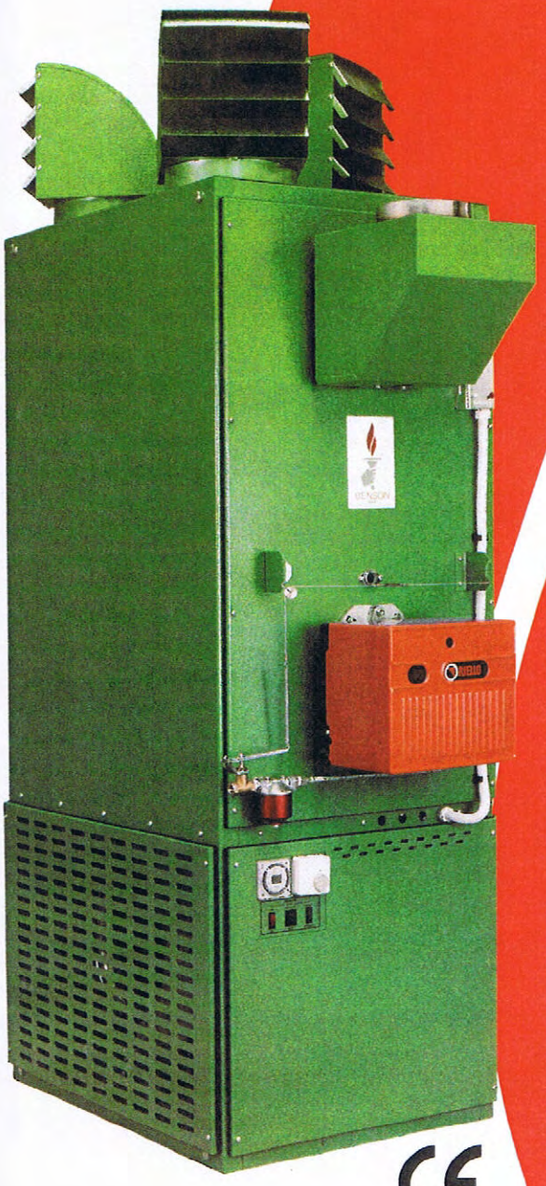
Air Heaters Gas & Oil Fired

# BENSON WH RANGE CABINET AIR HEATERS

BENSON

## High Performance Low Cost Heating for Industrial and Commercial Premises



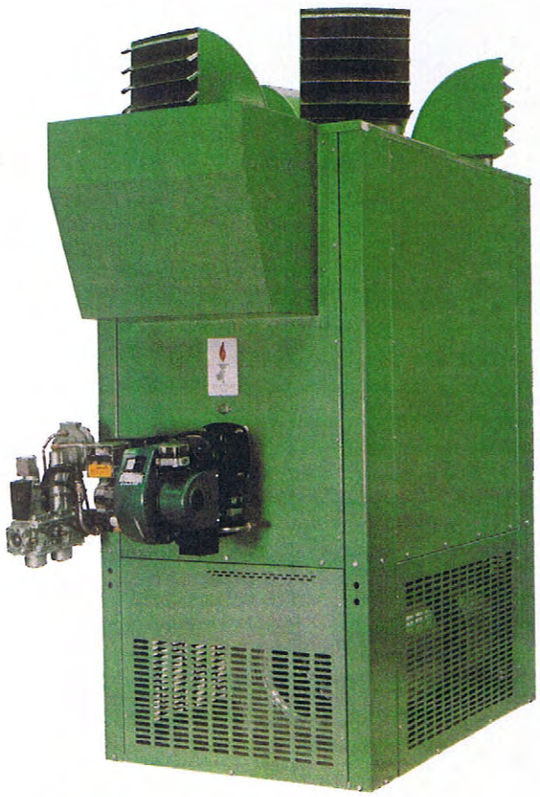
BENSON

Cover Unit WH 88DV

WH Range

# WH Cabinet He

WH150 DV - Oil



WH235 NV - Gas

The technically advanced range of WH Cabinet Heaters, produced by Benson Heating, are designed and manufactured using state of the art integrated computer technology within a strictly controlled quality environment, satisfying the requirements of ISO 9001. All of the models within the WH range comply with the latest European Standards, and are CE marked in accordance with various appropriate European Directives. Each heater within this unique range combines versatility with performance, and as such, offers a practical approach towards providing low cost energy efficient commercial and industrial heating across a wide spectrum of applications.

The eight model WH range has a output varying from 60kW right through to 375kW (200,000 - 1,280,000 Btu). Each model is available in one of the following three configurations; vertical, horizontal, or, reverse flow. In addition to this, each WH cabinet heater can be specified for either nozzled free air discharge, or for ducted applications.

Each WH cabinet heater is covered by a comprehensive two year parts warranty and one year labour, there is a further ten year sliding scale warranty offered on the heat exchanger.

## Features

- Contemporary aesthetic design
- Build quality and durability
- Compliance with European Standards and Directives
- CE marked
- Variety and depth of range
- Choice of fuel and burner specification
- Peace of mind warranty
- Simple installation, commissioning, and servicing
- Energy efficient
- Low running and maintenance costs
- Fully automatic user friendly controls
- Fail-safe safety controls
- Full after sales and spare parts service
- Comprehensive information pack

## Specification

### Cabinet construction

Manufactured to form a monocoque structure from electro zinc coated steel and finished in a durable hammer finish epoxy polyester powder paint. Each model is supplied with an inner heat shield, a flame viewing port, explosion relief facility, as well as having an external flue spigot facilitating easy connection and removal for installation and service requirements.

### Combustion Chamber

Manufactured using high quality stainless steel to resist the thermal stress and loading associated with normal use, and designed so as to offer optimum volume and surface area so as to enhance efficiency and longevity.

### Heat Exchanger

Designed to provide excellent surface heat transfer characteristics, low gas flow resistance, as well as incorporating reliability and easy maintenance, whilst retaining a traditional and well proven tubular mild steel construction.

# ater Range

## Burner

All WH cabinet heaters are equipped with fully matched CE marked automatic burners, incorporating fully automatic controls with flame failure monitoring.

## Fan Unit

All WH cabinet heaters are fitted with a centrifugal fan assembly manufactured from galvanised steel, and which features dynamically balanced double inlet rotors. On models WH60 and WH88 a direct drive system is employed, whereas, all other models use a belt and pulley arrangement.

## Warm Air Distribution

Free blowing WH cabinet Heaters are supplied complete with independent discharge nozzles which can be rotated through 360° and are fitted with louvres to provide the requisite directional control for warm air distribution. A duct spigot is fitted to WH cabinet heaters specified for ducted applications.

## Heater Controls

All WH cabinet heaters are supplied with the following pre-wired controls fitted as standard; seven day programmable timer, room thermostat, frost protection thermostat, heat/ventilate selection switch, as well as a dual safety and comfort thermostat (fan and limit), with manual re-set facility.

## Accessories

A full range of accessories is available , and include filters, stainless steel heat exchangers, and optional burner specifications.

## Fuel Supply

Gas fired WH cabinet heaters are all fitted with a forced draught gas burner for use with natural gas. Oil fired models fitted with pressure jet burners are for use with class D 35 sec gas oil.

## Testing

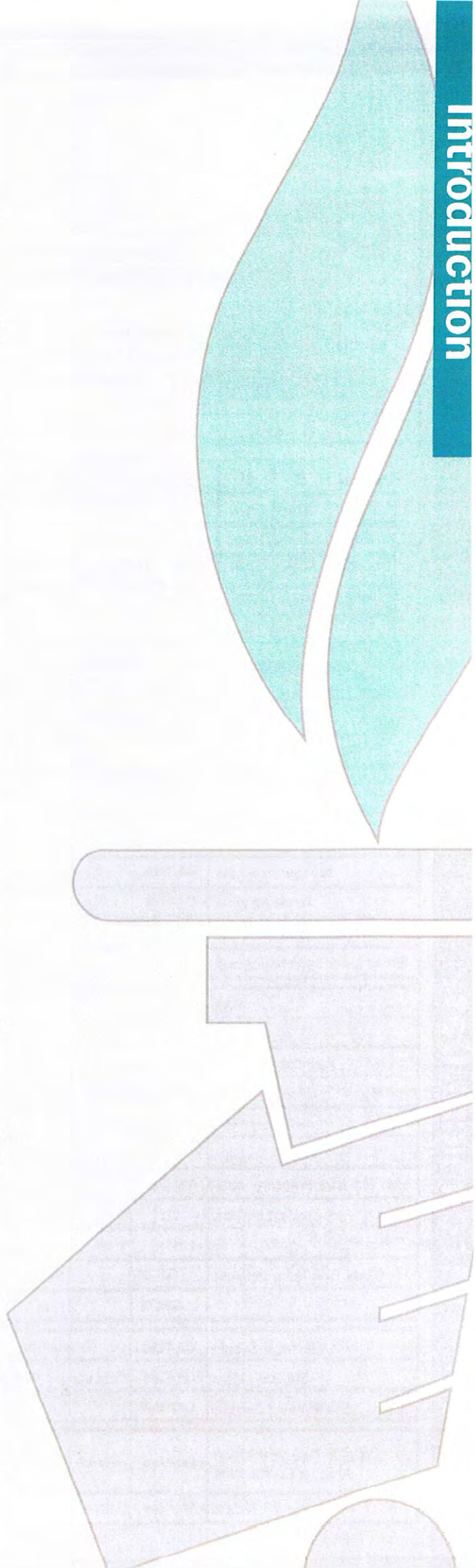
The Benson Heating quality control system ensures that every WH cabinet heater is rigorously inspected and subject to a detailed test firing programme prior to despatch.

## Warranty

Each WH cabinet heater is supplied with a comprehensive two year parts warranty & 1 year labour, an additional ten year warranty, which operates on a sliding scale, covers the heat exchanger. The warranty is offered subject to installation, commissioning , operating and servicing requirements being adhered to, and is conditional upon Benson Heating *conditions of business*.

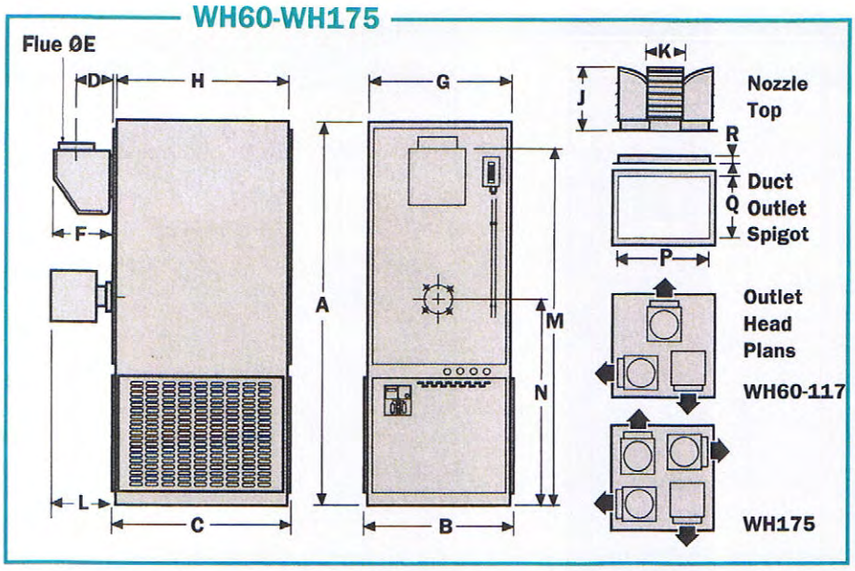
## Installation

The location should offer sufficient support for the heater and any ancillary equipment, and must also allow for the following; connection to a separate flue system, an adequate air supply to satisfy both combustion and and recirculation purposes, whilst also providing sufficient safe and unrestricted access to enable installation, commissioning and servicing to be undertaken. Installation can only be undertaken by competent personnel and must comply with the appropriate legal and advisory requirements. For safety reasons there are certain areas where an WH cabinet heater cannot be installed; for example, in an environment where negative air pressure exists, or in an area where the atmosphere has high concentrations of corrosive or flammable chemicals.

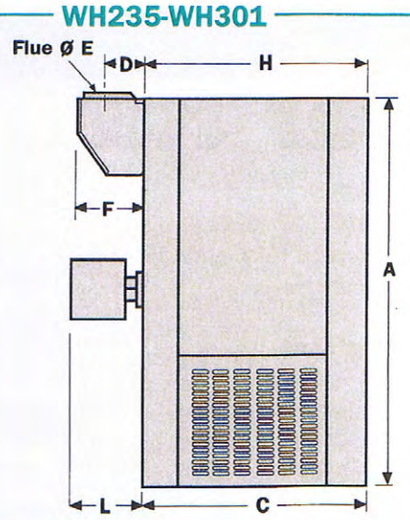


# Dimensional Data

## WH60-WH175




## WH235-WH301

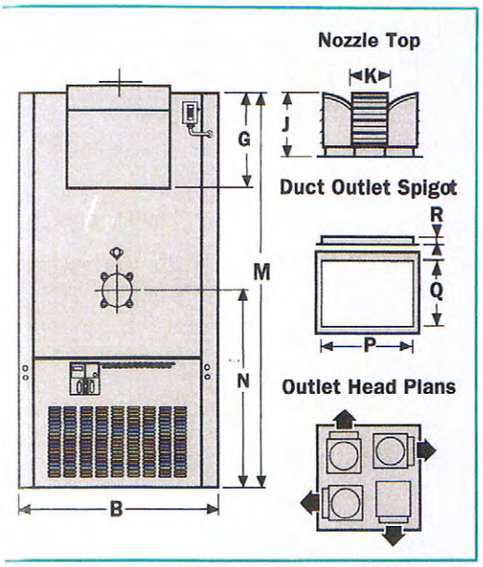


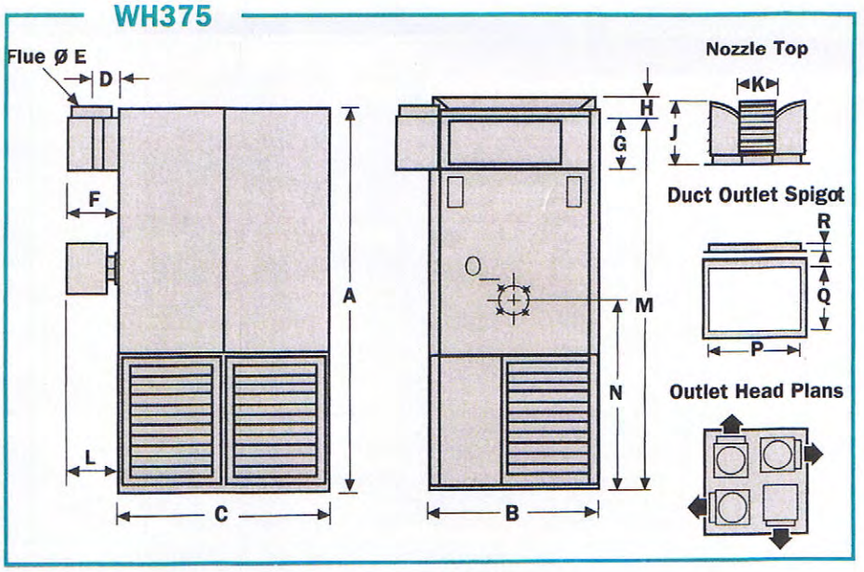

| Model | A | B | C | D | øE | F | G | H | J | K | L Oil | L Gas | M | N | P | Q | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 60 | 1865 | 690 | 922 | 197±5 | 150 | 330 | 660 | 890 | 332 | 280 | 267 | 362 | 1778 | 984 | 790 | 560 | 45 |
| 88 | 1865 | 690 | 922 | 197±5 | 175 | 330 | 660 | 890 | 332 | 280 | 267 | 362 | 1778 | 984 | 790 | 560 | 45 |
| 117 | 1993 | 770 | 1085 | 197±5 | 175 | 330 | 740 | 1052 | 360 | 305 | 292 | 432 | 1878 | 968 | 952 | 640 | 45 |
| 150 | 1993 | 770 | 1085 | 197±5 | 175 | 330 | 740 | 1052 | 360 | 305 | 292 | 432 | 1878 | 968 | 952 | 640 | 45 |
| 175 | 1993 | 770 | 1315 | 197±5 | 175 | 330 | 740 | 1282 | 360 | 305 | 310 | 595 | 1878 | 968 | 1182 | 640 | 45 |

# Technical Data

| | | WH60 | | WH88 | | WH117 | | WH150 | |
|---|---|---|---|---|---|---|---|---|---|
| | | Metric | Imperial | Metric | Imperial | Metric | Imperial | Metric | Imperial |
| Nominal Heat Output | | 60kW/hr | 205,400Btu/hr | 88kW/hr | 300,000Btu/hr | 119kW/hr | 407,000Btu/hr | 148kW/hr | 505,000Btu/hr |
| Air Delivery | Oil/Gas | 3,694m³/hr | 2,175ft³/min | 5,096m³/hr | 3,000ft³/min | 7,992m³/hr | 4,720ft³/min | 10,440m³/hr | 6,200ft³/min |
| Available Outlet Pressure | Oil/Gas | 125pa | 0.5 ins WG | 100pa | 0.4 ins WG | 125pa | 0.5 ins WG | 125pa | 0.5 ins WG |
| Nozzle Discharge Velocity | Oil/Gas | 6.1m/sec | 1,200ft/min | 6.1m/sec | 1,200ft/min | 7.62m/sec | 1,500ft/min | 8.8m/sec | 1,730ft/min |
| Number of Heads | Oil/Gas | 3 | | 3 | | 3 | | 4 | |
| Throw (approx) | Oil/Gas | 16m | 52ft | 18m | 60ft | 21m | 70ft | 23m | 75ft |
| Temp. Rise Through Heater | Oil/Gas | 50°C | 90°F | 50°C | 90°F | 50°C | 90°F | 50°C | 90°F |
| Sound Level Approx (nozzled) | Oil/Gas | 69dB | | 72dB | | 72dB | | 74dB | |
| Fuel | Oil | 4.5cSt @ 20°C (Class D) | 35 Sec Redwood No.1 @ 100°F | 4.5cSt @ 20°C (Class D) | 35 Sec Redwood No.1 @ 100°F | 4.5cSt @ 20°C (Class D) | 35 Sec Redwood No.1 @ 100°F | 4.5cSt @ 20°C (Class D) | 35 Sec Redwood No.1 @ 100°F |
| | Gas | Natural Gas | | Natural Gas | | Natural Gas | | Natural Gas | |
| Fuel Consumption | Oil | 6.9l/hr | 1.52gal/hr | 10.46l/hr | 2.3gal/hr | 13.8l/hr | 3.04gal/hr | 17.3l/hr | 3.8gal/hr |
| | Gas | 7.2m³/hr | 255.1ft³/hr | 10.3m³/hr | 364ft³/hr | 14.3m³/hr | 503.4ft³/hr | 18.0m³/hr | 636ft³/hr |
| Burner Type | Oil | Riello R40 G10 | | Riello R40 G10 | | Riello R40 G20 | | Riello R40 G20S | |
| | Gas | Riello R40 GS10 | | Riello R40 GS10 | | Riello R40 GS20 | | Riello R40 GS20 | |
| Min. Gas Inlet Pressure mbar | Nat Gas | 17.5mbar | 7 in WG | 17.5mbar | 7 in WG | 17.5mbar | 7 in WG | 17.5mbar | 7 in WG |
| Fuel Connection Size | Oil | Rc⅜ | ⅜ in BSP | Rc⅜ | ⅜ in BSP | Rc⅜ | ⅜ in BSP | Rc⅜ | ⅜ in BSP |
| | Gas | Rc½ | ½ in BSP | Rc½ | ½ in BSP | Rc¼ | ¼ in BSP | Rc¼ | ¼ in BSP |
| Gross Flue Temp (approx) | Oil | 260°C | | 295°C | | 270°C | | 305°C | |
| | Gas | 260°C | | 295°C | | 270°C | | 305°C | |
| Electrical Supply | Oil/Gas | 230/1/50 | | 230/1/50 | | 415/3/50 | | 415/3/50 | |
| Std Fan Motor | Oil/Gas | 1.1kW | 1.4hp | 1.3kW | 1.6hp | 1.5kW | 2hp | 2.4kW | 2.9hp |
| Std Running Current | Oil/Gas | 6 Amps | | 7.2 Amps | | 3.9 Amps | | 4.9 Amps | |
| Minimum Free Ventillation Area for Combustion | Oil/Gas | 368cm² | 57in² | 516cm² | 80in² | 690cm² | 107in² | 865cm² | 134in² |
| Weight | Oil/Gas | 254kg | 558lbs | 257kg | 567lbs | 362kg | 797lbs | 370kg | 814lbs |

# Dimensional Data



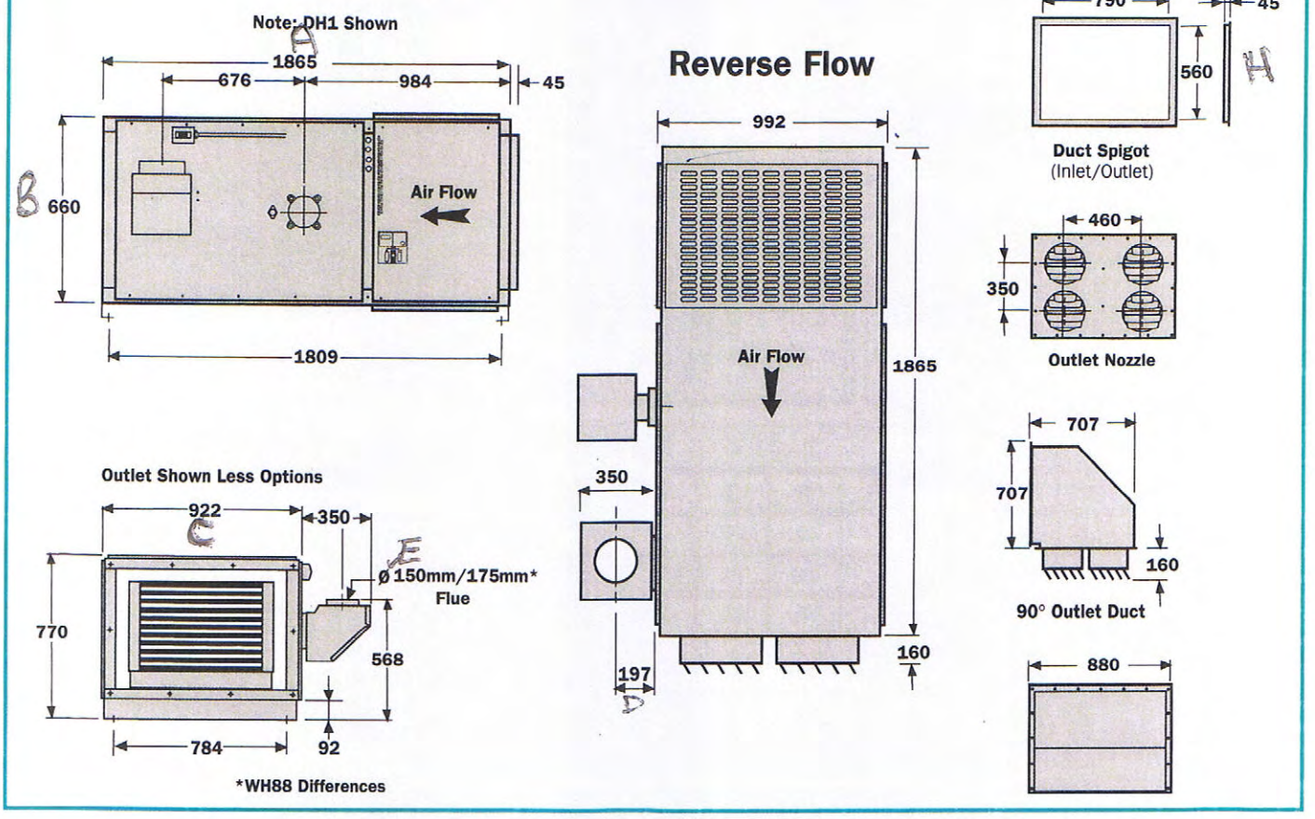

| Model | A | B | C | D | øE | F | G | H | J | K | L Oil | L Gas | M | N | P | Q | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 235 | 2076 | 1100 | 1550 | 261 | 225 | 460 | 550 | - | 410 | 360 | 390 | 600 | 2115 | 1054 | 1450 | 1000 | 40 |
| 301 | 2076 | 1100 | 1550 | 261 | 225 | 460 | 550 | - | 410 | 360 | 390 | 600 | 2115 | 1054 | 1450 | 1000 | 40 |
| 375 | 2667 | 1244 | 1550 | 203 | 254 | 355 | 368 | 38 | 610 | 474 | 800 | 750 | 2705 | 1372 | 1365 | 1086 | 76 |

# Technical Data

| | | WH175 | | WH235 | | WH301 | | WH375 | |
|---|---|---|---|---|---|---|---|---|---|
| | | Metric | Imperial | Metric | Imperial | Metric | Imperial | Metric | Imperial |
| Nominal Heat Output | | 176kW/hr | 600,000Btu/hr | 237kW/hr | 808,000Btu/hr | 301kW/Hr | 1,027,000Btu/hr | 375kW/hr | 1,279,500Btu/hr |
| Air Delivery | Oil/Gas | 11,988m³/hr | 7,080ft³/min | 16,128m³/hr | 9,482ft³/min | 20,484m³/hr | 12,057ft³/min | 30,240m³/hr | 17,800ft³/min |
| Available Outlet Pressure | Oil/Gas | 163pa | 0.65 ins wg | 125pa | 0.5 ins wg | 200pa | 0.8 ins wg | 250pa | 1.0 ins wg |
| Nozzle Discharge Velocity | Oil/Gas | 10.56m/sec | 2,080ft/min | 6.75m/sec | 1,300ft/min | 8.36m/sec | 1,650ft/min | 10.3m/sec | 2,028ft/min |
| Number of Heads | Oil/Gas | 4 | | 4 | | 4 | | 4 | |
| Throw (approx) | Oil/Gas | 27m | 90ft | 25.3m | 80ft | 30m | 100ft | 45m | 150ft |
| Temp. Rise Through Heater | Oil/Gas | 50°C | 90°F | 50°C | 90°F | 50°C | 90°F | 50°C | 90°F |
| Sound Level Approx (nozzled) | Oil/Gas | 76dB | | 78dB | | 80dB | | 81dB | |
| Fuel | Oil | 4.5cSt @ 20°C (Class D) | 35 Sec Redwood No.1 @ 100°F | 4.5cSt @ 20°C (Class D) | 35 Sec Redwood No.1 @ 100°F | 4.5cSt @ 20°C (Class D) | 35 Sec Redwood No.1 @ 100°F | 4.5cSt @ 20°C (Class D) | 35 Sec Redwood No.1 @ 100°F |
| | Gas | Natural Gas | | Natural Gas | | Natural Gas | | Natural Gas | |
| Fuel Consumption | Oil | 20.7l/hr | 4.6gal/hr | 27.6l/hr | 6.1gal/hr | 35.46l/hr | 7.8gal/hr | 45.3l/hr | 9.97gal/hr |
| | Gas | 21.1m³/hr | 742.0ft³/hr | 28.6m³/hr | 1,111.0ft³/hr | 36.2m³/hr | 1,277.0ft³/hr | 46.0m³/hr | 1,623ft³/hr |
| Burner Type | Oil | Nuway NOL 9 | | Nuway NOL 13 | | Nuway NOL 13 | | Nuway NOL 20/23 | |
| | Gas | Nuway NGN 9 | | Nuway NGN 9/13 | | Nuway NGN 13 | | Nuway NGN 25 | |
| Min. Gas Inlet Pressure mbar | Nat Gas | 17.5mbar | 7 in Wg | 17.5mbar | 7 in Wg | 17.5mbar | 7 in Wg | 17.5mbar | 7 in Wg |
| Fuel Connection Size | Oil | Rc⅜ | ⅜ in BSP | Rc⅜ | ⅜ in BSP | Rc⅜ | ⅜ in BSP | Rc⅜ | ⅜ in BSP |
| | Gas | Rc1 | 1 in BSP | Rc1 | 1in BSP | Rc1½ | 1½ in BSP | Rc1½ | 1½ in BSP |
| Exit Gas Temp (approx) | Oil | 300°C | | 290°C | | 300°C | | 300°C | |
| | Gas | 300°C | | 290°C | | 300°C | | 300°C | |
| Electrical Supply | Oil/Gas | 415/3/50 | | 415/3/50 | | 415/3/50 | | 415/3/50 | |
| Std Fan Motor | Oil/Gas | 2.98kW | 4hp | 4kW | 5.3hp | 5.5kW | 7.3hp | *7.5kW | *10hp |
| Std Running Current | Oil/Gas | 7.6 Amps | | 8.5 Amps | | 11.2 Amps | | *14.0 Amps | |
| Minimum free ventillation area for combustion | Oil/Gas | 1032cm² | 160in² | 1,413cm² | 219in² | 1,806cm² | 280in² | 2250cm² | 349in² |
| Weight | Oil/Gas | 436kg | 960lbs | 630kg | 1,386lbs | 646kg | 1,421lbs | 1,090kg | 2,400lbs |

* Ducted - 11kW - 15hp
30 Amps

# WH60-88

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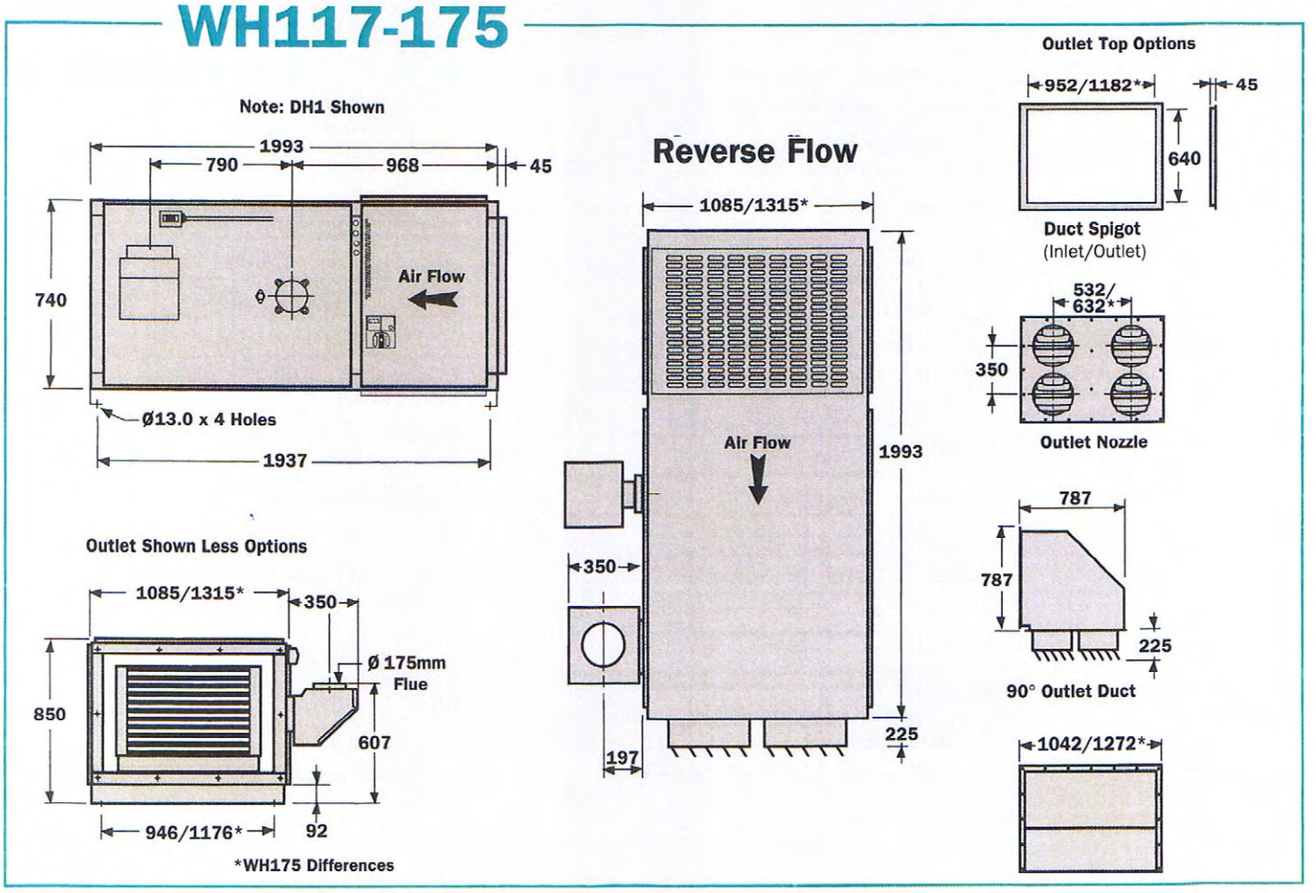
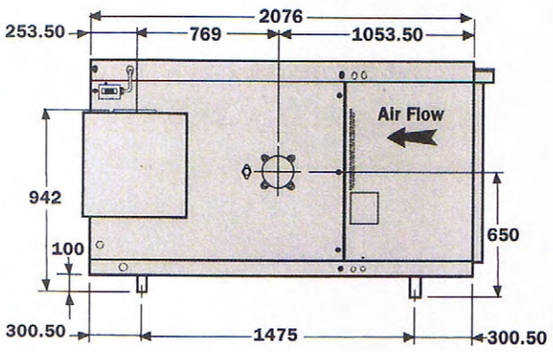
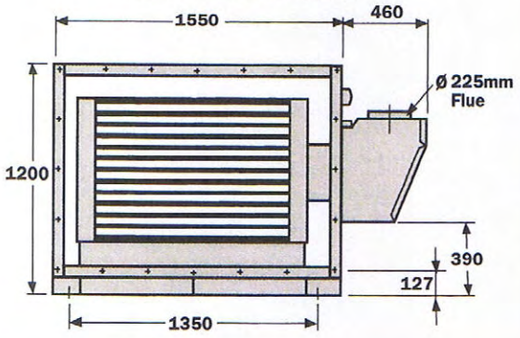


# WH235-301

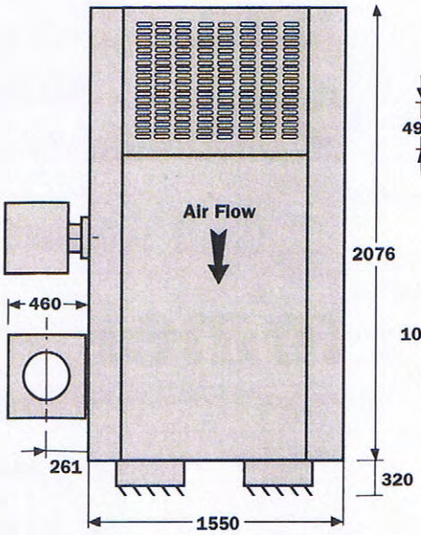
Note: DH1 Shown



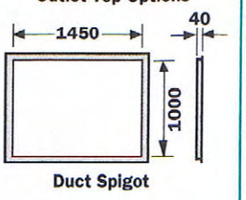

Outlet Shown Less Options



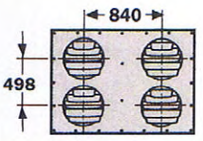

Reverse Flow



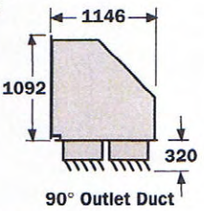

Outlet Top Options



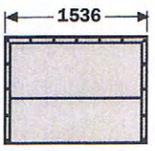

Duct Spigot




Outlet Nozzle

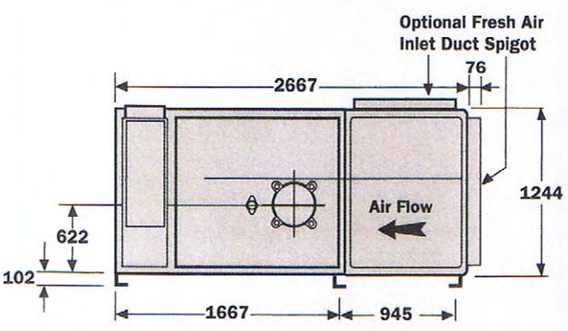



90° Outlet Duct

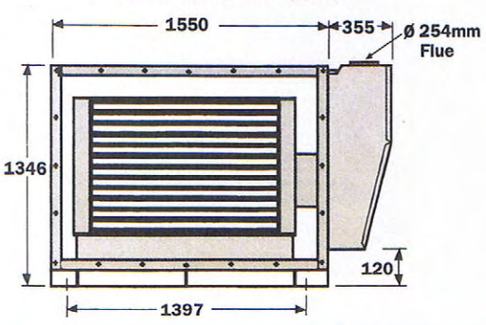



# WH375

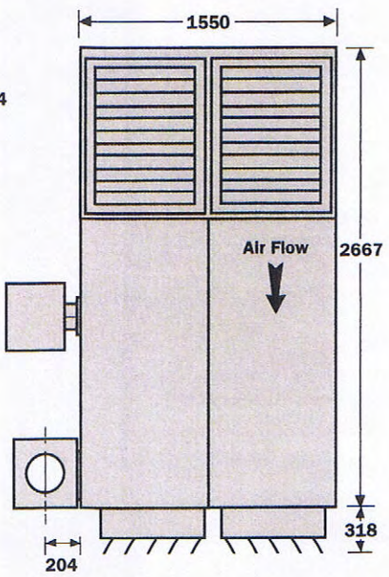
Optional Fresh Air Inlet Duct Spigot



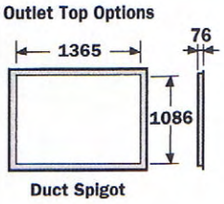

Outlet Shown Less Options



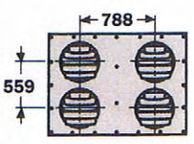

Reverse Flow



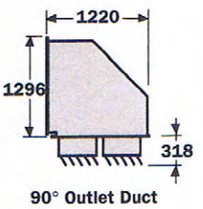

Outlet Top Options



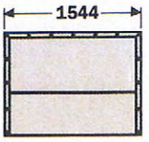

Duct Spigot




Outlet Nozzle




90° Outlet Duct



Air Heaters Gas & Oil Fired

- Also Available Gas & Oil Fired High Performance Heat Exchanger Module (EM Range 60kW to 700kW).
- Gas Fired Unit Heaters (GUH Range 15kW - 141kW).
- Portable Heaters - Oil & LPG Gas (9kW - 88kW).
- Flue Systems.
- Recoupak Destratification Fans.

# Customer Hotline

## 01547 529245

Tel. 01547 528534 Fax. 01547 520750

CE

Benson Heating is a subsidiary of Energy Technique plc

BENSON

BENSON
Benson Heating Ltd.
Ludlow Road,
Knighton,
Powys, LD7 1LP.

BSI REGISTERED FIRM

Cert. No. FM 14923

It is the Policy of Benson Heating Ltd to pursue a programme of continuous research and development. We therefore reserve the right to change both prices and specification without prior notice. Details are believed to be correct but do not form the basis of any contract or guarantee. All orders are accepted subject to our standard condition of sale available on request.