UDSA-4E
Suspended Gas Fired Unit Heaters

Warm air heaters
Radiant heating ~ Air curtains ~ Controls ~ Heating & ventilation units ~ Destratification fans
The USDA and UDSB units are a technically advanced range of gas-fired unit heaters designed to deliver outstanding energy efficiency, performance and economy for reduced operating and life cycle costs.

The heat exchanger achieves 92% (ncv) thermal efficiency, reducing energy consumption and running costs.

Reliable operation and simple servicing further reduce operating costs whilst the extended operational life of the heat exchanger ensures that the units provide the lowest long-term cost benefits.

**Applications**
- Automotive workshops
- Factories
- Retail outlets
- Sports arenas and halls
- Warehouses
- Workshops

**Features**
- High efficiency
- Reduced energy bills
- Unique aerodynamic profile of the heat exchanger results in minimal resistance to airflow, giving longer throws, improved temperature distribution, and reduced temperature gradients to minimise energy consumption further
- Titanium stabilised aluminised steel heat exchanger for enhanced life expectancy
- Advanced burner technology utilises a single self-aligning burner, with multi-try ignition for optimum reliability and ease of maintenance
- Versatile flue options for ease of siting

**Model Range**

**UDSA** units are fitted with a high airflow axial fan for free-blowing applications, with model heat outputs ranging from 11kW – 146kW.

**UDSB-D** units are fitted with a direct drive centrifugal fan for ducted applications or free-blowing heaters at increased mounting heights. The UDSB-D models are available with heat outputs ranging from 15kW – 64kW.

Modulating burner is fitted as standard to each model, which requires a 0 to 10v DC signal to operate.

All units are available for natural gas (G20) as standard, but alternatively can be specified for use on Propane (G31).

Models 120 & 145 are:
- Fitted with twin fans.
- Not suitable for downflow installation.
- Are fitted with 6 x fixing points on the top & non-access side panel, this allows the heater to be rotated through 90° so that the fans are located in the horizontal plane (thus reducing the height). Please be aware that in this position access to the gas controls and wiring is from the underside.
**Versatile Flue Installation**

The balanced flue terminal provides both the combustion air inlet and flue outlet from a single building penetration. The terminals are ordered separately from the heaters to suit either a wall outlet or roof outlet. Additional flue and combustion air pipes may be added, up to a maximum of nine metres of flue pipe, plus nine metres of combustion air pipe. (This reduces by 1.5 metres for every 90° bend fitted).

To comply with CE approvals, balanced flue appliances must be used with the manufacturer’s balanced flue system. The units are also certified for fan assisted flue installations, where the combustion air is to be drawn from within the heated space; an alternative wall or roof terminal is required for this application.

**Installation**

Units may be suspended or alternatively mounted on a suitable non-combustible support. Four integral suspension points complete with an M10 female thread are provided to each heater.

A single phase electrical supply is required to each unit. This supply should not be switched off except for maintenance.

Units must not be installed in atmospheres containing flammable or explosive vapours, combustible dust, halogenated hydrocarbons or chlorinated vapours. They are also unsuitable for areas where contaminants may affect electrical motors or connections.

**Optimised Control**

To complement the UDSA and UDSB units a versatile range of SmartCom control panels are available:

- Self adapting optimum start and stop
- Simple user friendly programming
- Individual seven day programming
- Day, night and frost (5°C) temperature settings
- Three on/off periods per day
- Easy set overtime and holiday periods
- Remote burner reset facility
- Password protection to prevent unauthorised adjustment
- Hours run and service data logging
- Battery back up in the event of mains failure
- Modulating burner control

SmartCom MZ panel allows up to 16 panels to be linked for centralised control.
**Heat Exchanger**
Manufactured from titanium stabilised aluminised steel for enhanced life expectancy.

The unique aerodynamic profile results in minimal resistance to airflow to give longer throws, improved temperature distribution and reduced temperature gradients to minimise energy consumption.

**Dual Limit Stats**
Dual limit stats provide additional safety and reliability.

**Optimised Air Distribution**

**Traditional Unit Heater**
Higher roof space temperatures increase heat loss through roof

- Shorter air throws reduce air distribution efficiency and require longer pre-heat times
- Longer air throws provide even heat distribution and reduce pre-heat times

**Burner**
Advanced burner technology utilises a single self-aligning burner, with multi-try ignition for optimum reliability and ease of maintenance. Burner modulation is fitted as standard and will require a 0 to 10v DC signal in order to operate.
Venter fan

Aluminium corrosion resistant venter fan is housed in a separate compartment. Units are fully room sealed to prevent dirt or dust from entering the combustion system.

A differential pressure switch shuts down the unit in the event of inadequate combustion air, blocked flue or flue fan failure.

Increased Airflow

A high capacity axial flow fan is fitted to UDSA units for improved air throws and reduced stratification.

UDSB-D models are fitted with a direct drive centrifugal fan.

The fan operation is controlled by an integral controller which delays the fan start up until the heat exchanger has reached operating temperature and continues to run the fan after the burner has switched off, until all useful heat has been dissipated.

An optional Economy thermostat may be fitted to heaters installed at high level to recirculate warm air down to working level when the burner is switched off.

Enhanced Reliability and Safety

A microprocessor burner control provides full safety monitoring and multi-try ignition control for enhanced reliability.

Limit stats monitor the operating temperature within the heater unit and shut down the burner in the event of overheating. For additional safety all models are fitted with dual limit stats.
### USDA Axial Fan Models Technical Data

<table>
<thead>
<tr>
<th>Model Ref</th>
<th>Model Ref</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nominal heat output kW</strong></td>
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</tr>
<tr>
<td><strong>Airflow m³/h</strong></td>
<td>1020</td>
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<tr>
<td><strong>Temperature rise K</strong></td>
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<tr>
<td><strong>Horizontal throw m</strong></td>
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</tr>
<tr>
<td><strong>Noise level @ 5m²</strong> (Q=2, A=160m²) dB(A)</td>
<td>46</td>
</tr>
</tbody>
</table>

### Gas Consumption

- **Natural gas G20 m³/h** | 1.26 | 1.68 | 2.1 | 2.94 | 3.36 | 3.99 | 4.85 | 5.59 | 6.3 | 7.41 | 8.39 | 9.79 | 11.18 | 14.81 | 16.78 |
- **Propane G31 kg/h** | 0.93 | 1.24 | 1.55 | 2.16 | 2.47 | 2.94 | 3.57 | 4.12 | 4.64 | 5.46 | 6.18 | 7.21 | 8.24 | 10.92 | 12.36 |

### Gas Consumption & outputs based upon natural gas G20 having a calorific value of 10.5kWh/m³ GCV & Propane G31 14.0kWh/kg GCV

- **Minimum gas inlet pressure is 17.5mbar for natural gas & 37mbar for propane. Maximum inlet pressure is 50mbar.**

- **Gas connection size is not supply line size.**

### Gas Emissivity & outputs based upon natural gas G20 having a calorific value of 10.5kWh/m³ GCV & Propane G31 14.0kWh/kg GCV

### Sound pressure level measured at 5m from the unit with A=160m² and Q=2

### UDSB-D Centrifugal Fan Models Technical Data

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<th>Model Ref</th>
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<tr>
<td><strong>Noise level @ 5m²</strong> (Q=2, A=160m²) dB(A)</td>
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### Gas Consumption

- **Natural gas G20 m³/h** | 1.68 | 2.1 | 2.94 | 3.36 | 4.02 | 4.85 | 5.59 | 6.3 | 7.41 |
- **Propane G31 kg/h** | 1.24 | 1.55 | 2.16 | 2.47 | 2.96 | 3.57 | 4.12 | 4.64 | 5.46 |

### Gas Consumption & outputs based upon natural gas G20 having a calorific value of 10.5kWh/m³ GCV & Propane G31 14.0kWh/kg GCV

### Maximum gas inlet pressure is 50mbar.**

- **Gas connection size is not supply line size.**

### Sound pressure level measured at 5m from the unit with A=160m² and Q=2

### Throat is dependent on mounting height, room temperature and louvre settings. Throw distance relates to terminal velocity of 0.35m/s.

### For alternative duties the fan speed can be changed on site by simply relocating a wire in the electrical terminal strip.

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1. **Throw** is dependent on mounting height, building height, room temperature and louvre settings. Throw distance relates to terminal velocity of 0.35m/s.
2. **Actual noise levels are dependent on heater location and type of building. Noise levels for UDSB-D are at standard speed.**
3. **Natural gas G20 calorific value 10.5kWh/m³ GCV, inlet gas pressure maximum 50mbar, minimum 17.5mbar. Propane G31 calorific value 14.0kWh/kg GCV, inlet gas pressure maximum 50mbar, minimum 37mbar.**
4. **Not supply line size.**
5. **Recommended height to underside of heater. Downturn nozzles are recommended on horizontal units where units are installed at higher mounting height.**
6. **For buildings over 4 metres high, air re-circulation fans are recommended in conjunction with the heaters. Mounting height depends on louvre setting. Vertical downflow heaters should be used in conjunction with air re-circulation fans.**
7. **Standard airflow at 125Pa. UDSB-D models are supplied with fan speed factory set as shown in table.**
**UDSA Dimensional Details**

### UDSA Dimensions

<table>
<thead>
<tr>
<th>Model Ref</th>
<th>UDSA 11</th>
<th>UDSA 15</th>
<th>UDSA 20</th>
<th>UDSA 25</th>
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<th>UDSA 35</th>
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*Horizontal discharge heaters may be mounted onto non-combustible supports, adequately sized to support the unit weight.*
### UDSB Dimensions

<table>
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<tr>
<th>Model Ref</th>
<th>UDSB-D 15</th>
<th>UDSB-D 20</th>
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</table>

*Horizontal discharge heaters may be mounted onto non-combustible supports, adequately sized to support the unit weight.

### UDSB Dimensional Details (Ducted Outlet)

1. Flue connection
2. Combustion air inlet
3. Service panels
4. Gas connection
5. Duct Spigot 75mm

Front view

Side view

Plan view

Rear view

Rear view models 035, 043 & 050 only