | 6"                 |
| <b>SEPARATED COMBUSTION</b> |         |                    |
| NEXUS                       | 050-150 | 2"                 |
|                             | 200     | 3"                 |
|                             | 300-400 | 4"                 |
| GG                          | 030-075 | 4"                 |
|                             | 090-120 | 5"                 |
| TD                          | 100-200 | 5"                 |
|                             | 250-400 | 6"                 |
| QVSD                        | 100-150 | 4"                 |
|                             | 200-250 | 5"                 |
|                             | 300-400 | 6"                 |
| XF/XC                       | 100-250 | 5"                 |
|                             | 300-400 | 6"                 |

# Applications

## UNIT HEATER PLACEMENT

Gas-fired unit heaters are used primarily in commercial and industrial buildings such as warehouses, manufacturing areas, garages, showrooms, lobbies, etc. Placement is typically determined by air distribution requirements. Proper distributions should have air directed toward areas of greatest heat loss. Multiple units may be used to greatest effect by positioning units around the perimeter. Several units near the center and with air discharging toward outside walls may also satisfy the heating requirements. Direct air discharge on occupants should be avoided.

## TYPICAL APPLICATIONS



*A large square area with exposed walls and roof; units are blanketing all exposed surfaces.*

*A narrow area with four exposed walls either with or without roof exposure.*

*A small area with exposed walls requiring one unit.*

## HOW TO CALCULATE HEAT LOSS

It is suggested that when calculating heat loss for a building, reference be made to procedures outlined in the **ASHRAE Handbook**. As an easy reference, however, the following abbreviated method may be used with a good degree of reliability.

1. Determine inside temperature to be maintained and the design outside temperature for your locality. The difference between these two figures is the design temperature difference.
2. Calculate net areas in square feet of glass, wall, floor, and roof exposed to outside temperature or unheated spaces. Calculate door as all glass.
3. Select heat-transfer coefficients from the table below (or the **ASHRAE Handbook**) and compute the heat-transmission loss for each area in BTU/HR by multiplying each area by the heat-transfer coefficient and the temperature difference.
4. Add 10% to the heat-loss figures for areas exposed to prevailing winds.
5. Calculate the volume of the room or area in cubic feet and multiply by the estimated number of air changes per hour due to infiltration (usually from one to two). Determine the number of cubic feet per hour of air exhausted by ventilating fans or industrial processes. Substitute the larger of these two figures

in the formula to determine the heat required to raise the air from outside to room temperature —

$$\text{BTU/HR} = \frac{\text{cubic feet per hour} \times \text{temperature difference}}{55}$$

6. The totals of BTU/HR losses from 3, 4 and 5 (above) will give the total BTU/HR to be supplied by unit heaters. (Note: If processes performed in the room liberate considerable amounts of heat, this may be determined as accurately as possible and subtracted from the total).

| Building Material   | "U" Factor |
|---|------------|
| <b>WALLS</b>  |            |
| Poured concrete 80#/cu. ft.   |            |
| 8-inch .....  | 0.25       |
| 12-inch .....   | 0.18       |
| Concrete Block, hollow cinder aggregate                                     |            |
| 8-inch .....  | 0.39       |
| 12-inch .....   | 0.36       |
| Gravel aggregate  |            |
| 8-inch .....  | 0.52       |
| 12-inch .....   | 0.47       |
| Concrete Block, w/4-inch facebrick  |            |
| Gravel, 8-inch .....  | 0.41       |
| Cinder, 8-inch .....  | 0.33       |
| Metal   |            |
| (un-insulated) .....  | 1.17       |
| w/1-inch blanket insulation .....   | 0.22       |
| w/3-inch blanket insulation .....   | 0.08       |
| <b>ROOFING</b>  |            |
| Corrugated Metal (un-insulated) .....                                       | 1.50       |
| w/1-inch bolt or blanket .....  | 0.23       |
| w/1 <sup>1</sup> / <sub>2</sub> -inch bolt or blanket .....                 | 0.16       |
| w/3-inch bolt or blanket .....  | 0.08       |
| Flat Metal  |            |
| w/ <sup>3</sup> / <sub>8</sub> -inch built-up roofing .....                 | 0.90       |
| w/1-inch blanket insulation under deck .....                                | 0.21       |
| w/2-inch blanket insulation under deck .....                                | 0.12       |
| Wood/ 1" /  |            |
| (un-insulated) w/ <sup>3</sup> / <sub>8</sub> -inch built-up roofing ....   | 0.48       |
| w/1-inch blanket insulation .....   | 0.17       |
| Wood/ 2" /  |            |
| (un-insulated) w/ <sup>3</sup> / <sub>8</sub> -inch built-up roofing .....  | 0.32       |
| w/1-inch blanket insulation .....   | 0.15       |
| Concrete slab/ 2" /   |            |
| (un-insulated) w/ <sup>3</sup> / <sub>8</sub> -inch built-up roofing .....  | 0.30       |
| w/1-inch insulation board .....   | 0.16       |
| Concrete slab/ 3" /   |            |
| (un-insulated) w/ <sup>3</sup> / <sub>8</sub> -inch built-up roofing .....  | 0.23       |
| w/1-inch insulation board .....   | 0.14       |
| Gypsum slab/ 2" /   |            |
| (un-insulated) w/1 <sup>1</sup> / <sub>2</sub> -inch gypsum board .....     | 0.36       |
| w/1-inch insulation board .....   | 0.20       |
| Gypsum slab/ 3" /   |            |
| (un-insulated) w/1 <sup>1</sup> / <sub>2</sub> -inch gypsum board .....     | 0.30       |
| w/1-inch insulation board .....   | 0.18       |
| <b>WINDOWS</b>  |            |
| Vertical, single-glass .....  | 1.13       |
| Vertical, double-glass, <sup>3</sup> / <sub>16</sub> - inch air space ..... | 0.69       |
| Horizontal, single-glass (sky light).....                                   | 1.40       |
| <b>DOORS</b>  |            |
| Metal — single sheet .....  | 1.20       |
| Wood, 1-inch .....  | 0.64       |
| 2-inch .....  | 0.43       |

## ALSO AVAILABLE FROM STERLING:

- Cabinet Blowers
- Low Intensity Infrared Heaters
- High Intensity Infrared Heaters
- Outdoor Duct Furnaces
- Evaporative Coolers
- Air Handlers
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