pressurejetrange

Buccaneer GTE, Falcon GTS, Harrier GTS, Viceroy GTS, Viscount GTS, Vanguard L

Pressure jet boilers 21-3500kW

Commercial & Industrial Boilers

BOILERS Ideal

ENGINEERED FOR PEACE OF MIND

the pressure jet range

Contents

Introduction

Ideal Boilers continue to lead the market with value for money Pressure Jet boilers for commercial or industrial applications.

Ideal boasts the widest range of Pressure Jet boilers which provide outputs from 21kW to 3500kW giving the customer a boiler for all situations. They are designed to be compact in size yet extremely powerful and efficient in performance, meeting all requirements at both full load and part load for low emissions and high operating efficiency (90-93% net efficiency).

All models are suitable for gas or oil firing, whilst dual fuel options can be provided on selected models only. Matched burners can be supplied together with modulating or low NOx options. Control panels are provided with comprehensive features giving simple and robust operation.
The cast iron range from 21kW to 1450kW is designed to obtain the largest heat exchange surface in the most space efficient size, yet maintain long life and easy servicing. Low modulated temperature operation down to 40˚C allows more fuel savings.
The Vanguard L range of steel boilers from 130kW to 3500kW provides an increased range of outputs, with careful combustion chamber and flue tube design for robust long life. The compact, reverse flame design is one of the narrowest available making access easier.

All boilers have thick fibreglass insulation to minimise standing losses, and installation is simple with 'either hand' burner door hinging and easy access to all connections.

The Pressure Jet range comprises two categories:

Cast Iron

Buccaneer GTE	21kW - 39kW
Falcon GTS	40kW - 100kW
Harrier GTS	105kW - 330kW
Viceroy GTS	300kW - 780kW
Viscount GTS	754kW - 1450kW

Steel

Vanguard L	130kW - 3500kW

The Ideal Pressure Jet range - optimum power and optimum performance.

CE **Conforms with all relevant European standards and requirements**

the pressure jet range

Buccaneer GTE 21 - 39kW

- High efficiency (full and part load)
- 3 pass cast iron heat exchanger
- Compact size
- Comprehensive control including diagnostic display
- Easy to install and service
- Low temperature return
- Stylish new appearance
- 'Building Regulations L2' Compliant

Falcon GTS 40 - 100kW

- High efficiency (full and part load)
- 3 pass cast iron heat exchanger
- Compact size
- Comprehensive control including diagnostic display
- Easy to install and service
- Low temperature return
- 'Building Regulations L2' Compliant

Harrier GTS 105 - 330kW

- High efficiency (full and part load)
- Minimal emissions
- 3 pass cast iron heat exchanger
- Compact size
- Easy to install and service
- Low temperature return
- 'Building Regulations L2' Compliant

the pressure jet range

Viceroy GTS 300 - 780kW

- High efficiency (full and part load)
- Minimal emissions
- 3 pass cast iron heat exchanger
- Compact size
- Easy to install and service
- Low temperature return
- 'Building Regulations L2' Compliant

Viscount GTS 754 - 1450kW

- High efficiency (full and part load)
- Minimal emissions
- 4 pass cast iron heat exchanger
- Compact size
- Easy to install and service
- Low temperature return
- 'Building Regulations L2' Compliant

Vanguard L 130 - 3500kW

- High efficiency (full and part load)
- 6 bar pressure standard
- Wide range of outputs
- Reduced width
- Compact size
- Steel shell construction
- Ease of service and maintenance
- Comprehensive control
- Stylish new appearance
- 'Building Regulations L2' Compliant

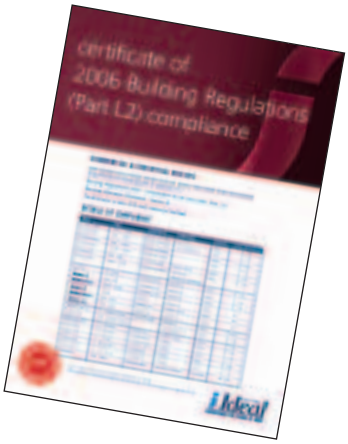
product specification

Performance

Tested and certified to EN303.1 the European standard governing safety and performance of commercial and industrial boilers, the CE approved Pressure Jet range offers high efficiency performance. The approved efficiency of the range at full load is approximately 90-93%. At 30% load, 94-96% (Vanguard 92-93%) is achieved based on the net calorific value of the fuel. The Pressure Jet range is also good for the environment, reducing both CO^2 and NOx emissions.

The latest refinements ensure higher efficiencies at both full and part loads to meet the new BUILDING REGULATIONS L2 (amended 2006). Certification for this can be provided on request.

Boiler	Range	Certificate No.	Notified Body	Reference
Buccaneer GTE	4 - 6 Sections	49BM3528	AFNOR, Paris	0049
Falcon GTS	4 - 8 Sections	1312BR4657	Certigaz	0042
Harrier GTS	5 - 9 Sections	1312BR4783	Certigaz	0042
Viceroy GTS	8 - 14 Sections	1312AQ952	Certigaz	0042
Viscount GTS	14 - 25 Sections	1312AQ954	Certigaz	0042
Vanguard L	130 - 3500	0461BN0688	Technigas, Belgium	ISO 9001



In order to give you assurance and peace of mind a Certification of Compliance to the Building Regulations 2006 can be obtained from the commercial heating department.

Construction

GTE/S Cast-Iron range

Manufactured in robust cast-iron the sections are cast in full form with a water cooled base. Sections incorporate moulded studs to provide maximum heat exchanger surface for section size. Housed within stove enamelled sheet steel casings, the boiler body is assembled using slip nipples and held by tie rods.

Vanguard Steel Pressure Jet range

The Vanguard boiler is housed within a stylish silver-grey stove enamelled sheet steel casing. The heat exchangers are manufactured from high quality steel (Type S235 JR G2). The combustion chamber is constructed with a reverse flame design which maximises efficiency. The cylindrical combustion chamber is positioned into the lower part of the boiler ensuring a completely wet surface below the burner flame. The heat exchanger is designed so the the lower part of the combustion chamber is free to expand and contract, minimising stress.

The positioning of the combustion chamber also allows for a great number of flue gas tubes to be concentrated in the higher part of the heat exchanger thereby gaining the maximum heat transfer and minimising resistance.

The flue gas tubes are specially designed to provide longer life expectancy as they are constructed from 4mm thick steel, whereas conventional steel boilers use only 2.9mm thickness tubes.

Turbulators are inserted into the flue tubes to slow down the flue gasses and therefore increase efficiency.

A further feature of the tube design is that they have been extended into the rear plate in order that any condensation formation is quickly evaporated.

Maintenance is simple by the provision of boiler waterway inspection covers and flushing points (above 1100kW models).

Insulation

Buccaneer GTE, Falcon GTS, Harrier GTS

A minimum of 100mm fibreglass wool insulation is provided around the boiler body. Ceramic fibre insulation is used on burner and cleaning doors.

Viceroy GTS, Viscount GTS

A minimum of 100mm fibreglass wool insulation is provided, 140mm thick insulation surrounds the hottest parts of the boiler.

Vanguard L

A minimum of 100mm (80mm 170-480 models) thick mineral wool fibreglass insulation surrounds the whole of the boiler body.

Electrical Controls

Control panels are mounted on the front of the boiler casing and provide the following functions.

Boiler	Buccaneer GTE	Falcon GTS	Harrier GTS	Viceroy GTS	Viscount GTS	Vanguard L
Standard Panel						
Mains on / off switch	✓	✓	✓	✓	✓	✓
Control thermostat	30 - 90˚C (CH & DHW)	30 - 90˚C				
Overheat thermostat (with manual reset)	110˚C	110˚C	110˚C	110˚C	110˚C	100˚C
Boiler thermometer	✓	✓	✓	✓	✓	✓
Summer / Winter switch	✓	✓				
Overheat thermostat test switch	✓	✓	✓	✓	✓	
High / Low thermostats		option	30 - 90˚C	30 - 90˚C	30 - 90˚C	30 - 90˚C
Circuit breaker	✓	✓	✓	✓	✓	
Fuse						✓
Burner on / off switch	✓	✓				✓
System pump switch						✓
Burner lockout light	✓	✓				
Flue gas thermometer			O	O	O	

Control Panel - Buccaneer GTE/Falcon GTS

Quality

As with all Ideal boilers, the Pressure Jet range is engineered to the highest quality standards. Ideal Boilers products meet or exceed the requirements of all relevant standards. Before despatch each boiler is fired and fully tested. Ideal Boilers are recognised as a World Class Manufacturer.

assurance of quality

BS EN ISO 9001: 2000

product specification

Burner

The Pressure Jet range are suitable for use with oil, gas or dual fuel burners as previously noted - only on selected outputs. Nu-way, EOGB and Riello burners can be supplied as standard. Burners from other manufacturers can be supplied on request. Oil burners meet BS 2869 Class D requirements for gas oil. Gas burners are suitable for natural gas.

Details on LPG, dual fuel, modulating and low NOx burners are available on request.

Burner Operation Availability

Boiler	High / Low	On / Off
Buccaneer GTE		✓
Falcon GTS	(7 & 8 only)	✓
Harrier GTS	✓	✓
Viceroy GTS	✓	
Viscount GTS	✓	
Vanguard L	✓	(420 max)

Duty

The Pressure Jet range provide central heating and indirect hot water for a range of systems:

Open Vented Systems

All boilers

- Combined pumped domestic hot water and pumped central heating
- Pumped central heating only
- Pumped domestic hot water systems only

Pressurised or Sealed Systems

Fully pumped systems as above

Boiler	Maximum static head	Maximum working pressure
Buccaneer GTE	41 metres (135 feet)	4 bar (58psi)
Falcon GTS	41 metres (135 feet)	4 bar (58psi)
Harrier GTS	61 metres (200 feet)	6 bar (87psi)
Viceroy GTS	61 metres (200 feet)	6 bar (87psi)
Viscount GTS	61 metres (200 feet)	6 bar (87psi)
Vanguard L	61 metres (200 feet)	6 bar (87psi)

Packing

Boilers are supplied in the following packs:-

Boiler	Buccaneer GTE	Falcon GTS	Harrier GTS	Viceroy GTS	Viscount GTS	Vanguard L
Casing & installation	✓	✓	✓ (x2)	✓ (x2)	✓ (multiple)	✓
Boiler body*	✓	✓	✓	✓	✓	✓
Control panel	✓	✓	✓	✓	✓	✓
Accessories pack		✓	✓	✓ (x2)	✓ (x2)	✓
Burner door		✓	✓	✓	✓	✓
Tie rods		✓	✓		✓	
Baffles			✓	✓	✓ (x2)	
Base frame			✓	✓	✓	
Cableway				✓	✓	
Insulation				✓	✓	
Smoke hood					✓	
Document pack including flow switch					✓	
Burner (as specified)	✓	✓	✓	✓	✓	✓

*Normal supply unassembled (except Buccaneer GTE)

Option Kits

Boiler	Buccaneer GTE	Falcon GTS	Harrier GTS	Viceroy GTS	Viscount GTS	Vanguard L
DHW sensor	✓	✓				
Flue gas thermometer			✓	✓	✓	
GT Condenser			✓	✓	✓	

GT Condenser

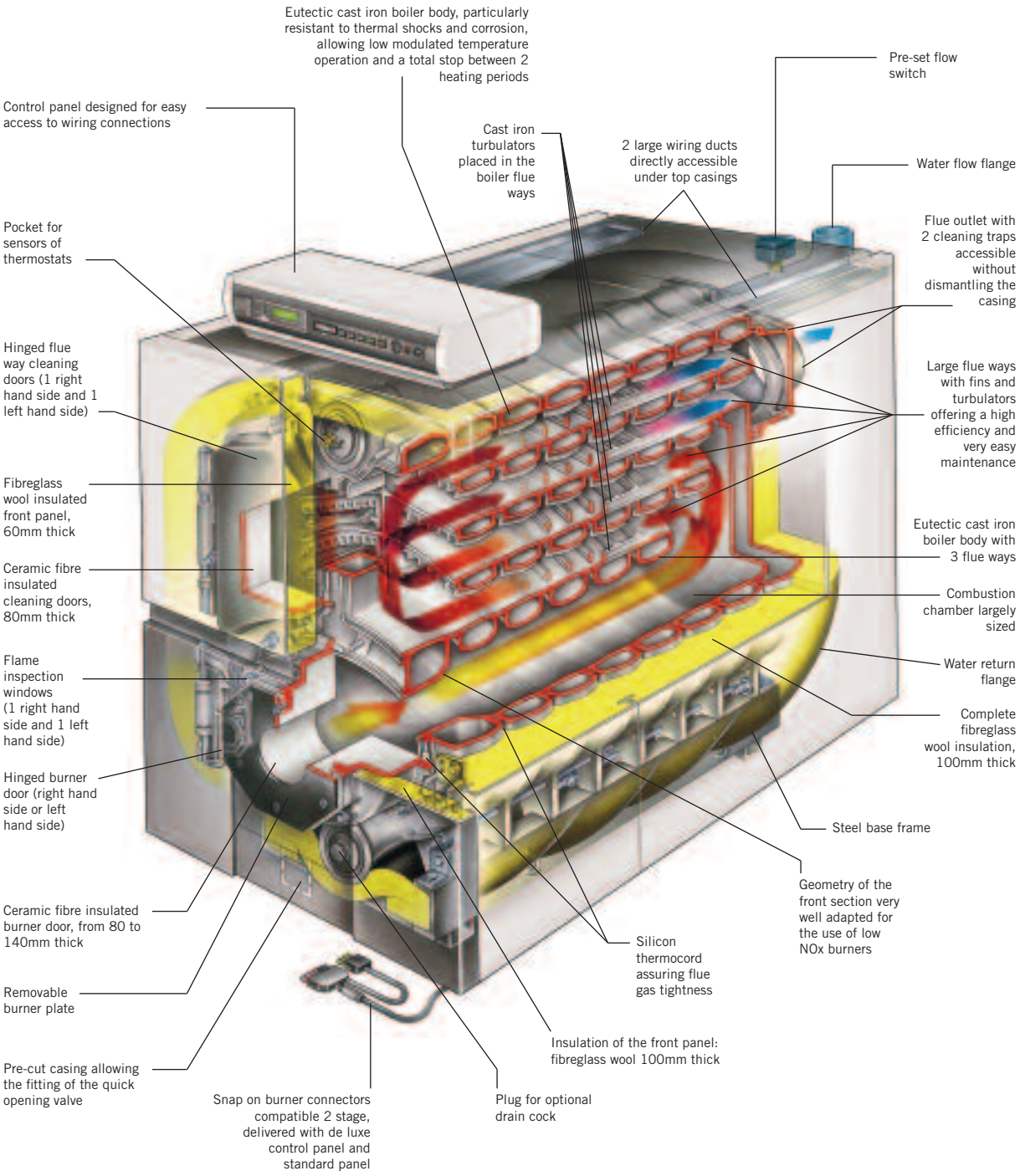
Harrier, Viceroy and Viscount boilers can be fitted with an additional GT Condenser unit to provide even higher fully condensing efficiency performance. The unit is entirely manufactured from stainless steel for durability. It is connected to the flue outlet of the boiler, and a fanned option is available for higher flue resistances. It is suitable for gas fired models only.

See GT Condenser brochure for more details.

GT Condenser

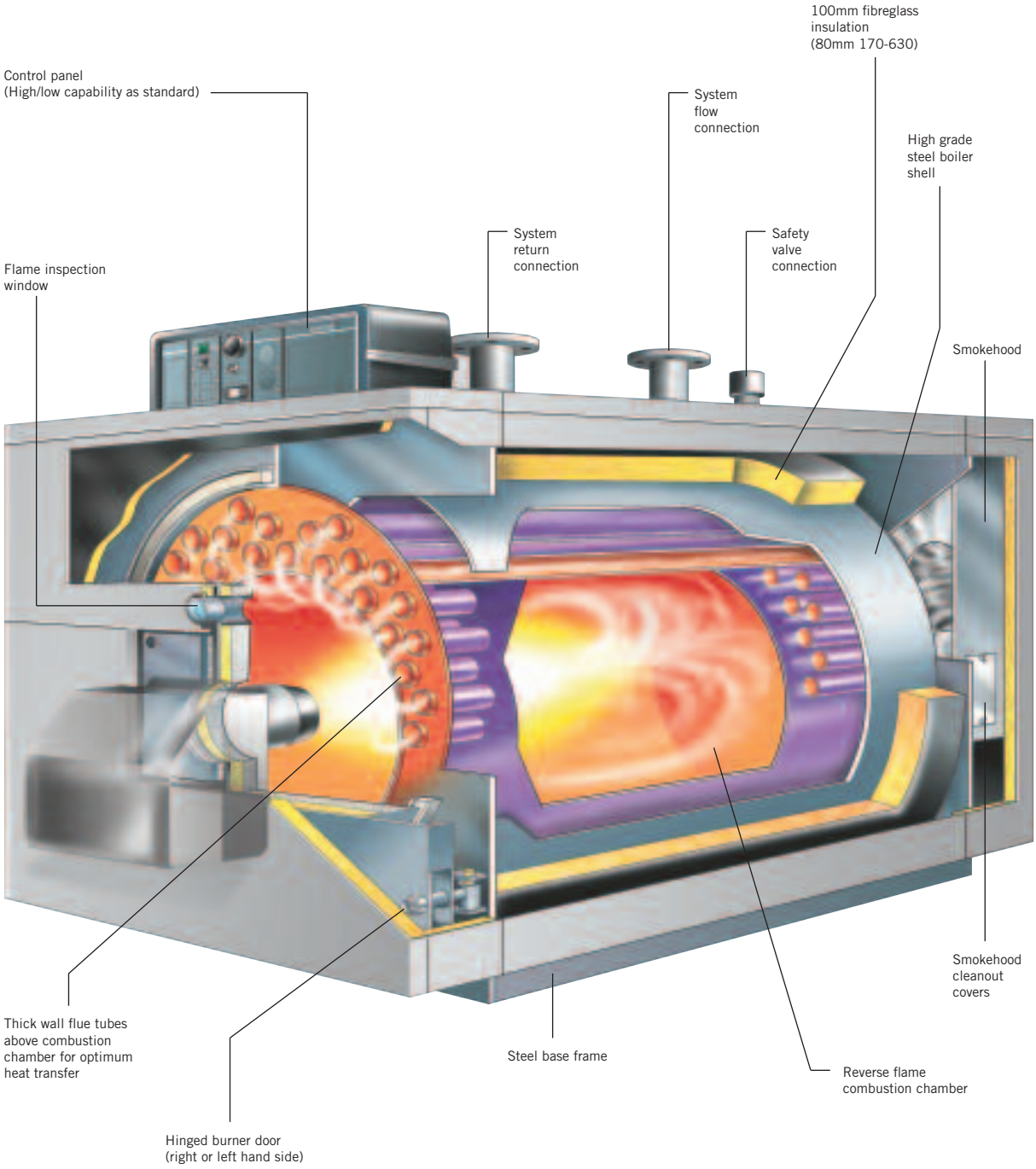
boiler assembly

Viceroy GTS - Boiler Assembly - Exploded View



Note: The view represents general boiler construction, jacket design and control panel will vary from that shown.

Vanguard L - Boiler Assembly - Exploded View



Note: The view represents general boiler construction, jacket design will vary from that shown.

system requirements

Open Systems

The Pressure Jet range has a low minimum static head requirement, depending on the particular characteristics of the system design and boiler model. (see diagram).

The information provided is based on the following assumptions:

An independent open vent/safety pipe connection is made to the redundant boiler flow tapping or is positioned immediately after the system flow-pipe connection to the header, as shown.

An independent cold feed/expansion pipe connection is made to the redundant boiler return tapping. Cold feed/expansion pipe connections made to the system return will create an increase in static head requirements, brought about by the additional resistance of the distributor tube. Surging may also increase.

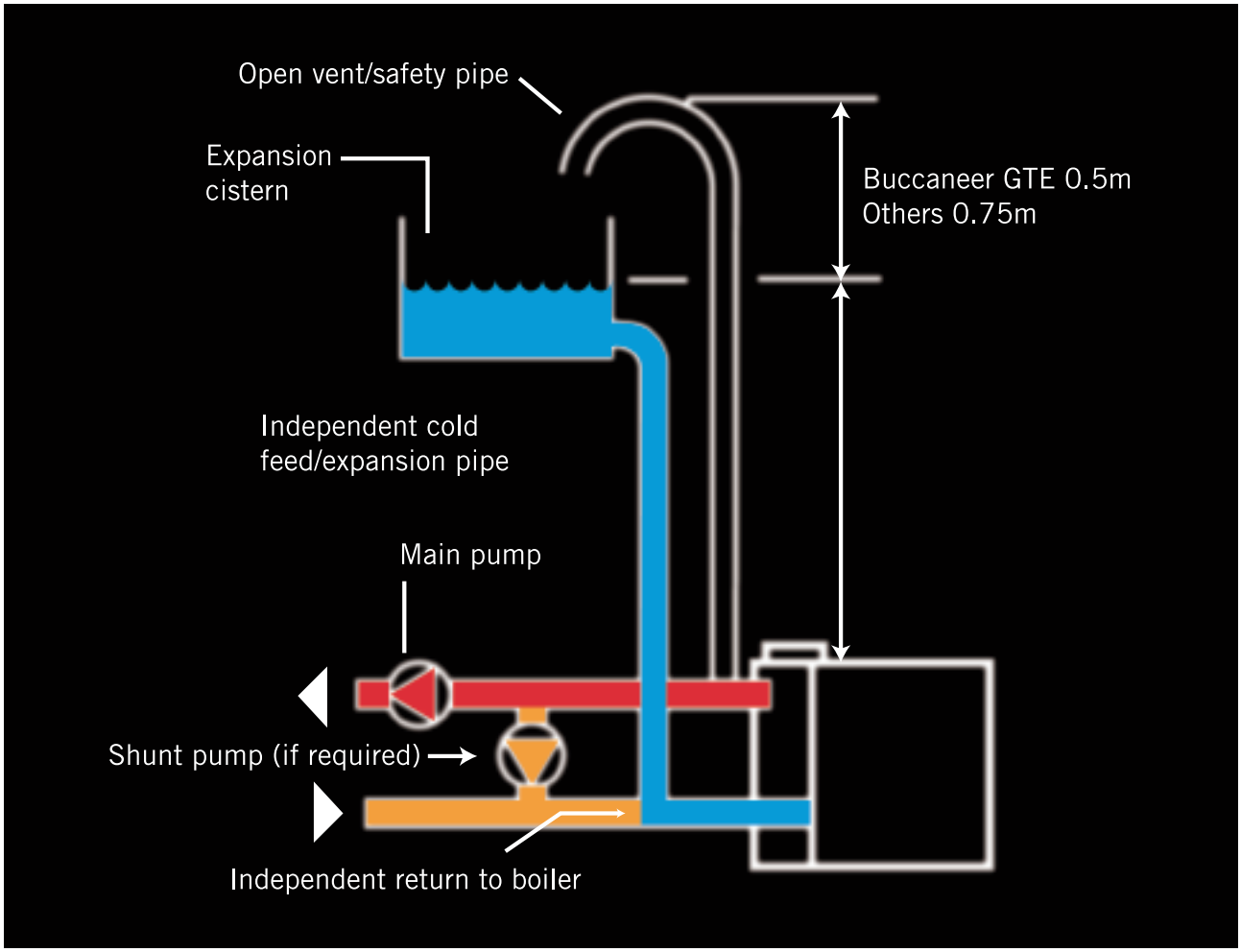
The maximum flow rate through the boiler is based on a temperature difference of 11˚C (20˚F) at full boiler output with the circulating pump positioned in the flow of the system.

The boiler is at the highest point of circulation in the system. Systems designed to rise above the flow tappings will, of course, automatically require a minimum static head higher than shown.

The position of the open vent/safety pipe above the expansion cistern water level is given as a guide only. The final position will depend upon particular characteristics of the system. Pumping over of water into the expansion cistern should be avoided.

Cold Feed/Open Vent

The independent cold feed and the open vent must comply with BS 6644.



Sealed (Pressurised) Systems

Particular reference should be made to BS 6644: and Guidance note PM5 “Automatically controlled steam and hot water boilers” published by the Health and Safety Executive.

The information and guidance given below is not intended to override any requirements of either of the above publications or the requirements of the Local Authority, gas or water undertakings.

In general, commercial closed pressurised systems are provided with either manual or automatic water make up.

In both instances it will be necessary to fit automatic controls intended to protect the boiler circulating system and ancillary equipment by shutting down the boiler plant if a potentially hazardous situation should arise.

Examples of such situations are low water level and operating pressure or excessive pressure within the system. Depending on circumstances, controls will need to be either manual or automatic reset. In the event of shut down, both visual and audible alarms may be necessary.

Pressure vessels used must comply with BS 4814 and must be sized on the basis of the total system volume and initial charge pressure.

Initial minimum charge pressure should not be less than 0.5 bar (7.2psi) and must take account of static head and specification of the pressurising equipment. The maximum water temperatures permissible at the point of minimum pressure in the system is specified in Guidance Note PM5.

When make up water is not provided automatically it will be necessary to fit controls which shut down the plant in the event of the maximum system pressure approaching to within 0.35 bar (5psi) of the safety valve setting.

Other British Standards applicable to commercial sealed systems are:

BS 6880: Part 2	BS 1212
BS 6283: Part 4	BS 6282: Part 1,

Installation

For safety, a competent installer must fit this appliance. All gas fired appliances must be installed by a CORGI registered installer. CORGI requires its members to work to satisfactory standards.

Boiler installation should comply with relevant British Standard Specifications, Codes of Practice, and current Building Regulations, together with any special regional requirements of the Local Authorities, Gas Supplier, and Insurance Company, and in particular:

BS 6891 low pressure installation pipes, BS 6644 Installation of Gas Fired Boilers, BS 6880: Part 1-3 Central Heating by low pressure hot water, CP 342.2 Centralised hot water supply, I.G.E. publication UP/10 Installation of gas fired appliances in commercial and industrial premises - Flues.

All electrical wiring must comply with IEE Regulations for the electrical requirement of buildings.

Manufacturer's notes must not be taken as overriding statutory obligations.

Minimum clearances from walls or other fixed objects to allow for installation, maintenance, the free access of combustion air and correct functioning of the draught diverters are shown in the boiler clearance diagram.

system requirements

Ventilation

Safe, efficient and trouble-free operation of conventionally flued gas boilers is vitally dependent on the provision of an adequate supply of fresh air to the room in which the appliance is installed.

Ventilation by grilles communicating directly with the outside air is required at both high and low levels. The minimum free areas of these grilles must be according to the scale below. The use of an extractor fan in the same room as the boiler (or in an adjacent room in communication) can, in certain conditions, adversely affect the safe operation of the boiler. Where such a fan is already fitted, or if an extractor fan is likely to be installed at a later date, then the advice of the Gas Region should be obtained. Tests for spillage of products from the draught diverter when the extractor fan is running and all doors and windows are shut should be carried out after installation. If spillage is detected, the area of permanent ventilation must be increased.

BS 5440: 2 2000 - Inputs not exceeding 70kW (Nett)

40–60kW boilers Max. nett input rating	Air vent areas (air direct from outside)
Up to 70kW	5cm² per kW nett input

Note: For enclosure installations see BS 6644. Where a boiler installation is to operate in summer months (e.g. DHW) additional ventilation requirements are stated if operating more than 50% of the time.

Mechanical Ventilation

Air can be supplied:

(a) By a fan connected to a low level opening and discharged naturally via one or more high level openings.

(b) By a fan connected to a low level opening and discharged by means of a second fan at a high level opening.

Note: Any fan installed for extraction purposes must not cause a negative pressure (relative to the outside atmosphere) to develop in the boiler house as this will affect burner performance.

BS 6644 - Inputs greater than 70kW (Nett)

Total gross input rating of boilers	Position of air vents	Air vent areas (air direct from outside cm² per kW nett input)
70kW to 1.8MW	High level	2
70kW to 1.8MW	Low level	4

The air flow rates for forced draught boilers are calculated from the formula.

Inlet air

- 2.6m³/h per kW of heat input (net).

Extract air (difference from inlet and flow rate)

- 1.35 ± 0.18m³/h per kW of heat input (net).

All air inlet and extraction fans must be fitted with automatic controls causing safety shut-down or lock-out of the boiler(s) in the event of inlet or extract air flow failing.

Commissioning

All burner units should be commissioned by a fully trained burner engineer. if required, Ideal Boilers can arrange commissioning.

Further details and prices are available on request.

Foundation

The boiler must stand on a non-combustible floor (ie concrete or brick). This surface must be flat, level and of a suitable load bearing capacity to support the weight of the boiler (when filled with water) and any ancillary equipment. If the boiler is mounted on a plinth, the dimensions must exceed the plan area of the boiler by at least 75mm (3") on each side.

Flue Systems

Detailed recommendations concerning flue design for gas fired appliances are contained in BS 6644, and I.G.E. publication UP/10. BS 5410 Part 3 contains similar information on oil fired appliances. These notes are for general guidance only and relevant standards must be consulted for complete, detailed information.

The chimney and any associated flue connection must have a cross section area at least equal to that of the smokehood outlet. Flexible stainless steel liners should not be used for oil fired boilers in the Pressure Jet range, unless a guarantee of suitability is obtained from the flue liner manufacturer. The chimney must generate the minimum smokehood draught requirement given in the general data table.

Where chimney draught exceeds this requirement, gas fired boiler installations can be fitted with a draught stabiliser. Care should be taken when positioning such a stabiliser as its operation may have side effects, such as burner pulsation, if it is sited where air turbulence may occur. Installation of draught stabilisers with oil fired boilers is not recommended because it can cause condensation and smutting. Ideal Boilers recommends installation of modulating motorised dampers to provide the most efficient draught control for oil or gas fired boilers.

Use of a chimney outlet nozzle should be considered if an increase in gas velocity is required. Discharge velocity should not exceed 4.9 metres per second (15 feet per second) if used with a natural draught chimney. If higher discharge velocities are required use of an induced draught fan should be considered. Care must be taken to ensure excessive back pressure does not occur when the boiler fires as this may cause pulsation and lock out of the boiler control box.

The shortest possible horizontal flue pipe run, connecting the boiler to the chimney, should be used and bends should be restricted to a minimum. Sharp 90˚ bends or tees should not be used. Whenever possible 90˚ sweep bends together with 135˚ bends and tees should be used.

Chimney termination point should be sited to avoid the risk of downdraught and should terminate at least 1 metre (3 feet) above the ridge of the building roof. The possible effect of adjacent structures upon chimney draught must also be considered. GLC, GCI, or similar vent terminals are primarily designed for use with natural draught appliances and are not suitable for boilers in Ideal Boilers Pressure Jet range.

Exposed chimneys must be adequately insulated to maintain buoyancy and restrict corrosion. External flue pipes should be well insulated throughout their length and be designed to offer the minimum resistance to the flow of flue products. Flue pipe connections between boiler and chimney must terminate flush with the inside of the chimney. Existing chimneys should be swept and brought up to the required standards before the boiler is connected.

Oversize steel chimneys should not be used without a suitably sized insulated liner of material specification suitable for the flue being used. Existing brick chimneys should also be lined and insulated as recommended above.

Water Treatment

Water contained in all heating and indirect hot water systems, particularly open vented systems, requires basic treatment. It is wrong to assume that because boilers are operating in conjunction with what is an apparently closed circuit, an open vented system will not under normal circumstances allow damage or loss of efficiency due to hardness salts and corrosion once the initial charge of water has been heated several times. One millimetre of lime reduces the heat conversion from flame via metal to water by 10%. In practice, the accumulation of these salts is liable to cause noises from the boiler body or even premature boiler failure. Corrosion and the formation of black iron oxide sludge will ultimately result in premature radiator failure.

Open vented systems are not completely sealed off from the atmosphere because it is necessary to provide a tank open to atmosphere if proper venting and expansion of system water is to be achieved. The same tank is used to fill the system with water and it is through the cold feed pipe that system water expands into the tank when the boiler passes heat into the system. Conversely, when the system cools, water previously expanded is drawn back from the tank into the system together with a quantity of dissolved oxygen.

Even if leakage from the heating and hot water system is eliminated there will be evaporation losses from the surface of the tank. Depending on ambient temperature, these may be high enough to evaporate a large portion of the system water capacity over a full heating season.

Corrosion will always occur within a heating/hot water system to a greater or lesser degree irrespective of water characteristics, unless the initial fill water from the mains is treated. Even the water in closed systems will promote corrosion unless treated.

For these reasons, Ideal Boilers strongly recommends that when necessary the system be thoroughly cleaned prior to the use of a stable inhibitor which does not require continual topping up to combat the effects of hardness, salts, and corrosion on the heat exchanger of the boiler and its associated systems.

'Fernox Copal' and 'Sentinel X 100'. Current suitability should be confirmed with the manufacturer direct: Sentinel Performance Solutions, The Heath Business and Technical Park, Runcorn, Cheshire Telephone: 0800 389 4670 or Fernox Manufacturing Co. Ltd., Cookson Electronics, Forsyth Road, Sheerwater, Woking, Surrey GU21 5RZ Telephone: 01799 521133 for technical information.

Any other treatment used will render the guarantee of Ideal Stelrad Group for this product INVALID. The use of artificially softened water is NOT permitted.

general data

Buccaneer GTE

Model		GTE 4	GTE 5	GTE 6
No. of sections		**4**	**5**	**6**
Maximum heat output	kW	27	33	39
	Btu/h x 10^3	92.1	112.6	133.1
Minimum heat output	kW	21	27	33
	Btu/h x 10^3	71.7	92.1	112.6
Boiler water content	l	24.5	30	35.5
	gal	5.4	6.6	7.8
Hydraulic resistance at 11K	mbar	5.3	7.9	10.9
	in.w.g.	2.1	3.2	4.4
Hydraulic resistance at 20K	mbar	1.6	2.4	3.3
	in.w.g.	0.6	1.0	1.3
Combustion chamber	mbar	0.23	0.23	0.22
resistance	in.w.g.	0.01	0.01	0.01
Boiler DRY weight less	kg	162	187	213
burner unit	lb	357	412	470
Gas firing data				
Maximum gas rate	m^3/h	3.10	3.79	4.47
	ft^3/h	109.4	133.8	158.1
Maximum flue gas volume	m^3/sec	0.019	0.026	0.027
	ft^3/min	40	49	57
Maximum flue gas temperature	9% CO^2 at	180°C	190°C	190°C
Seasonal efficiency	%	85.5	84.7	84.2
Oil firing data				
Maximum oil rate	l/h	3.11	3.8	4.49
	gal/h	0.69	0.84	0.99
Maximum flue gas volume	m^3/sec	0.017	0.022	0.025
	ft^3/min	36	47	53
Maximum flue gas temperature	12% CO^2 at	180°C	190°C	190°C
Seasonal efficiency	%	88.9	88.1	87.6
Minimum Flow Rates				
Normal water flow rate temperature	l/s	0.586	0.717	0.847
difference 11°C (20°F)	gal/min	7.74	9.46	11.18
Mimimun water flow rate temperature	l/s	0.184	0.225	0.266
difference 35°C (63°F)	gal/min	2.43	2.97	3.51

All temperatures are above ambient.
Note: Fuel rates and flue gas data relate to maximum output ratings. Gas firing data relates to the use of NATURAL GAS ONLY.
Details for the use of LPG are available on request from Ideal Boilers Limited. The gas rate at calorific values differing from the standard quoted above may be calculated by direct proportion CALORIFIC VALUE: 38.5 MJ/m^3 (1,035 Btu/ft^3).

Falcon GTS

Model		GTS 4	GTS 5	GTS 6	GTS 7	GTS 8
No. of sections		**4**	**5**	**6**	**7**	**8**
Maximum heat output	kW	50	64	78	92	100
	Btu/h x 10^3	170	218	266	314	341
Minimum heat output	kW	40	50	64	78	92
	Btu/h x 10^3	136	170	218	266	314
Boiler water content	l	36	43	50	57	64
	gal	7.9	9.5	11	12.5	14.1
Hydraulic resistance at 11K	mbar	20.3	33.3	49.3	68.4	84.0
	in.w.g.	8.1	13.3	19.7	27.4	33.6
Hydraulic resistance at 20K	mbar	6.1	10.1	14.9	20.7	25.4
	in.w.g.	2.5	4.0	6.0	8.3	10.2
Combustion chamber	mbar	0.5	0.6	0.8	0.8	0.9
resistance	in.w.g.	0.2	0.24	0.32	0.32	0.36
Boiler DRY weight less	kg	254	296	344	381	423
burner unit	lb	560	652	758	839	932
Gas firing data						
Maximum gas rate	m^3/h	5.64	7.20	8.75	10.34	11.25
	ft^3/h	198.6	254	308.8	364.7	396.9
Maximum flue gas volume	m^3/sec	0.031	0.04	0.048	0.058	0.064
	ft^3/min	66	84	103	124	135
Maximum flue gas temperature	9% CO^2 at	200°C	200°C	200°C	200°C	200°C
Seasonal efficiency	%	84.4	84.5	84.8	84.8	84.8
Oil firing data						
Maximum oil rate	l/h	5.65	7.22	8.78	10.37	11.25
	gal/h	1.24	1.59	1.93	2.28	2.48
Maximum flue gas volume	m^3/sec	0.030	0.039	0.047	0.059	0.062
	ft^3/min	65	83	100	125	131
Maximum flue gas temperature	12% CO^2 at	200°C	200°C	200°C	200°C	200°C
Seasonal efficiency	%	87.7	87.9	88.2	88.2	88.2
Minimum Flow Rates						
Normal water flow rate temperature	l/s	1.09	1.39	1.69	2.00	2.21
difference 11°C (20°F)	gal/min	14.4	18.4	22.3	26.4	29.2
Minimum water flow rate temperature	l/s	0.34	0.44	0.53	0.63	0.70
difference 35°C (63°F)	gal/min	4.5	5.8	7.0	8.3	9.3

All temperatures are above ambient.
Note: Fuel rates and flue gas data relate to maximum output ratings. Gas firing data relates to the use of NATURAL GAS ONLY.
Details for the use of LPG are available on request from Ideal Boilers Limited. The gas rate at calorific values differing from the standard quoted above may be calculated by direct proportion CALORIFIC VALUE: 38.5 MJ/m^3 (1,035 Btu/ft^3).

general data

Harrier GTS

Model		GTS 5	GTS 6	GTS 7	GTS 8	GTS 9
No. of sections		**5**	**6**	**7**	**8**	**9**
Maximum heat output	kW	140	180	230	280	330
	Btu/h x 10^3	478	614	785	955	1126
Minimum heat output	kW	105	140	180	230	280
	Btu/h x 10^3	358	478	614	785	955
Boiler water content	l	116	136	156	176	196
	gal	25.5	29.9	34.3	38.7	43.1
Hydraulic resistance at 11K	mbar	20.3	37.9	55.8	82.7	118.6
	in.w.g.	8.1	15.2	22.3	33.1	47.5
Hydraulic resistance at 20K	mbar	6.1	11.5	16.9	25.0	35.9
	in.w.g.	2.5	4.6	6.8	10.0	14.4
Combustion chamber	mbar	0.6	1.1	1.6	2.2	2.5
resistance	in.w.g.	0.24	0.44	0.64	0.88	1
Boiler DRY weight less	kg	736	846	981	1103	1230
burner unit	lb	1623	1865	2163	2432	2712
Gas firing data						
Maximum gas rate	m^3/h	16.13	20.56	26.09	31.87	37.23
	ft^3/h	569	726	921	1125	1315
Maximum flue gas volume	m^3/sec	0.092	0.117	0.149	0.182	0.213
	ft^3/min	196	249	316	386	452
Maximum flue gas temperature	9.5% CO^2 at	210°C	210°C	210°C	210°C	210°C
Seasonal efficiency	%	83.9	84.0	84.6	84.6	84.8
Oil firing data						
Maximum oil rate	l/h	15.52	19.76	25.10	30.66	35.81
	gal/h	3.41	4.35	5.52	6.75	7.88
Maximum flue gas volume	m^3/sec	0.090	0.114	0.145	0.178	0.208
	ft^3/min	191	242	308	376	440
Maximum flue gas temperature	13% CO^2 at	210°C	210°C	210°C	210°C	210°C
Seasonal efficiency	%	87.2	87.4	87.9	88.0	88.2
Minimum Flow Rates						
Normal water flow rate temperature	l/s	3.04	3.91	5.00	6.08	7.17
difference 11°C (20°F)	gal/min	40.1	51.6	66.0	80.2	94.6
Minimum water flow rate temperature	l/s	0.96	1.23	1.57	1.91	2.25
difference 35°C (63°F)	gal/min	12.7	16.2	20.7	25.2	29.7

All temperatures are above ambient.
Note: Fuel rates and flue gas data relate to maximum output ratings. Gas firing data relates to the use of NATURAL GAS ONLY.
Details for the use of LPG are available on request from Ideal Boilers Limited. The gas rate at calorific values differing from the standard quoted above may be calculated by direct proportion CALORIFIC VALUE: 38.5 MJ/m^3 (1,035 Btu/ft^3).

Viceroy GTS

Model		GTS 8	GTS 9	GTS 10	GTS 11	GTS 12	GTS 13	GTS 14
No. of sections		**8**	**9**	**10**	**11**	**12**	**13**	**14**
Maximum heat output	kW	390	450	540	600	670	720	780
	Btu/h x 10^3	1330	1535	1842	2047	2286	2457	2661
Minimum heat output	kW	300	390	450	540	600	670	720
	Btu/h x 10^3	1024	1330	1535	1842	2047	2286	2457
Boiler water content	l	366	409	452	495	538	581	624
	gal	80.5	89.9	99.4	109	118.4	127.8	137.3
Hydraulic resistance at 11K	mbar	31.6	49.3	75.9	84.2	104.9	127.9	161.4
	in.w.g.	12.6	19.7	30.3	33.7	42.0	51.2	64.6
Hydraulic resistance at 20K	mbar	9.6	14.9	23.0	25.5	31.7	38.7	48.8
	in.w.g.	3.8	6.0	9.2	10.2	12.7	15.5	19.5
Combustion chamber	mbar	1.1	1.5	2	2.5	2.5	2.5	3.5
resistance	in.w.g.	0.44	0.6	0.8	1	1	1	1.4
Boiler DRY weight less	kg	1802	2072	2238	2454	2638	2880	3057
burner unit	lb	3973	4568	4934	5410	5816	6350	6740
Gas firing data								
Maximum gas rate	m^3/h	44.78	51.74	61.88	69.06	77.11	82.87	89.77
	ft^3/h	1582	1827	2185	2439	2723	2927	3170
Maximum flue gas volume	m^3/sec	0.28	0.32	0.39	0.43	0.48	0.52	0.56
	ft^3/min	591	682	818	909	1015	1091	1183
Maximum flue gas temperature	9.5% CO^2 at	220°C	220°C	220°C	220°C	220°C	220°C	220°C
Seasonal efficiency	%	83.6	82.9	84.2	83.3	83.8	83.8	83.6
Oil firing data								
Maximum oil rate	l/h	43.08	49.76	59.51	66.42	74.17	79.71	86.35
	gal/h	9.48	10.95	13.09	14.61	16.32	17.54	19.0
Maximum flue gas volume	m^3/sec	0.25	0.29	0.35	0.39	0.43	0.47	0.50
	ft^3/min	534	614	737	820	915	985	1065
Maximum flue gas temperature	13% CO^2 at	220°C	220°C	220°C	220°C	220°C	220°C	220°C
Seasonal efficiency	%	86.9	86.2	87.5	86.6	87.2	87.2	86.9
Minimum Flow Rates								
Normal water flow rate temperature	l/s	8.47	9.77	11.73	13.03	14.55	15.63	16.94
difference 11°C (20°F)	gal/min	111.8	129.0	154.8	172.0	192.0	206.3	223.5
Minimum water flow rate temperature	l/s	2.66	3.07	3.69	4.09	4.57	4.91	5.32
difference 35°C (63°F)	gal/min	35.1	40.5	48.6	54.0	60.4	64.9	70.3

All temperatures are above ambient.
Note: Fuel rates and flue gas data relate to maximum output ratings. Gas firing data relates to the use of NATURAL GAS ONLY.
Details for the use of LPG are available on request from Ideal Boilers Limited. The gas rate at calorific values differing from the standard quoted above may be calculated by direct proportion CALORIFIC VALUE: 38.5 MJ/m^3 (1,035 Btu/ft^3).

general data

Viscount GTS

Model		GTS 14	GTS 15	GTS 16	GTS 17	GTS 18	GTS 19	GTS 20	GTS 21	GTS 22	GTS 23	GTS 24	GTS 25
No. of sections		**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Maximum heat output	kW	812	870	928	986	1044	1102	1160	1218	1276	1334	1392	1450
	Btu/h x 10^3	2770	2968	3166	3364	3562	3760	3958	4156	4354	4552	4749	4947
Minimum heat output	kW	754	812	870	928	986	1044	1102	1160	1218	1276	1334	1392
	Btu/h x 10^3	2573	2770	2968	3166	3364	3562	3760	3958	4156	4354	4552	4749
Boiler water content	l	655	693	731	769	807	845	905	743	981	1019	1057	1095
	gal	144	152	161	169	177	186	199	207	216	224	232	241
Hydraulic resistance at 11K	mbar	55.8	64.5	26.0	27.9	32.5	35.3	40.0	44.1	48.3	52.6	57.6	62.3
	in.w.g.	22.3	25.8	10.4	11.2	13.0	14.1	16.0	17.6	19.3	21.0	23.1	24.9
Hydraulic resistance at 20K	mbar	16.9	19.5	7.9	8.4	9.8	10.7	12.1	13.3	14.6	15.9	17.4	18.8
	in.w.g.	6.8	7.8	3.2	3.4	3.9	4.3	4.8	5.3	5.9	6.4	7.0	7.5
Combustion chamber	mbar	2.3	2.4	2.5	2.6	2.7	2.85	3	3.1	3.2	3.3	3.4	3.5
resistance	in.w.g.	0.92	0.96	1	1.04	1.08	1.14	1.2	1.24	1.28	1.32	1.36	1.4
Boiler DRY weight less	kg	3171	3364	3561	3756	3955	4124	4343	4538	4734	4930	5107	5297
burner unit	lb	6993	7416	7850	8280	8719	9092	9575	10,005	10,437	10,869	11,259	11,678
Gas firing data													
Maximum gas rate	m^3/h	84.4	90.4	96.4	102.4	108.5	114.5	120.5	126.5	132.5	138.6	144.6	150.6
	ft^3/h	2980	3192	3403	3616	3831	4043	4255	4466	4678	4894	5106	5317
Maximum flue gas volume	m^3/sec	0.57	0.61	0.65	0.69	0.73	0.77	0.81	0.85	0.89	0.94	0.98	1.02
	ft^3/min	1208	1293	1377	1462	1547	1632	1717	1801	1886	1992	2077	2162
Maximum flue gas temperature	9.5% CO^2 at	210°C	210°C	210°C	210°C	210°C	210°C	210°C	210°C	210°C	210°C	210°C	210°C
Seasonal efficiency	%	84.3	84.2	84.9	84.3	84.3	84.6	84.5	84.7	84.5	84.3	84.6	85.0
Oil firing data													
Maximum oil rate	l/h	82.73	88.64	94.55	100.5	106.4	112.3	118.2	124	130	135.9	142	147.7
	gal/h	18.2	19.5	20.8	22.1	23.4	24.7	26	27.3	28.6	29.9	31.2	32.5
Maximum flue gas volume	m^3/sec	0.51	0.55	0.59	0.62	0.66	0.7	0.73	0.77	0.81	0.84	0.88	0.92
	ft^3/min	1081	1166	1250	1314	1399	1483	1547	1632	1717	1780	1865	1950
Maximum flue gas temperature	13% CO^2 at	210°C	210°C	210°C	210°C	210°C	210°C	210°C	210°C	210°C	210°C	210°C	210°C
Seasonal efficiency	%	87.7	87.6	88.3	87.6	87.7	87.9	87.9	88.1	87.9	87.7	88.0	88.4
Minimum Flow Rates													
Normal water flow rate temperature	l/s	17.6	18.9	20.1	21.4	22.6	23.9	25.2	26.4	27.7	28.9	30.2	31.5
difference 11°C (20°F)	gal/min	231	247	264	280	297	313	330	346	363	379	396	412
Minimum water flow rate temperature	l/s	5.5	5.9	6.3	6.7	7.1	7.5	7.9	8.3	8.7	9.1	9.5	9.9
difference 35°C (63°F)	gal/min	73	78	83	89	94	99	105	110	115	120	125	131

All temperatures are above ambient.

Note: Fuel rates and flue gas data relate to maximum output ratings. Gas firing data relates to the use of NATURAL GAS ONLY.

Details for the use of LPG are available on request from Ideal Boilers Limited. The gas rate at calorific values differing from the standard quoted above may be calculated by direct proportion CALORIFIC VALUE: 38.5 MJ/m^3 (1,035 Btu/ft^3).

Vanguard L

Model		170	240	290	340	420	510	630	760	870	970	1100	1320	1570	1850	2200	2650	3000	3500
Maximum heat output	kW	170	240	290	340	420	510	630	760	870	970	1100	1320	1570	1850	2200	2650	3000	3500
	Btu/h x 10^3	580	819	990	1160	1433	1740	2150	2593	2969	3301	3753	4504	5357	6312	7507	9042	10236	11942
Minimum heat output	kW	130	180	220	255	315	385	480	580	660	750	860	1000	1200	1400	1700	2000	2300	2700
	Btu/h x 10^3	444	614	751	870	1075	1314	1638	1980	2252	2559	2934	3412	4095	4777	5800	6824	7848	9212
Boiler water content	l	190	251	264	298	398	462	565	671	753	836	1040	1242	1418	1617	2086	2324	2553	4862
	gal	41.8	55.2	58.1	65.6	87.5	101.6	124.3	147.6	165.6	183.9	228.8	273.2	311.9	355.7	458.9	511.2	561.6	1069.6
Hydraulic resistance at 11K	mbar	27.5	60.4	38.4	51.2	31.1	45.8	69.5	47.6	60.4	75.0	54.9	64.1	60.4	82.4	62.2	87.9	113.5	153.7
	in.w.g.	11.0	24.2	15.4	20.5	12.4	18.3	27.8	19.0	24.2	30.0	22.0	25.6	24.2	32.9	24.9	35.1	45.4	61.5
Hydraulic resistance at 20K	mbar	8.3	18.3	11.6	15.5	9.4	13.8	21.0	14.4	18.3	22.7	16.6	19.4	18.3	24.9	18.8	26.6	34.3	46.5
	in.w.g.	3.3	7.3	4.7	6.2	3.8	5.5	8.4	5.8	7.3	9.1	6.6	7.8	7.3	10.0	7.5	10.6	13.7	18.6
Combustion chamber	mbar	15	27	22	30	28	42	46	35	46	57	42	60	49	68	52	76	60	78
resistance	in.w.g.	0.59	1.06	0.87	1.18	1.10	1.65	1.81	1.38	1.81	2.24	1.65	2.36	1.93	2.68	2.04	2.99	2.36	3.07
Boiler DRY weight less	kg	435	510	588	629	796	919	1047	1341	1447	1553	1821	2030	2780	3280	4145	4465	5110	6700
burner unit	lb	959	1124	1296	1387	1755	2026	2313	2956	3190	3424	4015	4475	6129	7231	9138	9844	11266	14771
Gas firing data																			
Maximum gas rate	m^3/h	19.1	26.9	32.4	38.0	47.0	57.0	70.5	84.9	97.1	108.3	122.8	147.5	175.4	206.7	246.3	296.4	335.6	391.9
	ft^3/h	673	949	1145	1341	1658	2013	2490	2997	3427	3821	4333	5205	6191	7295	8694	10460	11842	13831
Maximum flue gas volume	m^3/sec	0.10	0.14	0.17	0.19	0.25	0.30	0.37	0.45	0.52	0.57	0.65	0.78	0.93	1.08	1.26	1.51	1.75	2.04
	ft^3/min	211	293	360	411	519	633	775	946	1098	1211	1368	1657	1967	2299	2671	3203	3717	4332
Maximum flue gas temperature	10% CO^2 at	195°C	195°C	195°C	195°C	195°C	195°C	195°C	195°C	195°C	195°C	195°C	195°C	195°C	195°C	195°C	195°C	195°C	195°C
Seasonal efficiency	%	83.0	83.0	83.0	83.0	83.1	83.0	83.2	83.4	83.3	83.4	83.6	83.4	83.5	83.5	83.7	83.8	83.0	83.2
Oil firing data																			
Maximum oil rate	l/h	19.1	27.0	32.5	38.1	47.1	57.2	70.8	85.2	97.4	108.6	123.2	147.9	176.0	207.4	247.1	297.3	336.6	393.1
	gal/h	4.2	5.9	7.2	8.4	10.4	12.6	15.6	18.7	21.4	23.9	27.1	32.5	38.7	45.6	54.4	65.4	74.0	86.5
Maximum flue gas volume	m^3/sec	0.10	0.14	0.17	0.20	0.25	0.31	0.37	0.44	0.52	0.56	0.64	0.76	0.91	1.07	1.26	1.52	1.72	1.99
	ft^3/min	209	299	356	417	523	648	775	932	1102	1189	1348	1620	1926	2255	2670	3213	3638	4221
Maximum flue gas temperature	13% CO^2 at	195°C	195°C	195°C	195°C	195°C	195°C	195°C	195°C	195°C	195°C	195°C	195°C	195°C	195°C	195°C	195°C	195°C	195°C
Seasonal efficiency	%	86.4	86.3	86.3	86.4	86.4	86.3	86.5	86.7	86.7	86.8	86.9	86.7	86.8	86.8	87.1	87.2	86.3	86.5
Minimum Flow Rates																			
Normal water flow rate temperature	l/s	3.69	5.21	6.30	7.38	9.12	11.07	13.68	16.50	18.89	21.06	23.88	28.65	34.09	40.17	47.77	57.54	65.14	76.00
difference 11°C (20°F)	gal/min	48.7	68.8	83.1	97.4	120.4	146.2	180.5	217.8	249.3	278.0	315.2	378.3	449.9	530.2	630.5	759.4	859.7	1003.0
Minimum water flow rate temperature	l/s	2.03	2.87	3.46	4.06	5.02	6.09	7.52	9.08	10.39	11.58	13.14	15.76	18.75	22.09	26.27	31.65	35.83	41.80
difference 20°C (36°F)	gal/min	26.8	37.8	45.7	53.6	66.2	80.4	99.3	119.8	137.1	152.9	173.4	208.1	247.5	291.6	346.8	417.7	472.9	551.7

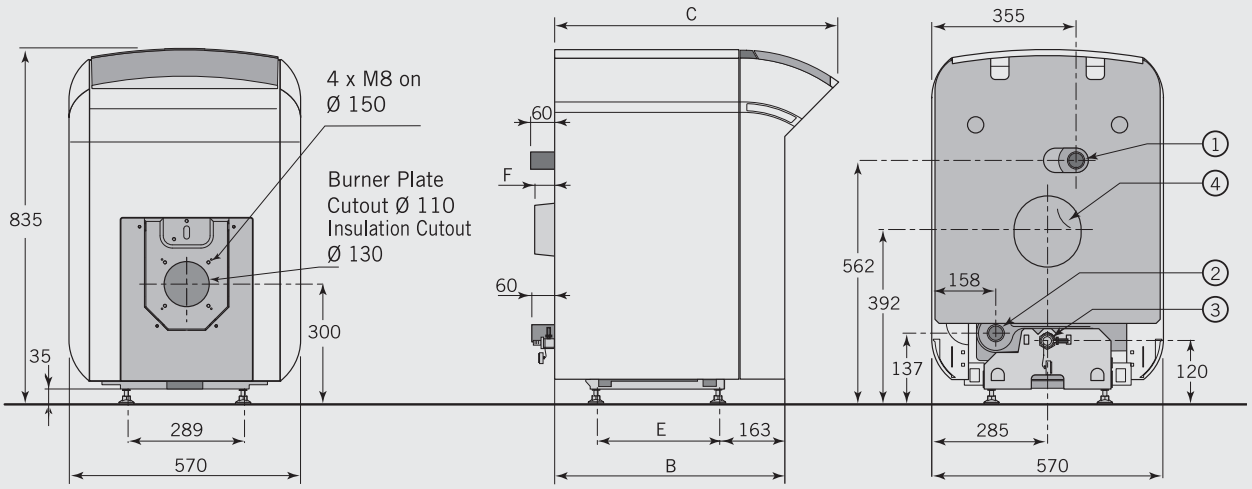
All temperatures are above ambient.

Note: Fuel rates and flue gas data relate to maximum output ratings. Gas firing data relates to the use of NATURAL GAS ONLY.

Details for the use of LPG are available on request from Ideal Boilers Limited. The gas rate at calorific values differing from the standard quoted above may be calculated by direct proportion CALORIFIC VALUE: 38.5 MJ/m^3 (1,035 Btu/ft^3).

dimensional data

Buccaneer GTE - Boiler Dimensions and Clearances



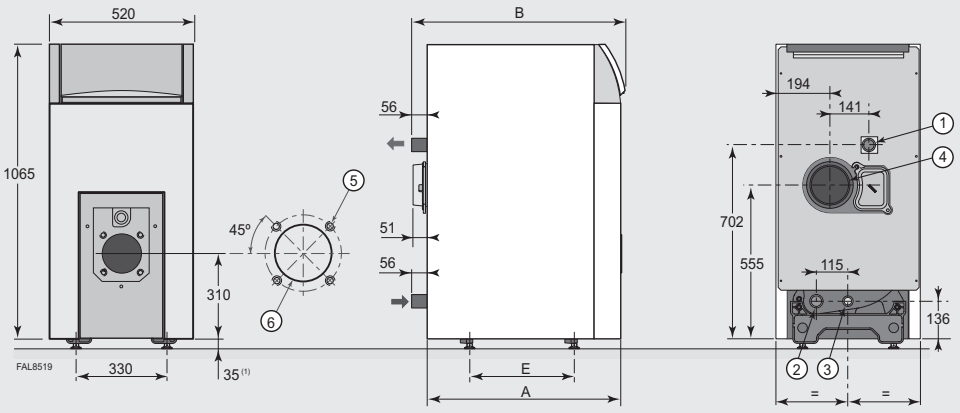
GTE Boiler Size	B	C	D	E	F
GTE 4	692	812	125	427	50
GTE 5	819	939	125	554	50
GTE 6	946	1066	153	681	99

1 Heating supply R 1¼
2 Heating return R 1¼
3 Drain cock (connection for pipe Ø int. 14 mm)
4 Flue spigot OD, Ø 125

Boiler Clearances

Boiler	Model	Front	Back	Left	Right
Buccaneer GTE	All	1000	500	500	500

Falcon GTS - Boiler Dimensions and Clearances



(1) Adjustable feet: basic height 50mm with 35 to 65mm adjustment range.

GTS Boiler Size	GTS 4	GTS 5	GTS 6	GTS 7	GTS 8
Dimension A	700	827	954	1081	1208
Dimension B	772	899	1026	1153	1280
Dimension 4	153	153	180	180	180
Dimension 1 - 2	R 1¼	R 1¼	R 1½	R 1½	R 1½
Dimension E	380	507	634	761	888

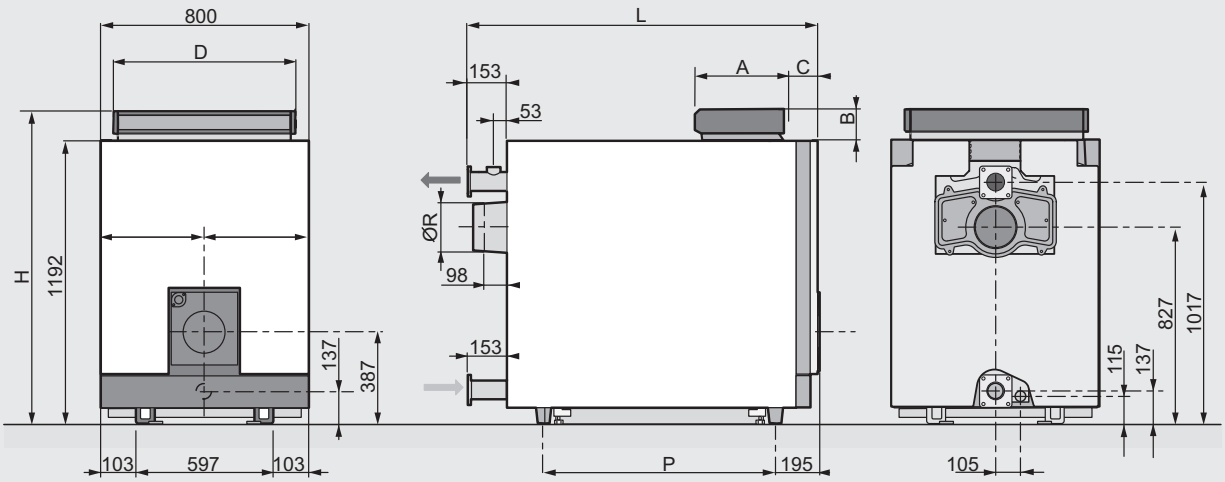
All dimensions in millimetres unless otherwise stated

1 Heating outlet
2 Heating return
3 Drainage / filling orifice Rp 3/4
4 Flue gas spigot
5 4xM8 on Ø 150 and 4 markings on Ø 170
6 Drilling Ø 110 - Precut Ø 130

Boiler Clearances

Boiler	Model	Front	Back	Left	Right
Falcon GTS	All	1000	500	500	500

Harrier GTS - Boiler Dimensions and Clearances



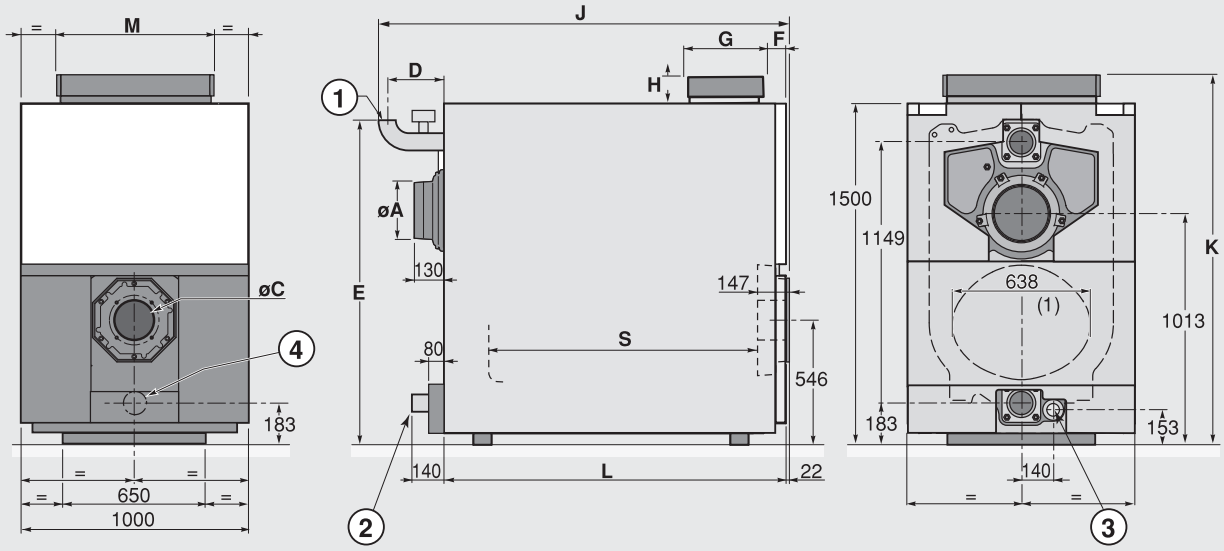
GTS Boiler Size		GTS 5	GTS 6	GTS 7	GTS 8	GTS 9
	A	130	130	130	130	130
	B	105	105	105	105	105
	C	165	165	165	165	165
	D	738	738	738	738	738
	H	1297	1297	1297	1297	1297
	L	1151	1311	1471	1631	1791
	P	650	810	970	1130	1290
	Ø R	180	180	200	200	200

Boiler Clearances

Boiler	Model	Front	Back	Sides
Harrier GTS	All	1500	1000	Door hinge side: 500 or 200 + burner length Non hinge side: 100

dimensional data

Viceroy GTS - Boiler Dimensions and Clearances



GTS Boiler Size	8	9	10	11	12	13	14
Ø A out.	250	250	250	300	300	300	300
B	3"	3"	3"	4"	4"	4"	4"
Ø C	135 - 175 - 190 - 240 - 290 or plain plate						
D	235	235	235	254	254	254	254
E	1427	1427	1427	1447	1447	1447	1447
F	127.5	127.5	127.5	127.5	127.5	127.5	127.5
G	130	130	130	130	130	130	130
H	105	105	105	105	105	105	105
J	1800	1950	2120	2305	2465	2625	2785
L	1505	1665	1825	1985	2145	2305	2465
M	738	738	738	738	738	738	738
S	1183	1343	1503	1663	1823	1983	2143

Effective Ø combustion chamber:
- Front section: 455mm
- Intermediate section: 530mm

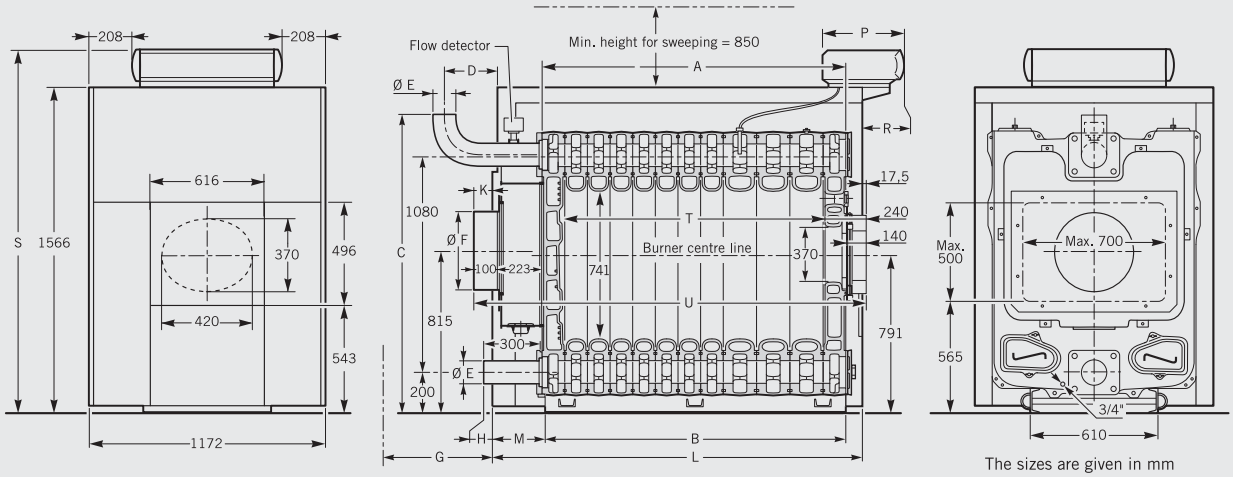
Equivalent diameter (mm): 573

Mk: Tapped connection
1 Heating outlet - weld
2 Heating return - weld
3 Rp 2 draining outlet - plugged
4 Sludge removal hole Ø Rp 2 ½ - plugged

Boiler Clearances

Boiler	Model	Front	Back	Left	Right
Viceroy GTS	GTS 8	1500	1000	500	500
Viceroy GTS	GTS 9 - GTS 11	2000	1000	500	500
Viceroy GTS	GTS 12 - GTS 14	2500	1000	500	500

Viscount GTS - Boiler Dimensions and Clearances



The sizes are given in mm

GTS Boiler Size	14	15	16	17	18	19	20	21	22	23	24	25
A	1674	1785	1896	2007	2118	2229	2380	2491	2602	2713	2824	2935
B	1744	1744	1966	1966	2188	2188	2450	2450	2672	2672	2894	2894
C	1488	1488	1488	1488	1504	1504	1504	1504	1504	1504	1504	1504
D	217	188	189	210	236	257	208	209	230	231	252	253
Ø E	139.7	139.7	139.7	139.7	159	159	159	159	159	159	159	159
Ø F	450	450	450	500	500	500	500	*	*	*	*	*
G	-	150	150	370	370	370	650	650	650	980	980	980
H	-2	-31	-30	-9	-8	13	-36	-35	-14	-13	8	9
K**	10	-19	-18	3	4	25	-24	-23	-2	-1	20	21
L	2105	2245	2355	2445	2555	2645	2845	2955	3045	3155	3245	3355
M	259	324	269	321	265	299	269	324	269	324	249	303
P	130	130	130	130	130	130	130	130	130	130	130	130
R	20	20	20	20	20	20	20	20	20	20	20	20
S	1670	1670	1670	1670	1670	1670	1670	1670	1670	1670	1670	1670
T	1483	1594	1705	1816	1927	2038	2189	2300	2411	2522	2633	2744
U	2132.5	2243.5	2354.5	2465.5	2576.5	2687.5	2838.5	2949.5	3060.5	3171.5	3282.5	3393.5

* Plain plate, requires cutting. Maximum cut-out 500 x 700 mm.
G = Length required for clearing the water distributing tube.
** Dimension representing the end of the 100 mm long chimney connection.
Note: with models 21, 22, 23, 24 and 25 a plain plate which must be cut out is supplied without the 100 mm chimney connection.

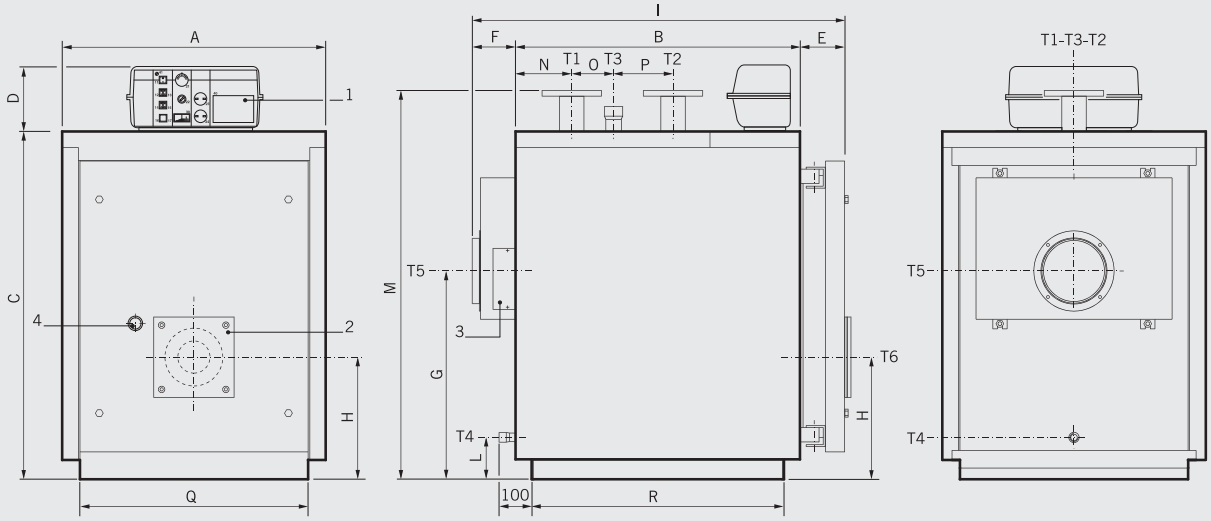
Boiler Clearances

Boiler	Model	Front	Back	Left	Right
Viscount GTS	GTS 14	1500**	300	1200/500*	500/1200*
Viscount GTS	GTS 15 - GTS 16	1500**	436	1200/500*	500/1200*
Viscount GTS	GTS 17 - GTS 19	1500**	656	1200/500*	500/1200*
Viscount GTS	GTS 20 - GTS 22	1500**	936	1200/500*	500/1200*
Viscount GTS	GTS 23 - GTS 25	1500**	1266	1200/500*	500/1200*

* Door opening side largest measurement. ** Maybe reduced dependant on burner.

dimensional data

Vanguard L 170-630 - Boiler Dimensions and Clearances



1. Control Panel
2. Burner door with gasket
3. Smoke chamber cleaning door
4. Flame inspection window

T1. Flow connection
T2. Return connection
T3. Safety valve and expansion connection

T4. Drain connection
T5. Flue connection
T6. Burner connection

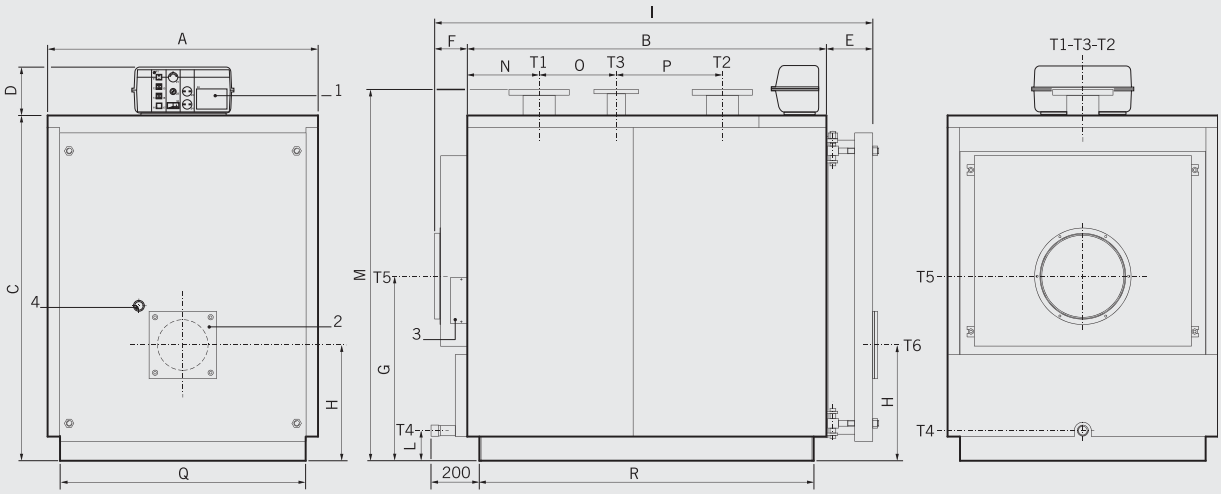
Boiler Size		170	240	290	340	420	510	630
Dimension A (mm)		820	820	860	860	890	890	890
Dimension B (mm)		885	1145	1080	1210	1275	1470	1780
Dimension C (mm)		1082	1082	1182	1182	1352	1352	1352
Dimension D (mm)		190	190	190	190	190	190	190
Dimension E (mm)		139	139	139	139	139	139	139
Dimension F (mm)		145	145	145	145	145	145	145
Dimension G (mm)		648	648	708	708	748	748	748
Dimension H (mm)		380	380	400	400	440	440	440
Dimension I (mm)		1169	1429	1366	1496	1561	1756	2066
Dimension L (mm)		130	130	130	130	125	125	125
Dimension M* (mm)		1210	1210	1310	1310	1485	1485	1485
Dimension N (mm)		175	175	215	215	255	255	255
Dimension O (mm)		130	390	210	340	285	480	790
Dimension P (mm)		185	185	250	250	315	315	315
Dimension Q* (mm)		710	710	750	750	780	780	780
Dimension R* (mm)		785	1045	982	1112	1177	1372	1682
Flow Connection T1 (mm)	DN PN6	65	65	80	80	100	100	100
Return Connection T2 (mm)	DN PN6	65	65	80	80	100	100	100
Safety valve & expansion T3 (inches)	BSP	1½	1½	2	2	2	2	2
Drain T4 (inches)		¾	¾	¾	¾	¾	¾	¾
Flue outlet T5 (mm)		200	200	250	250	250	250	250
(inches)		7.8	7.8	9.8	9.8	9.8	9.8	9.8

* Minimum dimensions for boiler room access requirements.

Boiler Clearances

Boiler	Model	Front	Back	Sides
Vanguard L	All	Same as boiler length	500	Door hinge side: 200 + burner length Non hinge side: 100

Vanguard L 760-970 - Boiler Dimensions and Clearances



1. Control Panel
2. Burner door with gasket
3. Smoke chamber cleaning door
4. Flame inspection window

T1. Flow connection
T2. Return connection
T3. Safety valve and expansion connection

T4. Drain connection
T5. Flue connection
T6. Burner connection

Boiler Size		760	870	970
Dimension A (mm)		1122	1122	1122
Dimension B (mm)		1605	1800	1995
Dimension C (mm)		1432	1432	1432
Dimension D (mm)		190	190	190
Dimension E (mm)		195	195	195
Dimension F (mm)		145	145	145
Dimension G (mm)		765	765	765
Dimension H (mm)		480	480	480
Dimension I (mm)		1944	2139	2334
Dimension L (mm)		125	125	125
Dimension M* (mm)		1540	1540	1540
Dimension N (mm)		298	298	298
Dimension O (mm)		435	630	825
Dimension P (mm)		440	440	440
Dimension Q* (mm)		1020	1020	1020
Dimension R* (mm)		1504	1699	1894
Flow Connection T1 (mm)	DN PN6	125	125	125
Return Connection T2 (mm)	DN PN6	125	125	125
Safety valve & expansion T3 (mm)	DN PN6	65	65	65
Drain T4 (inches)		1¼	1¼	1¼
Flue outlet T5 (mm)		350	350	350
(inches)		13.8	13.8	13.8

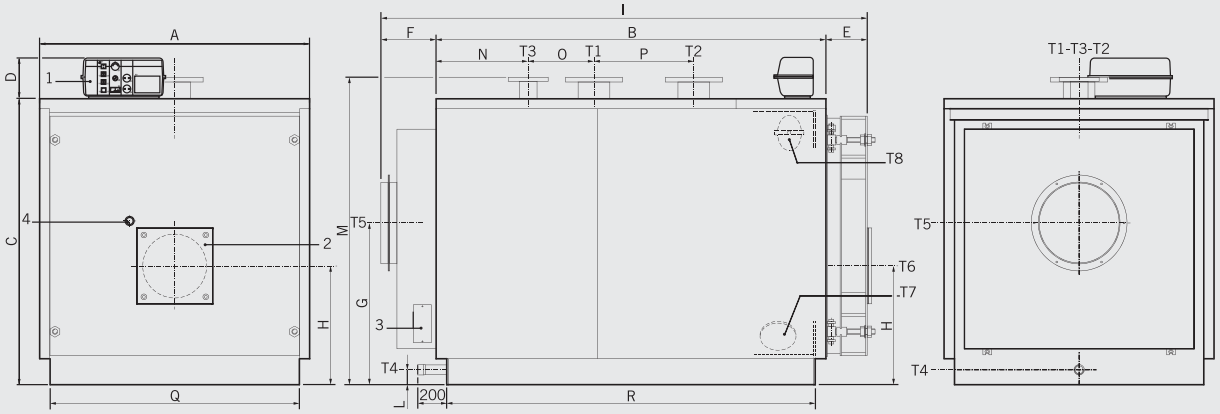
* Minimum dimensions for boiler room access requirements.

Boiler Clearances

Boiler	Model	Front	Back	Sides
Vanguard L	All	Same as boiler length	500	Door hinge side: 200 + burner length Non hinge side: 100

dimensional data

Vanguard L 1100-2650 - Boiler Dimensions and Clearances



1. Control Panel
2. Burner door with gasket
3. Smoke chamber cleaning door
4. Flame inspection window

T1. Flow connection
T2. Return connection
T3. Safety valve and expansion connection
T4. Drain connection

T5. Flue connection
T6. Burner connection
T7. Sludge hole
T8. Handhole

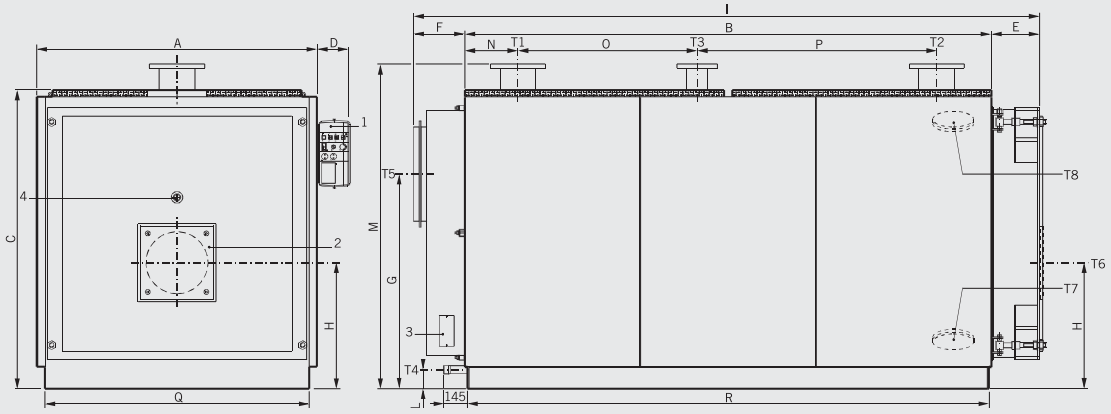
Boiler Size		1100	1320	1570	1850	2200	2650
Dimension A (mm)		1352	1352	1462	1462	1622	1622
Dimension B (mm)		1952	2292	2282	2652	2692	3014
Dimension C (mm)		1432	1432	1542	1542	1702	1702
Dimension D (mm)		190	190	190	190	190	190
Dimension E (mm)		207	207	227	227	259	258
Dimension F (mm)		287	287	287	287	289	288
Dimension G (mm)		810	810	880	880	950	950
Dimension H (mm)		595	595	640	640	690	690
Dimension I (mm)		2446	2786	2796	3166	3240	3560
Dimension L (mm)		75	75	75	75	75	75
Dimension M* (mm)		1540	1540	1650	1650	1810	1810
Dimension N (mm)		461	461	561	561	661	662
Dimension O (mm)		330	670	510	880	670	990
Dimension P (mm)		500	500	550	550	700	700
Dimension Q* (mm)		1250	1250	1360	1360	1520	1520
Dimension R* (mm)		1846	2186	2176	2546	2590	2910
Flow Connection T1 (mm)	DN PN6	150	150	175	175	200	200
Return Connection T2 (mm)	DN PN6	150	150	175	175	200	200
Safety valve & expansion T3 (mm)	DN PN6	80	80	100	100	125	125
Drain T4 (inches)		1½	1½	1½	1½	1½	1½
Flue outlet T5 (mm)		400	400	450	450	520	520
(inches)		15.7	15.7	17.7	17.7	20.5	20.5

* Minimum dimensions for boiler room access requirements.

Boiler Clearances

Boiler	Model	Front	Back	Sides
Vanguard L	All	Same as boiler length	500	Door hinge side: 200 + burner length Non hinge side: 100

Vanguard L 3000-3500 - Boiler Dimensions and Clearances



1. Control Panel
2. Burner door with gasket
3. Smoke chamber cleaning door
4. Flame inspection window

T1. Flow connection
T2. Return connection
T3. Safety valve and expansion connection
T4. Drain connection

T5. Flue connection
T6. Burner connection
T7. Sludge hole
T8. Handhole

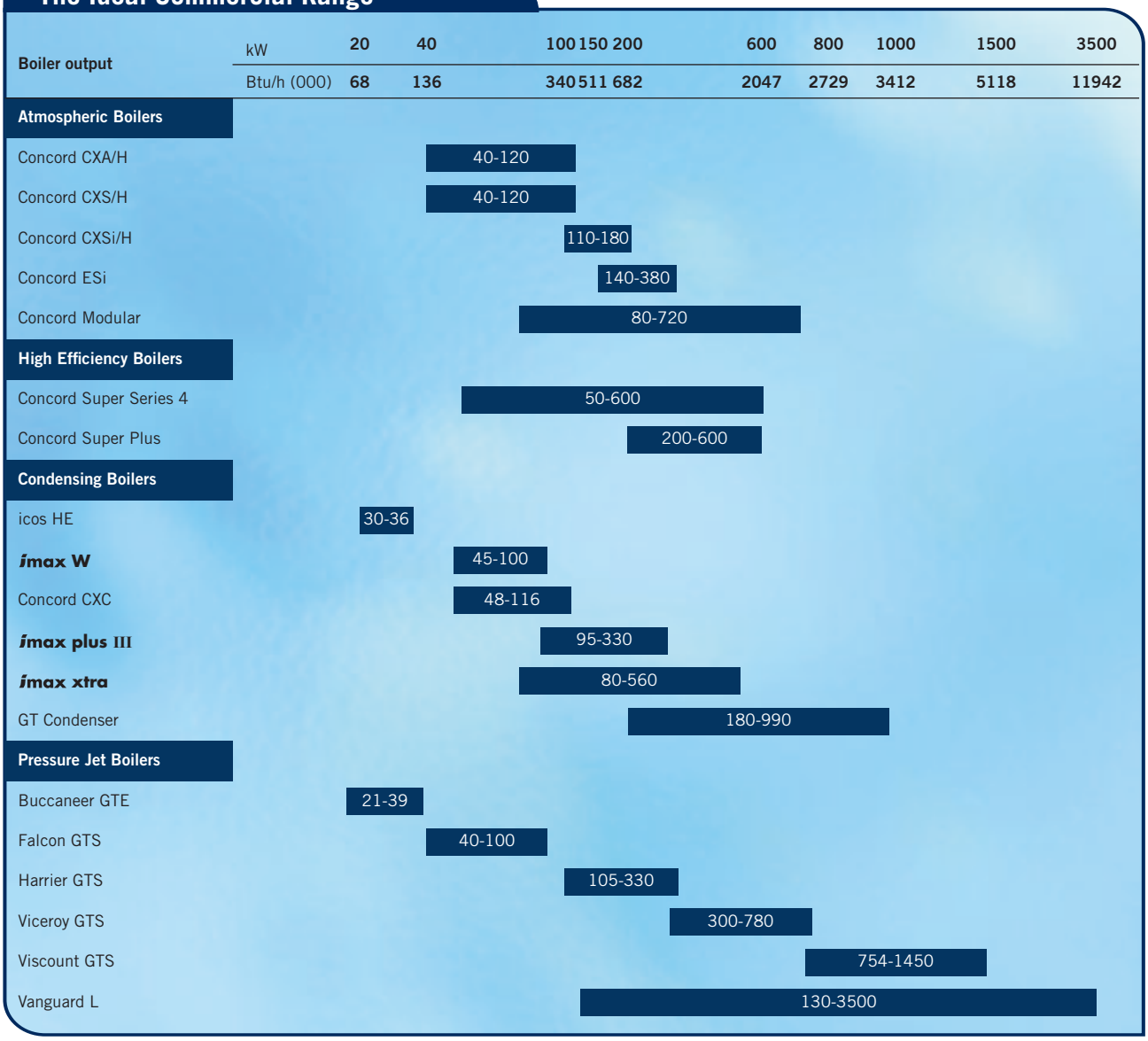
Boiler Size		3000	3500
Dimension A (mm)		1720	1970
Dimension B (mm)		3230	3194
Dimension C (mm)		1830	2090
Dimension D (mm)		190	190
Dimension E (mm)		295	325
Dimension F (mm)		325	375
Dimension G (mm)		1315	1535
Dimension H (mm)		772	915
Dimension I (mm)		3850	3894
Dimension L (mm)		115	144
Dimension M* (mm)		1990	2271
Dimension N (mm)		325	377
Dimension O (mm)		1100	1060
Dimension P (mm)		1330	1280
Dimension Q* (mm)		1620	1870
Dimension R* (mm)		3200	3164
Flow Connection T1 (mm)	DN PN6	200	200
Return Connection T2 (mm)	DN PN6	200	200
Safety valve & expansion T3 (mm)	DN PN6	125	125
Drain T4 (inches)		1½	1½
Flue outlet T5 (mm)		570	620
(inches)		22.4	24.4

* Minimum dimensions for boiler room access requirements.

Boiler Clearances

Boiler	Model	Front	Back	Sides
Vanguard L	All	Same as boiler length	500	Door hinge side: 200 + burner length Non hinge side: 100

The Ideal Commercial Range



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Approval
These appliances are certified to G.A.D. 90/396 and B.E.D. 92/42 safety and performance Directives for gas boilers.

Ideal Boilers pursues a policy of continuous improvement in design and performance of its products and reserves the right to vary specification without notice. Statutory rights of the consumer are not affected.

Assurance of quality
BS EN ISO 9001: 2000

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PJ/11/08 Issued subject to standard conditions

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