

THERMOBILE
UK LIMITED

All the heat you need!



AT Range Used Oil Heaters with Manual Ignition

Heat capacities from 102,000 Btu/hr. to 210,000 Btu/hr.

Multi Oil Heaters



AT306 102,000 Btu/hr.



AT306THERMO 102,000 Btu/hr.



AT307 102,000 Btu/hr.

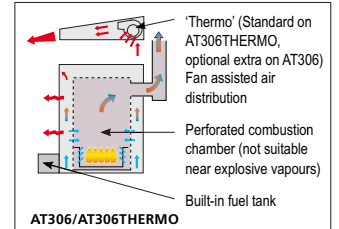
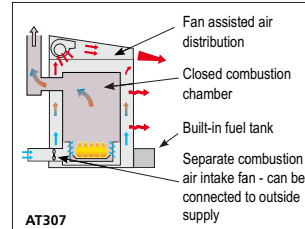
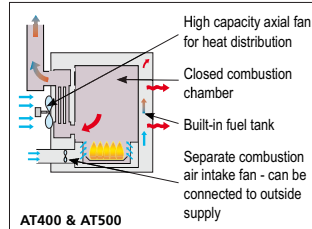


AT400 146,000 Btu/hr.



AT500 210,000 Btu/hr.

WORKING PRINCIPLES



Thermobile waste oil fired heaters can be operated using waste oil from diesel or petrol engines, gearboxes, transmissions, hydraulic systems, diesel oil or any combination of these. The following must not be used; solvents, thinners, petro-chemical based oils, transformer oil or any oil above S.A.E. 90.

Full combustion is achieved in a vaporising system and non-burnable residue is retained in the burner pan.

AT306, AT306THERMO

The AT306 and AT306THERMO are recommended only for workshops where no explosive vapours are present. Model AT306 produces radiant heat only, whilst the AT306THERMO produces a combination of radiant heat plus hot air from the top mounted 'thermo' blower.

AT307, AT400, AT500

Models AT307, AT400 and AT500 have been developed primarily for the automotive market. Model AT307 produces a combination of radiant heat plus hot air from the top mounted 'THERMO' blower. Model AT400 and AT500 have a high capacity axial fan providing a heated air flow of 3,000 cubic metres per hour.

The high efficiency of the AT400 and AT500 is achieved by a built-in, large surface heat exchanger, through which all the gases have to pass before entering the flue.

A high capacity axial fan draws air from the workshop over the heat exchanger and combustion chamber and expels warm air into the building, providing a constant recycling of warm air.

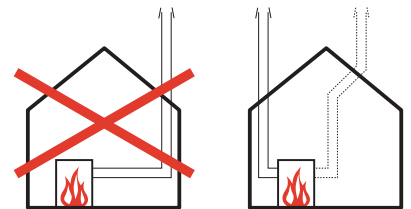
All models are equipped with a fuel tank that can be easily removed for cleaning purposes. Thermobile waste oil heaters are backed by

50 years of experience in the manufacture and development of space heaters. They are built using the most up-to-date technology and carry a 12 month warranty, ensuring full customer satisfaction.

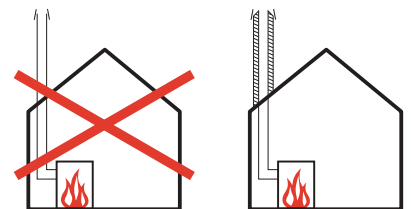
This heating technology permits the end user to recover the investment costs within possibly one heating season because of the savings made from using waste oil instead of a more expensive fuel oil.

Flue Stack Installation

Errors to be avoided when installing the flue stack.

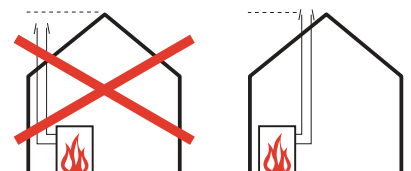


Flue gases can not rise in a horizontal stack and bends also restrict their movement. If flue bends are used then we recommend 45° bends instead of 90° and a gradual sloping stack.



Flue gases must not cool down inside the flue because:-
(a) they should rise 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.

USED OIL • DIESEL • 35 SEC HEATING OIL • RAPESEED OIL & CERTAIN VEGETABLE OILS

- Can burn pure waste oil or mixed with diesel
- Clean, soot free combustion
- Fast return on investment due to free fuel
- Heater includes built-in tank, pump & controls.

INSTALLATION OF THE HEATER

The heater must be installed on a completely level, concrete floor. The positioning of the heater in the workshop must take into account the following factors:-

- Electricity supply 240V
- Flue pipe installation
- Combustion air supply
- Access to built in fuel tank

Except for model AT306 and AT306THERMO it is recommended that the unit is installed so that the combustion fan draws in clean air from outside the building ensuring that no vapours, dust or oxygen can be sucked in from the workshop floor.

BURNER DRAW SYSTEM ON MODELS AT400 & AT500



MODELS AT400 & AT500

Thermobile heaters are complete units (except flue and air-intake pipe); fuel tank, pump system, wiring and all required controls are incorporated in the heaters.

Pour approx 1/3 litre of diesel into the combustion dish and manually ignite.



Close and lock the burner draw and put the control switch to position '1'.



- Install:
- 1) The flue pipe.
 - 2) Combustion air intake pipe if required.

All heaters have flame failure and overheat protection plus burner pan overflow security.

The waste oil is fed into a burner pan where the oil vapourises; the gases maintain the flame and the unburnable residues remain in the burner pan.

OPERATION SAFETY



The combustion air can be taken from outside the building, so no dangerous fumes from inside the building can enter the heater. SO, THIS IS A CLOSED SYSTEM! This also applies to model AT307

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.

FEATURES	AT306	AT306 THERMO	AT307	AT400	AT500
Sealed Combustion Chamber			✓	✓	✓
Burner Draw System				✓	✓
Overheat Protection		✓	✓	✓	✓
Flame Failure Protection	✓	✓	✓	✓	✓
Burner Pan Overflow Security	✓	✓	✓	✓	✓
Combustion Chamber Pressure Relief Valve			✓	✓	✓
High Efficiency Heat Exchanger				✓	✓
Outside Combustion Air Facility			✓	✓	✓

FLUE PIPE INFORMATION

The complete flue kit consists of...

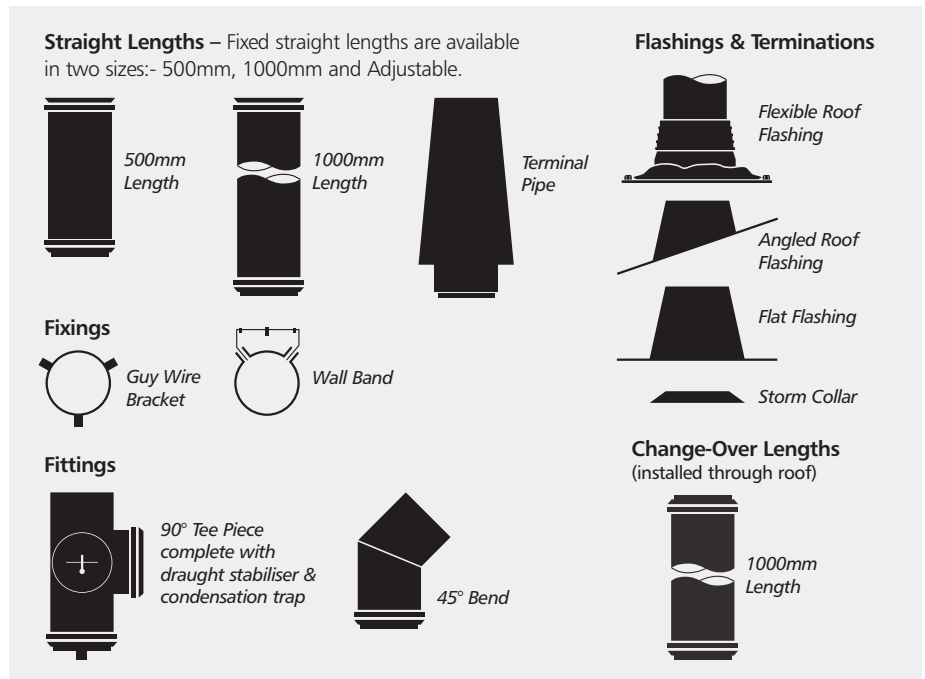
AT306, AT306THERMO, AT307, AT400

- 1 x T Piece complete with Draught Stabiliser
- 4 x 1m lengths of Flue Piping (150mm dia)
INCLUDING CHANGE-OVER LENGTH
- 1 x Terminal Pipe
- 2 x Adjustable Wall Brackets
- 1 x High Temperature Silicon Rubber Roof Flashing & Fitting Kit

AT500

- 1 x T Piece complete with Draught Stabiliser
- 5 x 1m lengths of Flue Piping (200mm dia)
INCLUDING CHANGE-OVER LENGTH
- 1 x Terminal Pipe
- 2 x Adjustable Wall Brackets
- 1 x High Temperature Silicon Rubber Roof Flashing & Fitting Kit

INDIVIDUAL FLUE COMPONENTS



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, ie. with the male coupling upwards and fitted and secured in the normal way. Rain caps are not permitted with waste oil fired heaters. The terminal pipe is designed to deflect rain water down the outer section.

All flue pipe connections must be adequately sealed. A flue draught stabiliser is essential for every model and is supplied with the standard flue stack. For efficient

operation a minimum flue height of one metre above the roof apex and six metres above ground level is required.

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

ALL LENGTHS AND FITTINGS ARE FABRICATED FROM 0.55MM TYPE 430 STAINLESS STEEL.

THE INSTALLATION OF THE FLUE STACK IS THE MOST IMPORTANT ASPECT IN THE EFFICIENT OPERATION OF ANY WASTE OIL HEATER.

TECHNICAL DETAILS		AT306	AT306 THERMO	AT307	AT400	AT500
Capacity Btu/hr (1)	Max	102,000	102,000	102,000	146,000	210,000
	Min	68,000	68,000	68,000	85,000	130,000
Fuel Consumption L/h (1)	Min	2	2	2	2.5	3.8
	Max	3	3	3	4.3	6.2
Tank Capacity	Litres	50	50	50	55	55
Weight	Kg	67	84	102	135	165
Current	A	0.23	0.7	0.8	1	2
Flue Connection	Ømm	130	130	130	130	180
Heated Airflow	m³/hr	-	1000	1000	3000	3000
Max. space to be heated (2)	cu. ft.	20,000	20,000	20,000	28,000	42,000

(1) Output depending on type of waste oil (2) Depending on building insulation - figures quoted are for a well-insulated modern building with doors closed

	A Width	B Depth*	C Height
AT306	54cm 21"	98cm 39"	113cm 44"
AT306 THERMO	54cm 21"	105cm 41"	127cm 50"
AT307	54cm 21"	105cm 41"	127cm 50"
AT400	82cm 32"	110cm 43"	108cm 42"
AT500	82cm 32"	115cm 45"	128cm 50"

*Depth includes 'T' pieces for flue stack

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Dealer

Thermobile reserve the right to alter specifications without notice.

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**

<u>Model</u>	<u>MW</u>	<u>BTU</u>	<u>KW</u>
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

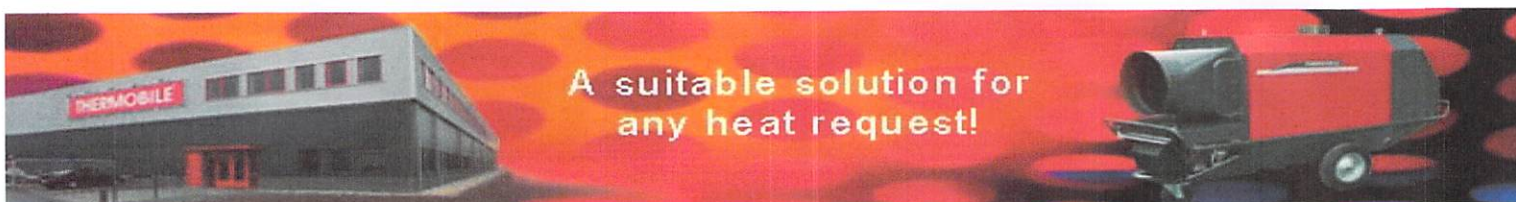
<u>Model</u>	<u>MW</u>	<u>BTU</u>	<u>KW</u>
SB35	0.033	113,000	33
SB40	0.045	155,000	45
SB55	0.053	180,000	53
SB60	0.059	200,000	59
SB80	0.088	300,000	88
SB110	0.127	433,333	127

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



**A suitable solution for
any heat request!**



All the heat you need!

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Used Oil Heaters – Return on Investment Evaluation

Tel: 02476 357 960 Fax: 02476 357 969

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 @50p litre*

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

Model	Heat Output KW (gross)	One seasons Consumption		Cost of heating oil (1 season)	Avg Purchase Price of heater & Flue Kit	Payback time in seasons (years)
		Litres	Gallons			
AT 306	30	2400	528	£1200	£1000	Less than 1 season
AT 306 THERMO	30	2400	528	£1200	£1200	Approx 1 season
AT 307	30	2400	528	£1200	£1500	Approx 1¼ seasons
AT 400	43	3440	757	£1720	£2100	Approx 1¼ seasons
AT 500	62	4960	1090	£2480	£2500	Approx 1 season
SB 40	45	3600	792	£1800	£3870	Approx 2 seasons
SB 60	60	4800	1055	£2400	£4200	Approx 1¾ seasons
SB 80	90	7200	1584	£3600	£5800	Approx 1½ seasons
SB 110	128	10240	2252	£5120	£6300	Approx 1¼ seasons

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 17th January for 1000 litre delivery