THERMOBILE
UK LIMITED

All the heat you need!

Model: SB80 & SB110

Model: SB40 & SB60

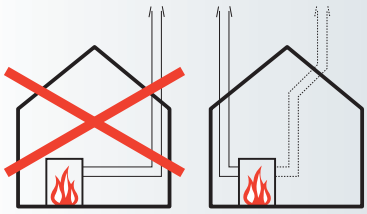
SB Range Used Oil Heaters with Automatic Ignition

Four models available: SB40, SB60, SB80 & SB110
with heat capacities from 153,000 Btu/hr. to 436,000 Btu/hr.

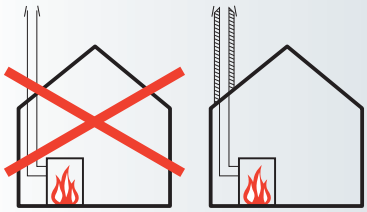
- Multi fuel capability – also operates on heating oil or diesel
- Automatic burner with fuel pre-heating
- Room thermostat for economical operation
- Fast and simple installation
- Minimum service and maintenance
- Clean, soot free combustion
- Fast return on investment due to free fuel
- High efficiency
- Heater includes 'day' tank, pump and controls

Flue Stack Installation

Errors to be avoided when installing the flue stack.

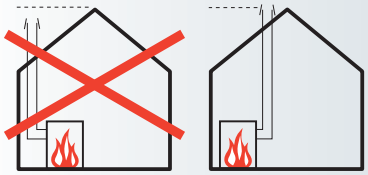


Flue gases can not rise in a horizontal stack and bends also restrict their movement. If flue bends are used then we recommend 45° bends instead of 90° and a gradual sloping stack.



Flue gases must not cool down inside the flue because:-
(a) they should rise to create draught; and
(b) condensation has to be avoided.

It is important that as much of the flue as possible (two thirds minimum) is installed within the building. If this is not possible, then twin wall (insulated) flue may be necessary.



The flue must reach above the apex of the roof otherwise the prevailing winds will affect the flue draft.

Don't give away that used oil. Recycle it into safe, clean heat.

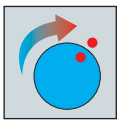
EASY INSTALLATION

The positioning of the heater in the workshop must take into account the following factors:

a) Power supply 220/240 volt (SB40/60)
   400 V+N (SB80/110)
b) Flue pipe installation
c) Air supply to main ventilator
d) Connection to a compressed air supply.
e) Access to "Day" fuel tank

MULTI FUEL CAPABILITY

These heaters operate efficiently on a general mixture of used oil. Alternatively they can be run on diesel oil, or heating oil only. The air pressure to the burner has to be adjusted. Transformer oil, petro chemical based oil, or used cutting and grinding oils must NOT be used.



BUILT IN ROOM THERMOSTAT

This thermostat enables automatic operation of the heater in order to obtain the desired room temperature and on a low position is extremely useful for overnight frost protection.

The heaters are supplied with a basic room thermostat. An optional digital thermostat/timer control is available at an additional cost.

SERVICE AND MAINTENANCE

The design of these heaters ensures a minimum of necessary service and the service functions can be undertaken by the owner without special tools. The complete burner unit can be removed for any maintenance and service.

VENTILATION ONLY

In summertime the heater can be used for ventilation only.

Ventilation air flow rates:
SB40 – 3200m³/hr (1882cfm)
SB60 – 4100m³/hr (2412cfm)
SB80 – 6200m³/hr (3647cfm)
SB110 – 8100m³/hr (4765cfm)

NON RETURN VALVE

The non return valve in the fuel intake ensures that the burner cannot drain when it is not in operation.

HEATER CONTROL THERMOSTAT

This multifunctional thermostat ensures that the main fan only starts after the combustion chamber has been sufficiently heated. Therefore, there is no cold air blown before heater operation.

COMBUSTION CONTROL

The burner is equipped with a photocell that continuously monitors the flame.

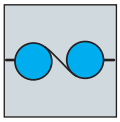
In case of ignition failure or poor combustion, lack of a flame or partly blocked nozzle, the photocell stops the burner.

INDICATOR LIGHTS

The heater has the following lights to show you:-

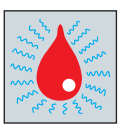
1. When there is power to the heater
2. When the main fan is in operation
3. When there is a burner failure

1 and 2 are positioned on the front panel of the heater. 3 is positioned on the burner control box on top of the burner.



OVERLOAD PROTECTION

- Electrical overload is protected by a trip system for both the main fan and the burner
- Heating overload is protected by a limit thermostat built into the heater control thermostat. This has an automatic reset.
- Any obstruction of the main fan or its air stream is secured by a manually reset overload protection



AUTOMATIC FUEL PRE-HEATING (on used oil)

This system is activated when the heater is operated on used oil.

The pre-heater is then maintained at 70°C to 85°C controlled by a thermostat.

USED OIL COMPATIBILITY

The complete burner is fully automatic including the oil pre-heating system that ensures correct ignition and atomisation. At required points, condensate drain valves are built into the system.

FLUE PIPE

The standard flue kit consists of:-

1 x T Piece complete with Draught Stabiliser
4 x 1m lengths of Flue Piping
1 x Terminal Pipe

These items ensure the minimum height for efficient operation, i.e. 6m above ground level and 1m above the roof apex.

Supports

Wall bands are available to suit the Flues and for wall fixed installation should be located at 3m centres.

A Guy Wire fixing bracket is available to provide extra lateral support where the flue extends more than 1.5m above the last wall band, or for inter-connection with the roof flashing.

Roof Penetrations

Flat and angled flashings of sheet aluminium are available to provide suitable weather cover where the flue penetrates a roof. Silicone rubber flexible flashings are also available and highly recommended.

Storm collars of aluminium are also available and should be fitted to the pipe immediately above the flashings.

Terminations

To prevent leakage of rainwater into the pipe at joints which may be exposed above roof level, a change-over section is supplied in the flue kit. This section of pipe is provided with a male crimped coupling at each end and is designed for use where the flue passes through the roof: one end should be installed inside the building and one outside. Any subsequent components are installed inverted, i.e. with the male coupling upwards and fitted and secured in the normal way.

Rain caps are not permitted with used oil fired heaters. The terminal pipe is designed to deflect rain water down the outer section.

NB. All lengths and fittings are fabricated from 0.55mm Type 430 Stainless Steel.

A detailed instruction and service manual is supplied with every Thermobile heater.

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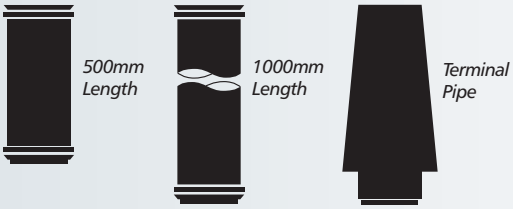
Waste Oil Heaters should not be operated until they have been registered with the relevant Local Authority. Application Forms are available from your local District or Borough Council.

The Department for Environment Food & Rural Affairs (Defra) is conducting a review of the guidance on the implementation of the European Waste Incineration Directive (WID) and its application to Small Waste Oil Burners (SWOBS). This is ongoing and no timescale has been set.

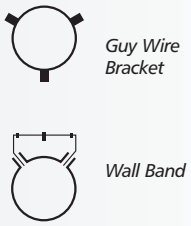
INDIVIDUAL FLUE COMPONENTS

Lengths

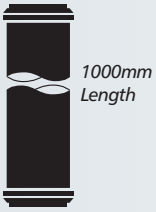
Straight Lengths – Fixed straight lengths are available in two sizes:- 500mm, 1000mm and Adjustable.



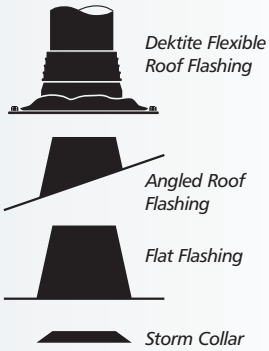
Fixings



Change-Over Lengths (installed through roof)



Flashings & Terminations

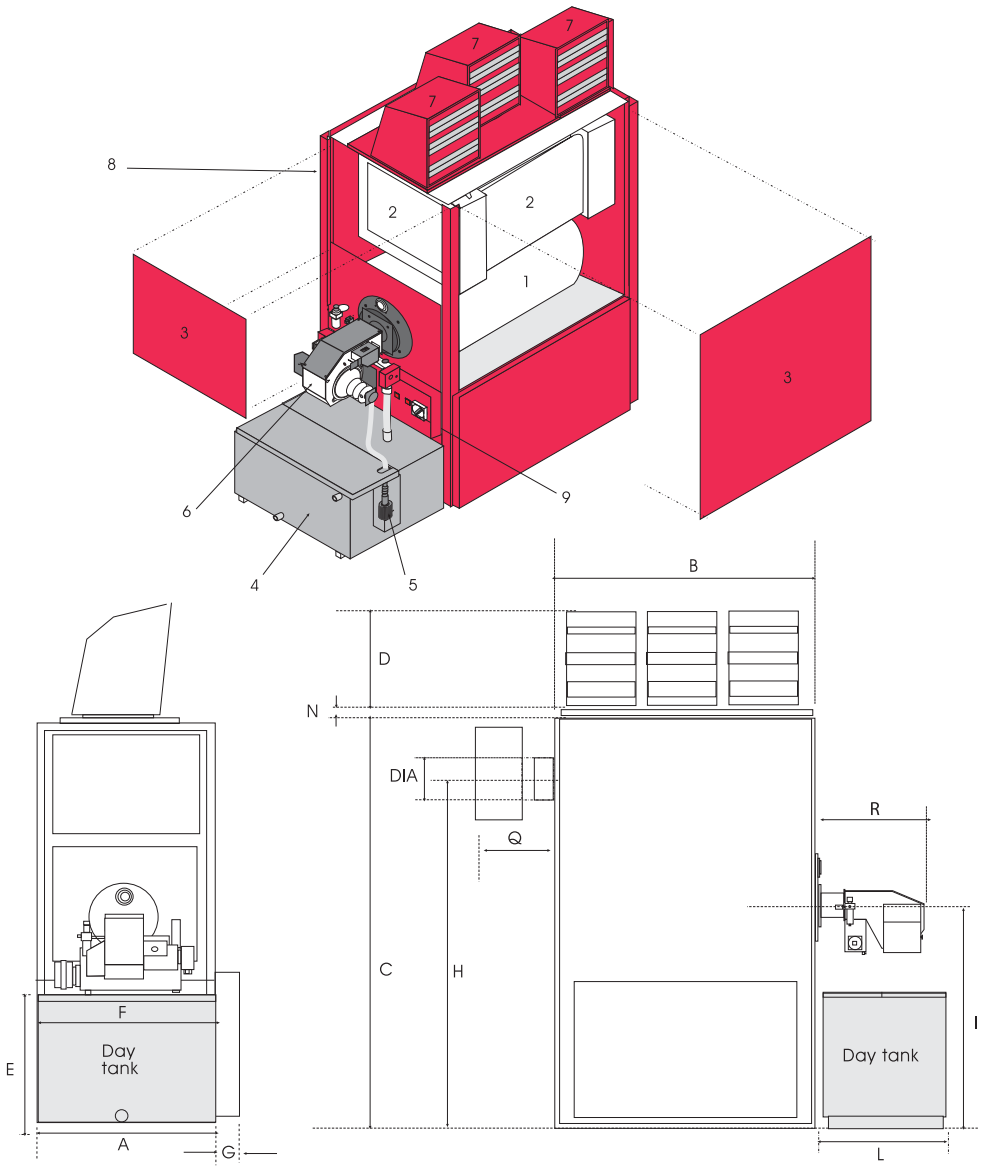


Fittings

Part No.	Description
Individual Flue Components for model SB40	
41.900.821	Flue Pipe, 1m x 150mm
41.900.822	Flue Pipe, 1/2m x 150mm
41.900.818	Flue Pipe Adjustable (540mm to 900mm x 150mm)
41.900.871	Terminal Pipe, 1m x 150mm
41.900.820	Changeover Pipe, 1m x 150mm
98.085.738	T-Piece & Draught Stabiliser & Condensation Trap & Adaptor
41.900.825	Flue Bend, 45° x 150mm
41.900.834	Wall Band for 150mm Flue Stack (locate at 3m centres)
41.900.857	Guy Wire bracket 150mm
41.900.865	Angled Roof Flashing 150mm - Sheet Aluminium
41.900.866	Flat Roof Flashing 150mm - Sheet Aluminium
41.900.860	Storm Collar 150mm
Individual Flue Components for models SB60, 80 and 110	
41.910.212	Flue Pipe, 1m x 200mm
41.910.215	Flue Pipe, 1/2m x 200mm
41.910.230	Flue Pipe Adjustable (540mm to 900mm x 200mm)
41.910.234	Terminal Pipe, 1m x 200mm
41.910.214	Changeover Pipe, 1m x 200mm
41.910.229	Flue Bend, 45° x 200mm
41.910.204	T-Piece & Draught Stabiliser & Condensation Trap (except SB60)
98.085.104	T-Piece & Draught Stabiliser & Condensation Trap (SB60)
41.910.221	Wall Band for 200mm Flue Stack (locate at 3m centres)
41.910.206	Guy Wire bracket 200mm
41.910.207	Angled Roof Flashing 200mm - Sheet Aluminium
41.910.208	Flat Roof Flashing 200mm - Sheet Aluminium
41.910.209	Storm Collar 200mm
Extras	
40.000.238	Draught Stabiliser (supplied with T-Piece assembly)
41.900.868	Silicone Rubber Flexible Roof Flashing 150mm
98.085.497	Silicone Rubber Flexible Roof Flashing 200mm
41.900.869	Silicone Rubber Fixing Kit for Flashing

RHA Allied Industry Member
OFTEC Member
GEA GARAGE EQUIPMENT ASSOCIATION

SB RANGE USED OIL HEATERS DIMENSIONS



1. Combustion Chamber
2. Heat Exchanger
3. Access Panel
4. Day Tank
5. Fuel Filter
6. Automatic Waste Oil Burner
7. Swivel Exit Heads, 2 or 3, depending on model
8. Main Ventilator Fan Limit Control
9. Electric Main Isolator Switch

OVERALL DIMENSIONS (mm)				TECHNICAL INFORMATION						
Model	Width	Length	Height	Model	Heat Capacity (Btu/hr)	Heated Air Flow (M^3/hr)	Electric Supply (Volts)	Power Consumption (Kw)	Day Tank Capacity (Litres)	Approx Fuel Consumption (Litres/Hr)
SB40	690	1860	1850	SB40	153,000	3200	230	1,1	80	4.5
SB60	690	1860	1850	SB60	204,000	4100	230	1,4	80	6.0
SB80	900	2060	2175	SB80	306,000	6200	400 + 0	1,8	130	9.0
SB110	900	2060	2175	SB110	436,000	8100	400 + 0	2,2	130	12.8

All dimensions include day tank, burner and flue tee piece (B+Q=L)

MODEL	A	B	C	D	E	F	G	H	I	L	N	Q	R	DIA	WEIGHT KG
SB40/60	570	910	1425	400	270	560	120	1255	805	550	25	400	405	160	180
SB80/110	760	1110	1750	400	320	760	140	1525	945	550	25	400	405	180	290

ACCESSORIES

Flowmatic:

An automatic motor and pump system to keep the 'day oil tank' supplied from a bottom outlet, gravity fed, bulk storage tank (pipework and electric cable not included). Maximum distance of 15m.

A pneumatic pump system is available for bulk storage tanks with top outlets and/or for distances above 15m.

Thermostat/Timer ECO.X TFP2

An energy management computer specifically designed for total space heating control.

Features of the ECO.X TFP2

- Quartz accuracy
- 7 day temperature control with each day having independent settings
- Two timed periods available for each day
- Two line LCD giving clear indication of time, settings, temperature etc.

Filter Kits

Air inlet filters are available for the main ventilator fan.

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Dealer

21st September 2015

INFORMATION REGARDING SMALL WASTE OIL BURNERS (SWOBS)

On the 18th July 2011 Thermobile UK Ltd were made aware that The Department for Environment Food and Rural Affairs (Defra) were conducting a review of guidance on the implementation of the European Union Waste Incineration Directive (WID), now the Industrial Emissions Directive (IED), and it's application to small waste oil burners (SWOBS) in England and Wales.

Thermobile attended meetings at Defra on 10th August 2011 and 4th November 2011 together with representatives of the Garage Equipment Association (GEA), the Retail Motor Industry Federation (RMI) and the Oil Firing Technical Association (OFTEC).

SWOBS have been exempt from WID since it's inception in 2000 as the UK produced guidance which took the view that small waste oil burners lacked the technical specification to amount to "incineration plant" for the purposes of the Directive.

Manufacturers of SWOBS, the GEA, RMI, OFTEC and other trade organisations fought the case for current and potential operators of SWOBS as to the benefits of burning waste oil on site at the point of it's arising as against that of being transported, recycled and sold back to the end user at great profit to the oil recycling companies.

The initiative rails against the logic of the obvious sensible carbon footprint of burning waste oil on site and reducing the operator's heating bills in these difficult economic times.

Further to this statement by Defra, Thermobile commissioned a Carbon Footprint "cradle to grave" report for Waste *Oil* versus Processed Fuel Oil and Virgin Oil which was presented to Defra.

Thermobile is the only manufacturer of Waste Oil Fired Heaters to have been involved in discussions with Defra for the past 25 years concerning the use of waste oil as a means of workshop heating and the ONLY Company to spend a large sum on the Carbon Footprint study.

On the 14th September 2015 Thermobile received notification from Defra that on the 16th July 2015 the Parliamentary Under Secretary of State for Environment and Rural Affairs, Rory Stewart, announced that as part of commitment to cleaner air the Government would amend the current Environmental Permitting Guidance – the "Waste Incineration Directive Guidance", to state clearly that all waste incineration plants and co-incineration plants burning waste oils in England and Wales fall under the scope of Chapter IV the Industrial Emissions Directive (IED). The change effects small basic appliances such as Small Waste Oil Burners (SWOBS). A further Impact Assessment report was received a few days later.

This Guidance will be amended to advise that these units are within scope of Chapter IV of the IED, and therefore their continued use of waste oils as a fuel will require the relevant permit under Schedule 13A of the Environmental Permitting Guidance (EPR). The cost of this permit would be prohibitive to end users. The Waste Incineration Directive (WID) requires that all waste incineration plants and waste co-incineration plants meet stringent requirements on their emissions, as well as monitoring and reporting.

Cont:

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Monitoring involves a specialist company trapping a sample of exhaust gases in the flue stack and sending them for chemical analysis. The cost of these tests run to several thousand pounds, way above the reach of small to medium enterprises.

We have never been presented with emission figures from a waste oil heater by Defra and as far as we know the last tests were conducted 35 years ago when the new oil had far greater metallic compounds and other impurities.

In 2011 Thermobile offered to pay for emission tests and were told not to bother by Defra as the main objective of the directive was waste, and not emissions. Thermobile are still willing to pay for tests, hopefully with contributions from other manufacturers.

The astounding admission by Defra is "There could be some emissions produced when waste oil is processed, however we have no data on this so assume these would be negligible"!!

This Processed Fuel Oil (PFO) is the main alternative fuel suggested by Defra !!!.

Defra intend to publish the amended guidance in December 2015 with amendments taking effect from April 2016 which is extremely annoying as the RMI, GEA and ourselves were assured in 2011 that we would be involved in further consultation.

The RMI and the GEA are appealing the decision on behalf of garages and suppliers respectively which will include representation to the Government Minister concerned.

The timescale provided by Defra is totally unacceptable as the payback time for operators is from one and a half years to three years depending on model size. Our concern is especially for users that have purchased a waste oil heater in the last few weeks or months as they are not being given the chance to recoup their outlay.

Waste Oil heaters can still be operated on alternative fuels which do not require a licence from Defra. The SB Series of Automatic Ignition units can be operated on Heating Oil, Diesel, Processed Fuel Oil (PFO), and Bio Oils Including Linseed, Rapeseed and certain refined Vegetable Oils.
The AT Series of manual ignition units can be operated on all of the above plus a Diesel/Paraffin mix.

Thermobile

Figures required when applying for a permit to a local authority to operate a waste oil burner with a net rated thermal input of less than 0.4MW.

Waste Oil Heaters – Net Rated Thermal Input Figures

Vaporising Models

Model	MW	BTU	KW
AT302	0.029	100,000	29
AT303	0.029	100,000	29
AT305	0.029	100,000	29
AT306	0.029	100,000	29
AT307	0.029	100,000	29
AT400	0.041	140,000	41
AT500	0.058	200,000	58
ATA70	0.067	228,000	67
ATA100	0.111	378,000	111

Atomising Models

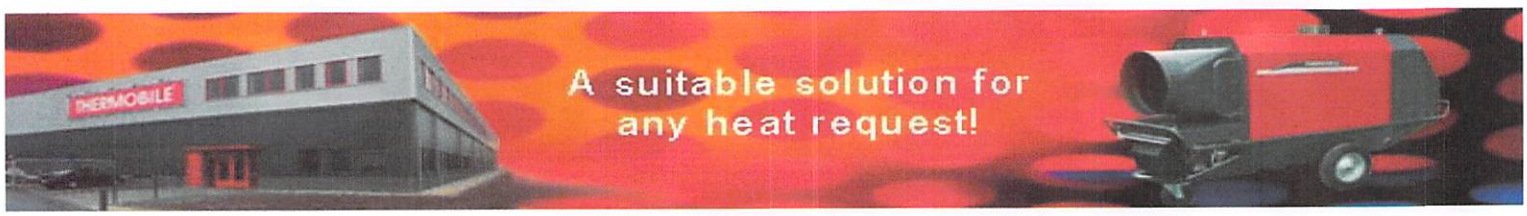
Model	MW	BTU	KW
SB35	0.033	113,000	33
SB40	0.045	155,000	45
SB55	0.053	180,000	53
SB60	0.059	200,000	59
SB80	0.088	300,000	88
SB110	0.127	433,333	127

1 Megawatt (MW) = 1 Million Watts = 1,000KW= 3,412,000 Btu/hr

1 Kilowatt (KW) = 1 Thousand Watts

1 Kilowatts (KW) = 3.4121 Btu/hr

Small waste oil burners (SWOBs) are units with a net rated thermal input up to 0.4MW = 1,364,800 Btu/hr



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Used Oil Heaters – Return on Investment Evaluation

Payback evaluation based on oil consumption and purchase price.

Figures are based on the approximate fuel consumption during 5 months operating (40 hours weekly)

Cost of alternative heating oil @61p litre*

1 Litre of Heating Oil (diesel) produces 10KW/hr of Heat (34,000 Btu/hr).

Model	Heat Output KW (gross)	One seasons Consumption Litres	Gallons	Cost of heating oil (1 season)	Avg Purchase Price of heater & Flue Kit	Payback time in seasons (years)
AT 306	30	2400	528	£1464	£1100	Less than 1 season
AT 306 THERMO	30	2400	528	£1464	£1250	Less than 1 season
AT 307	30	2400	528	£1464	£1650	Approx 1 season
AT 400	43	3440	757	£2099	£2250	Approx 1 season
AT 500	62	4960	1090	£3025	£2650	Less than 1 season
SB 40	45	3600	792	£2196	£3899	Approx 1 ¾ seasons
SB 60	60	4800	1055	£2928	£4200	Approx 1 ½ seasons
SB 80	90	7200	1584	£4392	£5850	Approx 1 ⅓ seasons
SB 110	128	10240	2252	£6246	£6350	Approx 1 season

This evaluation does not take into consideration the operator's cost of disposing of their used oil (collection services) or the operator's licence fee from the local authority. Normally one balances out the other.

* Source: Average UK price as at 3rd October for 1000 litre delivery

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