



# BENSON

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## UDSA

Room Sealed Unit Heaters

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Horizontal unit

# UDSA & UDSB-D

## Room Sealed Unit Heaters

The UDSA 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% 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

### Model Range

UDSA units are fitted with a high airflow axial fan for free-blowing applications, with model heat outputs ranging from 11kW – 97kW.

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

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

## Features

- > High efficiency
- > Reduced energy bills
- > Unique aerodynamic profile of the heat exchanger results in minimal resistance to airflow to give 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



Vertical downflow unit complete with optional four-way louvre



### 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).

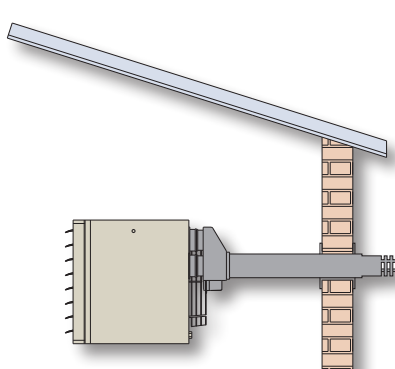
To comply with CE approvals, balanced flue appliances must be used with the manufacturer's balanced flue system. The units are also certified for fan assisted flue installations, where the combustion air is to be drawn from within the heated space; an alternative wall or roof terminal is required for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

### Installation

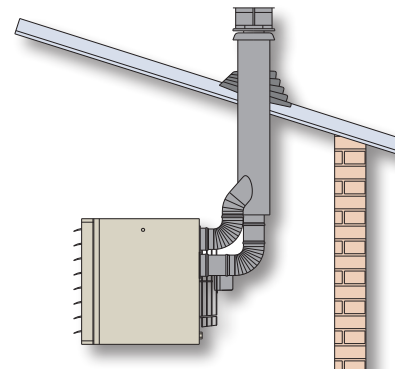
Units may be suspended or alternatively mounted on a suitable non-combustible support. Four integral suspension points complete with an M10 female thread are provided to each heater.

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

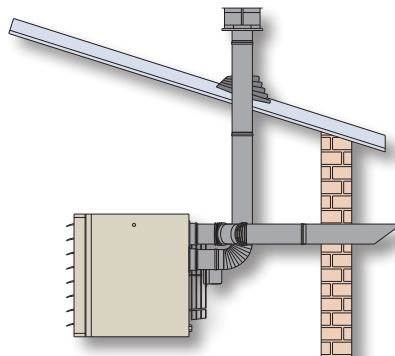
Units must not be installed in atmospheres containing flammable or explosive vapours, combustible dust, halogenated hydrocarbons or chlorinated vapours. They are also unsuitable for areas where contaminants may affect electrical motors or connections.



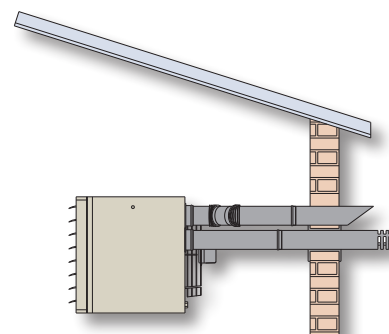
Balanced flue wall outlet (type C12) eliminates expensive roof opening and flashing



Balanced flue roof outlet (type C32)



Combustion air through wall, flue outlet through the roof (C52)



Separate combustion air and flue pipes (type C12) for applications where wall thickness exceeds maximum length shown in flue dimension table

Heater positions and flue arrangements are indicative. For heater and flue clearances please refer to our sales leaflets.



## Optimised Control

To complement the high efficiency 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
- > High / low or modulating burner control (SmartCom MZ required)



Optional SmartCom MZ panel allows up to 16 panels to be linked for centralised control

### Specification

#### 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.

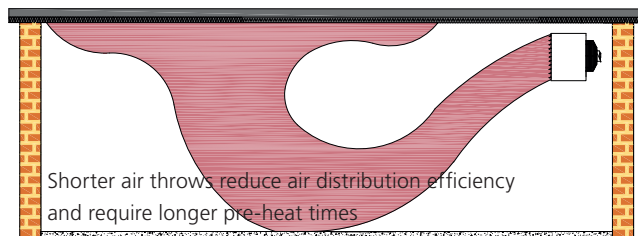
#### Dual Limit Stats

Dual limit stats provide additional safety and reliability.

#### Optimised Air Distribution

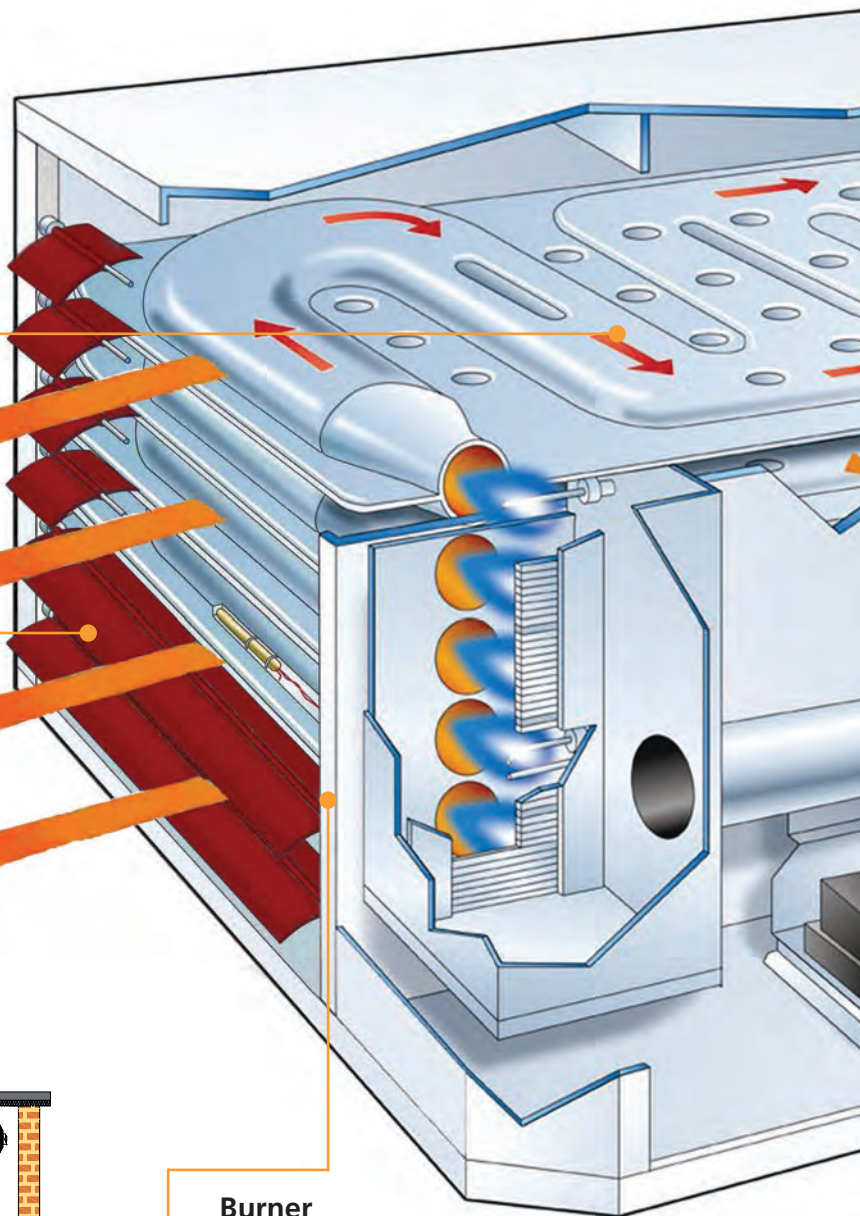
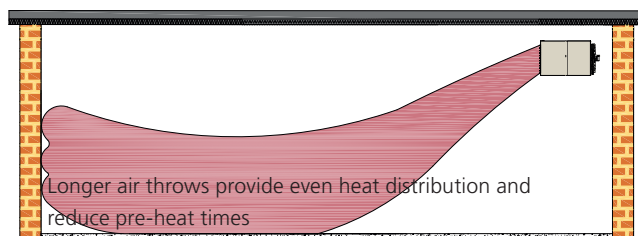
##### Traditional Unit Heater

Higher roof space temperatures increase heat loss through roof



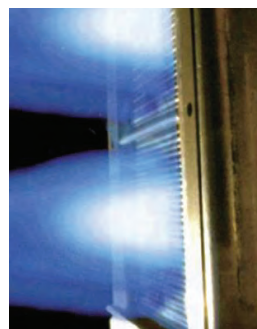
##### UDSA heater

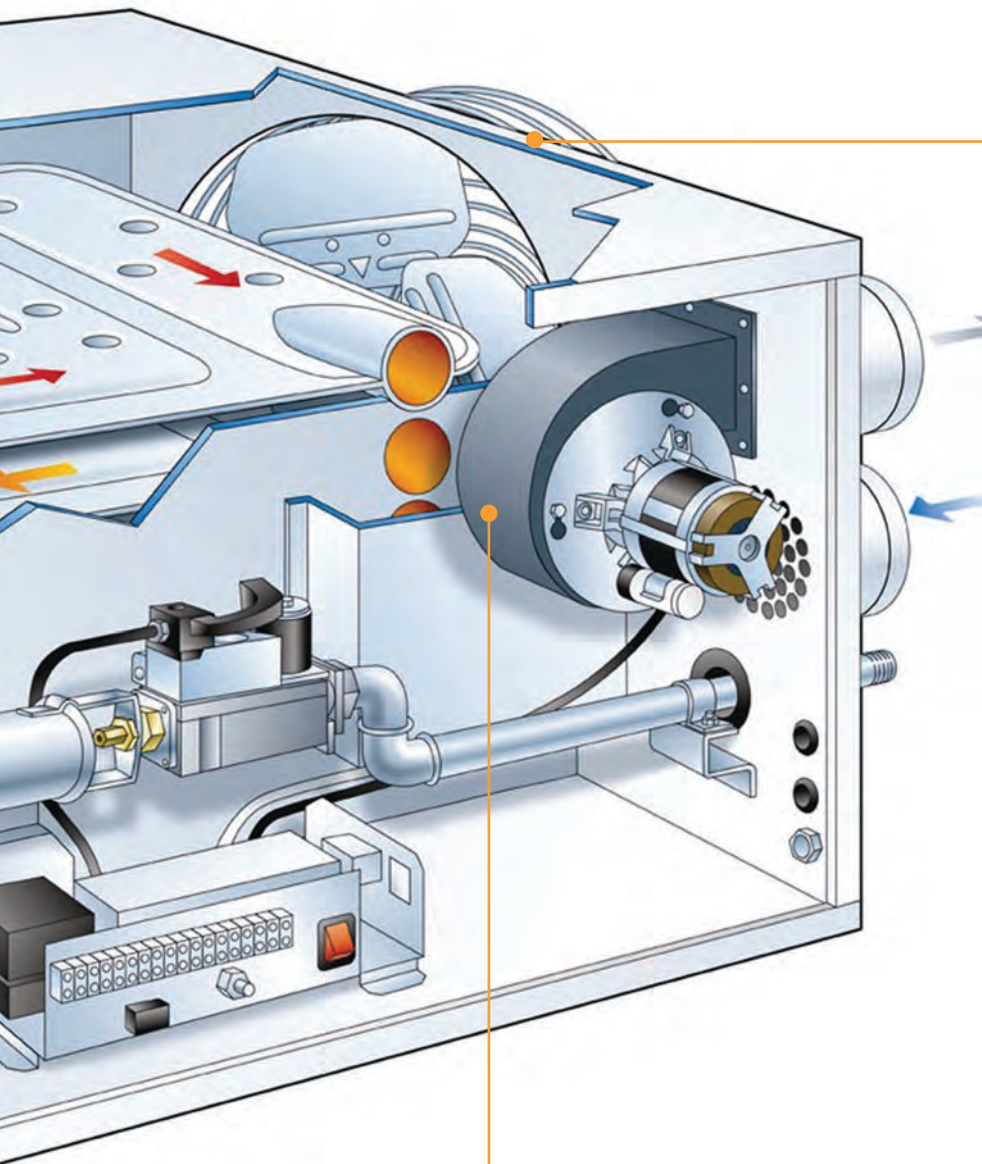
Reduced floor to ceiling temperature gradients



#### Burner

Advanced burner technology utilises a single self-aligning burner, with multi-try ignition for optimum reliability and ease of maintenance.





### 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.



### UDSA Axial Fan Models Technical Data

		Model Ref												
		UDSA 11	UDSA 15	UDSA 20	UDSA 25	UDSA 30	UDSA 35	UDSA 43	UDSA 50	UDSA 55	UDSA 64	UDSA 73	UDSA 85	UDSA 100
Nominal heat output	kW	11	15	18	26	29	35	42	49	55	64	73	85	97
Airflow	m³/h	1020	1360	1700	2385	2725	3510	4535	5180	5830	6810	7770	9065	10360
Temperature rise	K	32	32	32	32	32	29	28	28	28	28	28	28	28
Horizon throw¹	m	12	15	19	24	26	30	33	36	36	39	42	43	46
Noise level (free field @ 5m)²	dB(A)	36	37	38	40	41	45	47	48	49	50	48	49	49
Noise level (typical installation @ 5m)²	dB(A)	46	47	48	50	51	55	54	55	56	56	58	59	59
<b>Gas Consumption³</b>														
Natural gas G20	m³/h	1.26	1.68	2.1	2.94	3.36	4.02	4.85	5.59	6.3	7.41	8.39	9.79	11.18
Propane G31	kg/h	0.93	1.24	1.55	2.16	2.47	2.96	3.57	4.12	4.64	5.46	6.18	7.21	8.24
Gas connection⁴	Rc	½"	½"	½"	½"	½"	¾"	¾"	¾"	¾"	¾"	¾"	¾"	¾"
<b>Mounting height(s)⁵</b>														
Horizontal	m	2–2.5	2–3	2.5–3	2.5–3.5	2.5–3.5	2.5–3.5	2.5–3.5	2.5–3.5	2.5–3.5	3–4	3–4	3–4	3.5–4
Vertical downflow	m	n/a	4–5	4–5	4.5–6	4.5–6	5.5–7	7–9	7.5–10	7–9	8–10.5	7.5–10	8.5–11	9–12
Total electrical load (230V/50Hz)	kW	0.12	0.13	0.13	0.27	0.27	0.33	0.49	0.49	0.49	0.68	0.85	0.85	0.85
Net weight	kg	33	38	40	56	60	88	99	99	112	118	143	158	168

### UDSB-D Centrifugal Fan Models Technical Data

		Model Ref								
		UDSB-D 15	UDSB-D 20	UDSB-D 25	UDSB-D 30	UDSB-D 35	UDSB-D 43	UDSB-D 50	UDSB-D 55	UDSB-D 64
Nominal heat output	kW	15	18	26	30	35	42	49	55	64
Airflow	- ducted m <sup>3</sup> /h	1575	1650	2400	3040	3835	3750	4250	4550	5360
	- freeblowing m <sup>3</sup> /h	2150	2350	2750	3360	4080	3900	4900	5300	5930
Throw <sup>1</sup>	m	18	23	26	28	32	34	38	38	40
Static pressure ESP <sup>6</sup>	Pa	125	125	125	125	125	125	125	125	125
Noise level (free field @ 5m) <sup>2</sup>	dB(A)	50	52	47	51	46	47	52	50	53
Noise level (typical installation @ 5m) <sup>2</sup>	dB(A)	57	58	54	58	53	54	59	57	60
<b>Gas Consumption<sup>3</sup></b>										
Natural gas G20	m <sup>3</sup> /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 connection <sup>4</sup>	Rc	½"	½"	½"	½"	¾"	¾"	¾"	¾"	¾"
<b>Mounting height(s)<sup>5</sup></b>										
Horizontal free blowing	m	2.5 – 3.5	2.5 – 4	2.5 – 4.5	2.5 – 4.5	2.5 – 5.5	2.5 – 5.5	2.5 – 5.5	2.5 – 6	3 – 6
Vertical downflow	m	4 – 5	4 – 5	4.5 – 6	4.5 – 6	5.5 – 7	7 – 9	7.5 – 10	7 – 9	8 – 10.5
Fan speeds		2	1	3	3	3	3	2	2	1
Standard motor speed		mid	high	low	mid	low	low	mid	mid	high
Total electrical load (230V/50Hz)	kW	0.32	0.4	0.92	1.16	0.97	0.98	1.18	1.48	1.46
Net weight	kg	50	53	71	74	125	131	131	148	153

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

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

### UDSA Dimensions

		Model Ref												
		UDSA 11	UDSA 15	UDSA 20	UDSA 25	UDSA 30	UDSA 35	UDSA 43	UDSA 50	UDSA 55	UDSA 64	UDSA 73	UDSA 85	UDSA 100
Unit width	A	700	700	700	700	700	971	971	971	971	971	1040	1040	1040
Unit height	B	307	383	383	586	586	510	510	510	663	663	865	865	865
Overall length	C	696	723	723	771	771	1129	1129	1129	1138	1138	1138	1138	1138
Suspension centres	D	413	413	413	413	413	623	623	623	623	623	623	623	623
Suspension centres	E	350	350	350	350	350	600	600	600	600	600	600	600	600
Suspension centres	F	n/a	250	250	450	450	400	400	400	500	500	500	500	500
Suspension centres	G	n/a	413	413	413	413	623	623	623	623	623	673	673	673
Flue and combustion air collars	Ø	80	80	80	100	100	100	100	100	130	130	130	130	130
Top clearance horizontal unit		50	50	50	50	50	100	100	100	100	100	100	100	100
Top clearance downflow unit		450	450	450	450	450	450	450	450	450	450	450	450	450
Rear clearance		450	450	450	450	450	450	450	450	450	450	450	450	450
Bottom clearance*		50	50	50	50	50	100	100	100	100	100	100	100	100
Side clearance		50	50	50	50	50	100	100	100	100	100	100	100	100
Service panel clearance		850	850	850	850	850	850	850	850	850	850	850	850	850

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

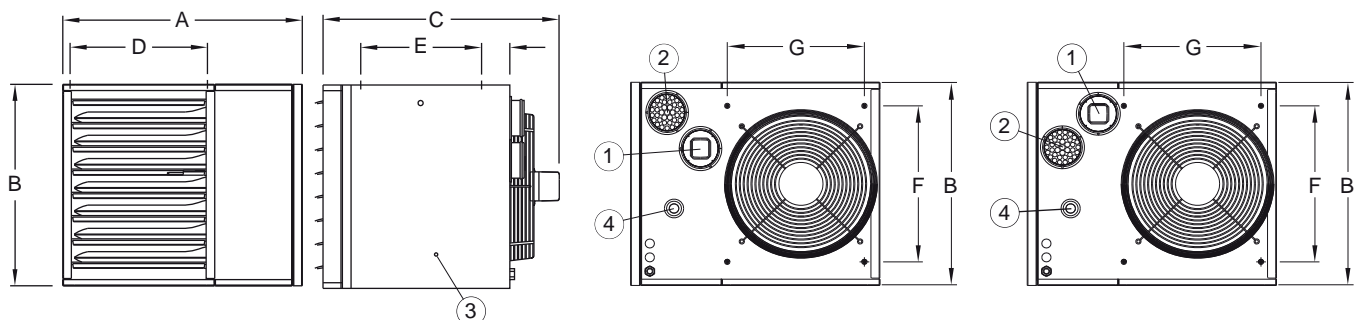
### UDSA Standard Unit

Front view

Side view

Rear view

Models 035, 043 & 050



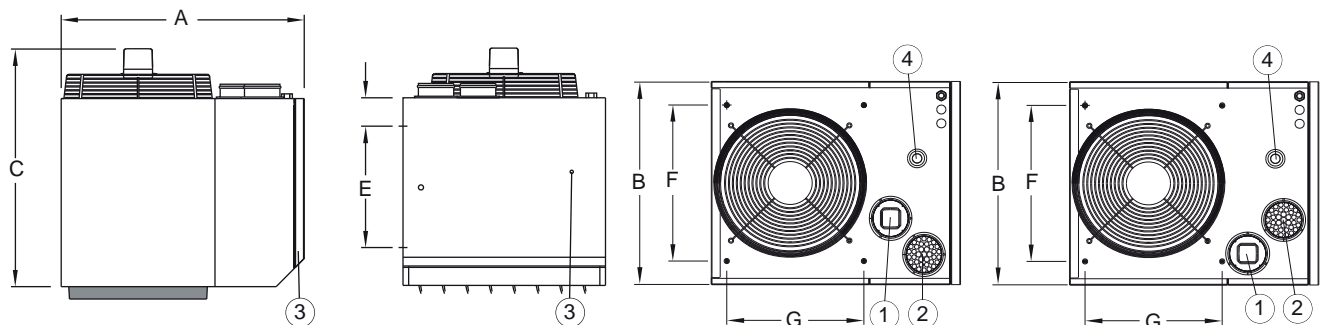
### UDSA Downflow Unit

Front view

Side view

Top view

Models 035, 043 & 050 only



1. Flue connection
2. Combustion air inlet
3. Service panels
4. Gas connection

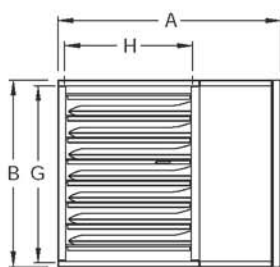
## UDSB Dimensions

		Model Ref								
		UDSB-D 15	UDSB-D 20	UDSB-D 25	UDSB-D 30	UDSB-D 35	UDSB-D 43	UDSB-D 50	UDSB-D 55	UDSB-D 64
Unit width	A	700	700	700	700	971	971	971	971	971
Unit height	B	383	383	586	586	510	510	510	663	663
Overall height	C	460	460	590	590	670	670	670	685	720
Overall length	D	935	935	1185	1185	1610	1610	1610	1610	1610
Suspension centres	E	413	413	413	413	623	623	623	623	623
Suspension centres	F	350	350	350	350	600	600	600	600	600
Duct spigot height	G	383	383	586	586	496	496	496	649	649
Duct spigot width	H	444	444	444	444	641	641	641	641	641
Flue and combustion air collars	Ø	80	80	80	100	100	100	100	130	130
Top clearance horizontal unit		130	130	130	130	180	180	180	180	180
Rear clearance		450	450	450	450	450	450	450	450	450
Bottom clearance*		50	50	50	50	100	100	100	100	100
Side clearance		270	270	270	270	350	350	350	350	350
Service panel clearance		850	850	850	850	850	850	850	850	850

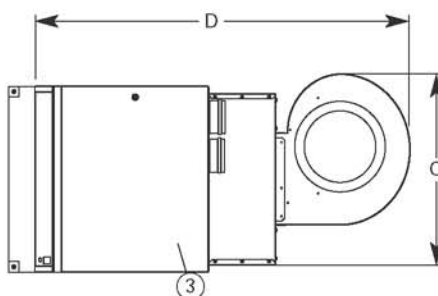
\*Horizontal discharge heaters may be base mounted directly onto non-combustible supports adequately sized to support the unit weight.

## UDSB-D Unit (Duct Outlet)

Front view

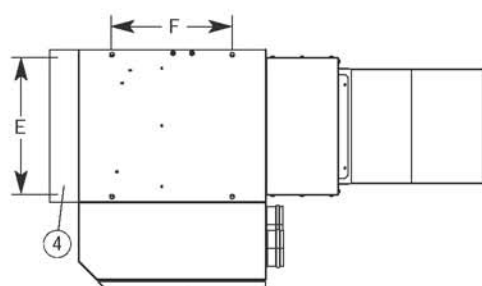


Side view

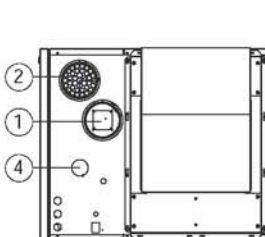


1. Flue connection
2. Combustion air inlet
3. Service panels
4. Duct Spigot 75mm
5. Gas connection

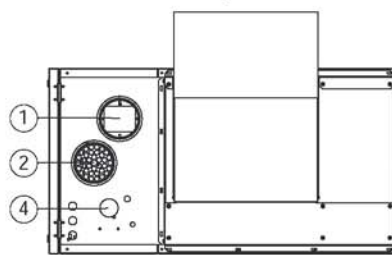
Plan view



Rear view



Models 035, 043 & 050 only



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