

Clean Heating | Naturally STREBEL

COMMERCIAL BOILERS



S-AF Floor Standing Condensing Boiler

115 - 620kW

Why Choose Strebel?

Strebel Ltd has been supplying, installing and servicing commercial boilers and water heaters in the UK since 1970. Founded by Josef Strebel in Germany in 1893 our company is recognised today as providing an extensive range of highly efficient, innovative and trustworthy boilers and water heaters for many commercial applications.

With energy conservation, low pollution and reliability at the core of what we do we offer ideal solutions for today's environmentally and economically conscious markets. When you choose to invest in a Strebel product you can be confident that not only will you be choosing the right solution tailored to your individual needs but you'll also be backed by Strebel's highly qualified technical support and service team.

We constantly strive to offer products to the highest standards of quality, longevity and reliability. Our extensive range includes technically advanced wall hung and free standing condensing gas boilers, condensing and non-condensing water heaters, a wide range of calorifiers, advanced biomass boilers as well as, of course, our traditional Cast Iron range alongside a diverse range of system accessories such as Boiler Frame Sets, Hydraulic Piping Kits, Low Loss Headers, Plate Heat Exchangers and System Pumps.

Please visit our website for further information on our products and services

www.strebel.co.uk

Trusted By Commercial Heating Engineers Since 1975

S-AF Floor Standing Condensing Boiler

The S-AF and S-AF XL boilers are just one of the large range of Strebel boilers offering you the latest in condensing boiler technology. Not only delivering on output and build quality, the boilers also offer low emissions, high efficiency along with a small footprint making them both a cost effective and installer friendly choice.

Offering Seasonal Efficiency across the range in excess of 95% to Part L calculations and Class 5 NOx emissions the entire range is ERP 'A' rated and is the perfect fit for many commercial heating applications. With a high quality aluminium heat exchanger providing optimal heat transfer from the combustion gasses to the waterside the S-AF and S-AF XL range offers an excellent value proposition for retrofits and new build projects alike. For ease of positioning and installation the boilers are supplied with built-in wheels and adjustable feet, and in the case of the XL range in two separate sections easing delivery through narrow access pinches.

With nominal outputs from 21kW to 620kW at 50/30 (F/R) in single boiler outputs and supplied with an integral cascade controller the S-AF and S-AF XL boiler range offers a perfect solution where space or access is limited. Thanks to a specific series of accessories, it is easy to install into existing systems.

S-AF Condensing Boiler

- ERP 'A' rated
- NOx Class 5 Emissions
- Small Footprint
- Part L Seasonal Efficiency >95%





Key Features



Output Range

Six different outputs ranging from 115 -620Kw



High Efficiency

Offering in excess of 95% seasonal efficiency to Part L



Advanced Controls

Fully built in cascade controls to enable optimal load matching



Low Emissions

Low NOx emissions to Class 5 rating



Ease of Installation

Ease to position on site due to built-in wheels and adjustable feet



Compact Design

Space saving footprint ideal for retrofit and new build projects



Accessories

A range of accessories including pumps, low loss headers and plate heat exchangers



Weather Compensation

Optional Strebel outside sensor, offering full weather dependent compensation



Three Modes of Operation

- Simple on/off operation from site control devices with modulation to the set temperature
- 0 to 10 volt operation with full modulation to dictated temperature set point
- For stand-alone boilers, an in-built timer control with modulation to temperature set point, with an option for full compensating operation and DHW

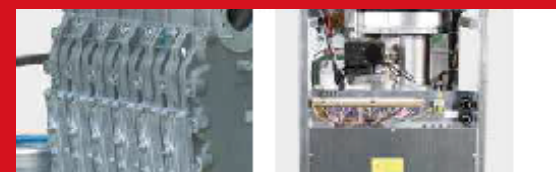


Digital Controls

The control panel of the S-AF boiler displays key information about the operation of the boiler

High Performance

The condensing boilers from the Strebel S-AF and S-AF XL series range from 115kW to 620kW with maximum high efficiency and low pollution. High performance is reached by using a special aluminium body of low water content and high heat exchange area to maximise energy efficiency and thermal output. The heat exchanger allows flue gases to cool down below condensation point, condensing the flue gases and releasing extra heat resulting in efficiencies of over 100% net calorific. The boiler heat exchanger, controls and gas handling equipment have been designed with safety, performance and reliability in mind.



The S-AF is also extremely quiet even at full power as the boiler boasts a low noise fan for providing air to the micro flame low NOx modulating burner. The boiler is specifically designed to obtain the optimum air/gas mixture throughout the modulation range acting on instruction from the advanced micro-processor control.

Controllability

S-AF boilers are equipped with an advanced, custom designed LCD control panel which displays information relating to the operational status of the boiler. The S-AF boiler control is also provided with self-diagnosis and displays a variety of error codes if a system failure occurs. All program and operational parameter changes can be carried out using the in-built controller. Any activation of the boiler safety control devices will be supervised by the S-AF boiler control.

It is possible to control the S-AF boiler in many ways; for example, the controller will accept a 0 to 10 volt signal from an external control system or can be simply switched on and off from any control device. The incoming 0 to 10 volt signal controls the boiler temperature fully in association with the very accurate modulation control. Multiple boiler installations allow a

0 to 10 volt signal or on/ off control to each boiler thus a BMS, (Building Management System), or other control system can fully sequence the boilers as dictated.

Optionally, if a common negative pressure flue is installed; the in-built cascade control can be utilised to offer significant energy savings, greater comfort; and keep you safe in the knowledge that the sequence control is being taken control of, according to the heating load.

The control will energise a boiler pump and will also self-check the pump's operation during the boiler start-up phase.

S-AF Boilers are fitted with the following safety devices:

- Safety thermostat with manual reset: 110°C.
- Water pressure switch that stops the boiler operation when the pressure of the hydraulic circuit is lower than the normal operating pressure of 1.5 bar.
- Condensate pressure switch that activates when the flue pressure in the water trap exceeds 5 mbar.
- Flue safety probe that activates when the flue temperature is too high.
- Gas pressure switch that activates if the pressure of the supply gas is too low for perfect combustion.
- Diagnosis of the hydraulic circuit protecting the boiler from overheating caused by insufficient water flow through the heat exchanger.

In-built Control Flexibility

- On / Off operation, utilising 4 different time bands in 24 hours via on board time clock.
- Full weather compensation - To compensate the flow temperature based on the outdoor temperature when provided with an external sensor located on a North Wall.
- To control a Domestic Hot Water Cylinder when provided with a hot water sensor.
- Ability for BMS integration via 0-10v control.



System Accessories

A full range of system accessories are available including fully matched circulating pumps, low loss headers, brazed and gasketed plate heat exchangers, pressurisation sets, expansion vessels and both temperature and pressure safety devices.

System Maintenance

The performance of any installed commercial heating system is significantly affected by the action, or in-actions, of on-site engineers during installation and commissioning as well as subsequently through preventative maintenance routines.

To this extent Strebel recommends that all S-AF and S-AF XL boilers are installed following guidance ICOM Energy Associations Water Treatment document www.icom.org.uk which is also available from Strebel's Technical Support Department.



Strebel S-AF



Strebel S-AF XL



Strebel S-AF and S-AF XL Technical Specifications

		Technical Specifications									
Model		S-AF 115	S-AF 150	S-AF 200	S-AF 240	S-AF 280	S-AF XL 340	S-AF XL 410	S-AF XL 480	S-AF XL 550	S-AF XL 620
Nominal INPUT Min/Max	kW	113	150	200	235	275	320	390	460	520	585
Nominal OUTPUT 80/60°C	kW	21 -109.7	30 - 146.7	35.5 - 196	42.5 - 229.8	49.5 - 269.2	57-313.6	69-383	81-451.7	92-510.6	104-574.5
Nominal OUTPUT 50/30°C	kW	116.1	156.2	207.8	243.9	285.5	340.2	412.6	487.6	551.2	620.1
EFFICIENCY 40/30°C	%	107.5% in the S-AF range					109.1	107.9	108.9	107.8	107
Seasonal EFFICIENCY (Part L)	%	95.06	94.92	95.13	95.09	95.05	96.36	95.55	96.29	95.49	94.9
Fuel		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Room Sealed		Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
Gas Consumption (NG)	m³/h	2.22-11.96	3.17-15.87	3.76-21.16	4.5-24.87	5.24-29.1	5.99-35.62	7.51-41.78	8.68-49.21	9.92-54.98	11.26-62.10
CO² (NG)	%	9.3% in this range					9.7	9.4	9.5	9.4	9.4
NOx - Class (EN483 / EN15420)		5	5	5	5	5	5	5	5	5	5
NOx to EN155502	mg/kWh	50	41	54	48	45	53	37	64	52	58
Burner Control		Pre-mix - Fully Modulating					Pre-mix - Fully Modulating				
Electrical Power Supply	V/Hz	230/50	230/51	230/52	230/53	230/54	230/56	230/57	230/58	230/59	230/60
Electrical Power Consumption	W	225	260	320	320	320	500	563	771	658	689
Protection Class		XOD	XOD	XOD	XOD	XOD	XOD	XOD	XOD	XOD	XOD
Maximum Boiler Flow Temperature	°C	90	90	90	90	90	85	85	85	85	85
Working Pressure Min/Max	bar	0.8 - 6	0.8 - 6	0.8 - 6	0.8 - 6	0.8 - 6	0.8 - 6	0.8 - 6	0.8 - 6	0.8 - 6	0.8 - 6
Boiler Water Content	Litre	15.3	18	22.9	25.6	28.4	45	50.6	56.3	61.9	67.6
Flow/Return Connection (boiler)	inch	2"	2"	2"	2"	2"	4"	4"	4"	4"	4"
Gas Connection	inch	1 ½"	1 ½"	1 ½"	1 ½"	1 ½"	2 ½"	2 ½"	2 ½"	2 ½"	2 ½"
Flue / Air Supply Connections											
Flue Connection I/D	mm	150	150	200	200	200	250	250	250	250	250
Air Supply O/D	mm	100	100	100	100	100	160	160	160	160	160
Dimension & Weight											
Height	mm	1200	1200	1200	1200	1200	1525	1525	1525	1525	1525
Width	mm	640	640	640	640	640	864	864	864	864	864
Depth (Including Flue Spigot)	mm	1115	1115	1335	1335	1335	1894	1894	1894	1894	1894
Dry Weight	kg	180	190	240	257	274	410	440	470	500	535

		Plate Heat Exchanger and Pumps Sized for S-AF & S-AF XL Boilers									
Boiler Model		S-AF 115	S-AF 150	S-AF 200	S-AF 240	S-AF 280	S-AF XL 340	S-AF XL 410	S-AF XL 480	S-AF XL 550	S-AF XL 620
Flow Rate @ 20c DT	m³/h	4.72	6.30	8.42	9.88	11.57	13.77	16.64	19.81	21.85	24.84
Pressure Drop @ 20c DT	Kpa	8	8	9	9	10	8.5	8.1	8	7.6	7.5
Brazeed Plate Heat Exchanger Sized for S-AF and S-AF XL Boilers											
Model Name		UKE-BRX59-30	UKE-BRX59-40	UKE-BRX59-50	UKE-BRX59-60	UKE-BRX59-70	UKE-BRX59-80	UKE-BRX59-90	UKE-BRX59-110	UKE-BRX59-140	UKE-BRX59-140-1
Heat Transfer	kW	120	160	200	240	300	360	400	480	540	600
Flow / Return Connections	inch	2" BSP Male	2" BSP Male	2"BSP Male	2" BSP Male	2" BSP Male	2" BSP Male	2" BSP Male	2" BSP Male	2" BSP Male	2" BSP Male
Flow Rate @ 20c DT	m³/h	5.15	6.88	8.57	10.30	12.89	15.44	17.17	20.59	23.18	25.74
Pressure Drop @ 20c DT	Kpa	23.30	20.10	22.40	22.40	25.60	28.20	27.80	27.60	23.10	28.20
Pump Sizing and Recommended Pump to Flow Through Both PHE and Boiler											
Flow Rate @ 20c DT	m³/h	4.72	6.30	8.42	9.88	11.57	13.77	16.64	19.81	21.85	24.84
Pressure Drop @ 20c DT	Kpa	31.30	28.10	31.40	31.40	35.60	36.70	35.90	35.60	30.70	35.70
DAB Evoplus		5	B60/240.50M	B60/240.50M	B60/240.50M	B80/240.50M	B120/280.50M	B120/280.50M	B120/280.50M	B120/280.50M	B120/280.50M
Screwed Flanges		50	DN50-PN10	DN50-PN10	DN50-PN10	DN50-PN10	DN50-PN10	DN50-PN10	DN50-PN10	DN50-PN10	DN50-PN10
Gasketed Plate Heat Exchanger Sized for S-AF and S-AF XL Boilers											
Model Name		UKE-2A-79	UKE-2A-97	UKE-55-41	UKE-55-47	UKE-55-57	UKE-55-67	UKE-55-73	UKE-55-85	UKE-55-95	UKE-55-105
Heat Transfer	kW	120	150	200	240	300	360	400	480	540	600
Flow / Return Connections	Inch	1" BSP Male	1" BSP Male	2.5" PN16	2.5" PN16	2.5" PN16	2.5" PN16	2.5" PN16	2.5" PN16	2.5" PN16	2.5" PN16
Flow Rate @ 20c DT	m³/h	5.15	6.44	8.60	10.30	12.89	15.48	17.21	20.63	23.18	25.78
Pressure Drop @ 20c DT	Kpa	7.90	9.00	11.00	12.00	12.80	13.50	14.10	15.30	15.90	16.40
Pump Sizing and Recommended Pump to Flow Through Both PHE and Boiler											
Flow Rate @ 20c DT	m³/h	4.72	6.30	8.42	9.88	11.57	13.77	16.64	19.81	21.85	24.84
Pressure Drop @ 20c DT	Kpa	15.90	17.00	20.00	21.00	22.80	22.00	22.20	23.30	23.50	23.90
DAB Evoplus		B60/240.50M	B60/240.50M	B60/240.50M	B60/240.50M	B60/240.50M	B100/340.65M	B100/340.65M	B100/340.65M	B100/340.65M	B100/340.65M
Screwed Flanges		DN50-PN10	DN50-PN10	DN50-PN10	DN50-PN10	DN50-PN10	DN65-PN10	DN65-PN10	DN65-PN10	DN65-PN10	DN65-PN10
The above pumps have been sized to allow 20 Kpa for interconnecting pipework											

Strebel S-AF Boiler System Layouts

The S-AF boiler is a sophisticated system that can be used as a stand alone boiler or as a cascading system. Any number of boilers can be linked hydraulically using the low loss header system or Strebel Boiler Guard and pipe work - all of which are fully described and illustrated in the comprehensive installation manual.

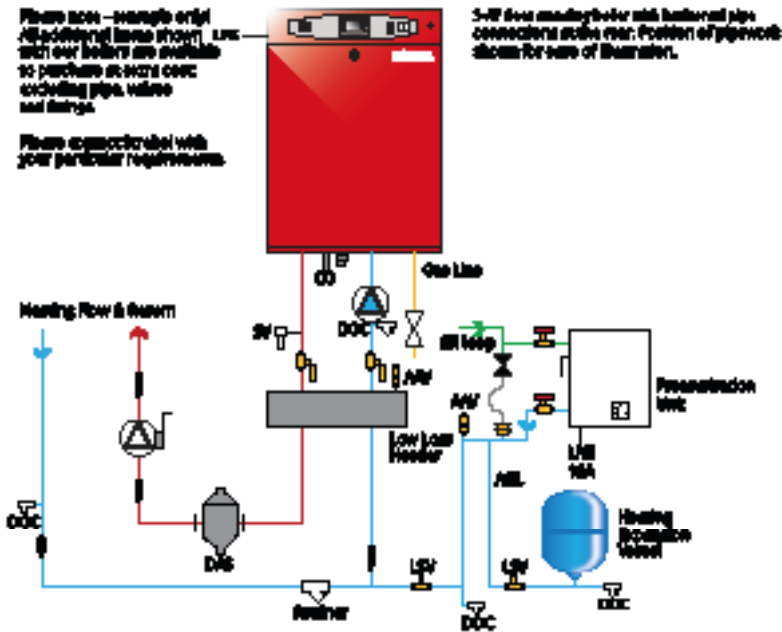


Size matched low loss header kits are available for each boiler model including pump, pressurisation and both temperature and pressure safety devices.

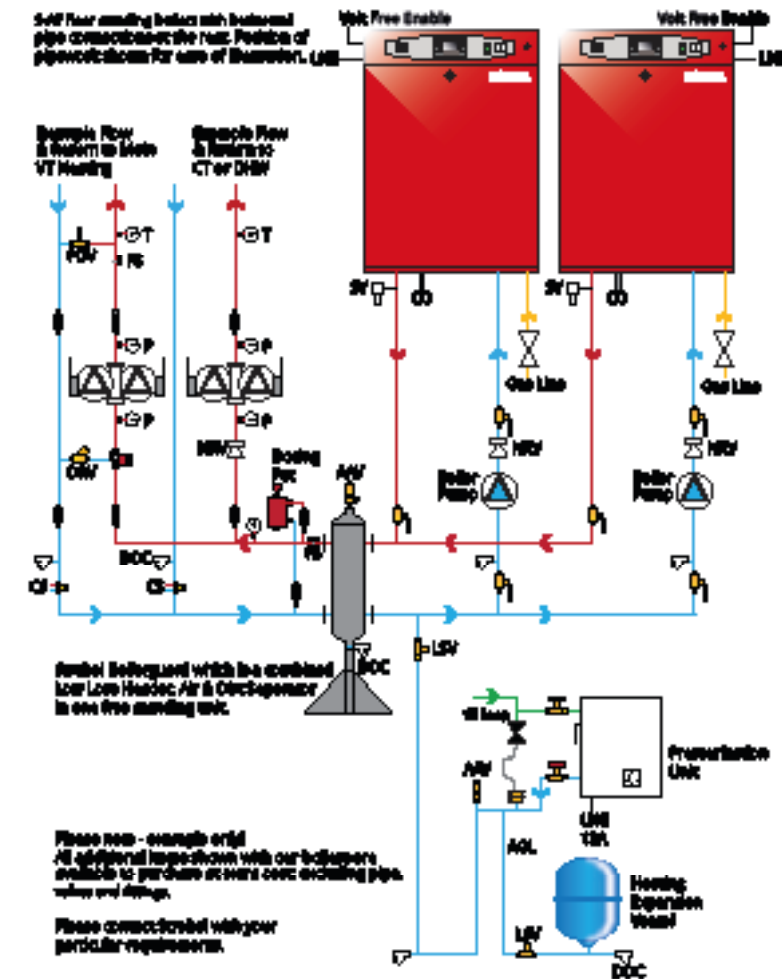
Legend for system layouts:

- AAV = Automatic Air Vent
- AGL = Anti-Gravity Loop
- CO = Condense Drain
- CS = Commissioning Station
- DAS = Dirt & Air Separator
- DOC = Drain off Cock
- DRV = Double Regulation Valve
- FS = Flow Sensor
- LNE = Power Supply
- LSV = Lock Shield Valve
- NRV = Non Return Valve
- P = Pressure Gauge
- PDV = Pressure Differential Valve
- SV = Boiler Safety Valve
- T = Thermometer

Typical Single Strebel S-AF Boiler System Layout



Multiple Strebel S-AF Boiler System Layout



Services and Warranty

Commissioning

It is highly recommended that all boilers are commissioned by our Service department by experienced Strebel service engineers. This ensures that your boiler will be set up both safely and optimally for maximum efficiency and that the combustion settings will be matched to the plant room conditions. After each successful commissioning a full report will be issued to evidence the initial operating set-up conditions and readings.

Service and Spares

S-AF and S-AF XL boilers are designed to make service as easy as possible. The combustion analysis and drain points are easily accessible and the panels are easily removable making access to all the internal components straight forward. Our Service Department offers a range of servicing options that can be tailored to meet individual requirements. Please contact us for more information.

Availability of Spares to the right specification and at the right time is essential to the successful operation of any plant room item. We recommend taking the time to stock up on Spares before the Heating season to minimise unplanned downtime. At our central Warehouse facility we stock a wide range of commonly used parts which can be dispatched directly to site for the following day assuming the order is received the morning before.



Delivery

Delivery is a critical part of any plant supply to site. The S-AF range comes securely packaged on sturdy pallets ensuring safe transit from factory to construction site. All deliveries are closely co-ordinated to ensure timely arrival within standard weekday hours. Delivery



is to ground level with the customer responsible for positioning on site. For out of hours, weekend and special delivery requirements additional charges will apply. In these cases please contact our Customer Services Team for more information.

Warranty

The S-AF and S-AF XL is offered with a 2-year standard warranty on the heat exchanger, parts and labour from the date of commissioning (assuming this date is no less than 12 weeks after supply to site) subject to satisfactorily evidenced water treatment regime (ICOM Guidelines Apply) in line with the boilers' aluminium heat exchanger. This standard warranty is conditional based upon the boiler(s) being commissioned by Strebel. If the boilers are not commissioned by Strebel this warranty is reduced to 1 year.

A 5-year warranty is also offered as standard (adding a further three years to the standard warranty) on the heat exchanger if a matched Plate Heat Exchanger and Circulating Pump are also supplied by Strebel. In this case evidence of a satisfactory water treatment regime for the full 5 years on the boiler side of the Plate Heat Exchanger is a fundamental condition of the extended warranty.



Customer Support

As with all Strebel products, the S-AF boiler range is fully supported by our excellent customer service team and experienced technical engineers. Whether you are looking for product advice or for maintenance and repair, our service team are on hand to support you and can be contacted easily via telephone or online.

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