

Copper-Fin[®]

GAS-FIRED WATER HEATERS



Lochinvar Corporation has been designing, manufacturing and distributing water heating products in USA since 1919 and has built an enviable reputation for reliable, efficient and cost effective water heaters and boilers.



In the UK the company is based in Banbury, ideally located to support its established products with a service which is second to none with Area Sales Managers and a head office staff covering Technical support, Service Technicians, Accounts and General Administration.

Water heating equipment was first sold in the UK under the Lochinvar name in 1976. The "Knight" and "Charger" ranges of direct gas fired Storage Water Heater were among the first of their type to be sold in this country and their popularity has continued to grow due to their suitability for the concept of System Separation and Decentralisation.

In 1981 Lochinvar introduced Copper-Fin® Water Heaters and Boilers and with various models available can offer outputs of up to 568kW. Most recent addition to the Copper-Fin® series is Intelli-Fin™, which has net thermal efficiencies of up to 108% from an incredibly small footprint.

The addition of the Condensa and CP-M Boiler ranges offer further flexibility of choice, offering wall-hung boilers with outputs from 23 to 180kW, all of which offer high levels of efficiency.

All Lochinvar water heaters and boilers have a range of ancillary equipment designed for the specific needs of the UK market, are CE marked and WRAS (Water Research Advisory Service) listed.



WHY Copper-Fin?



Copper is an excellent conductor of heat, having a heat transfer rate 9 times better than steel and cast iron and 1½ times better than aluminium. At the heart of each Lochinvar Water heater and boiler lies a copper heat exchanger with a substantial difference - extruded copper fin tubes, that offer 9 times the heat absorption of plain tubes.

Products have been available from Lochinvar in the UK since 1981 and the current model range offers many unique advantages at highly competitive prices, as well as combining durability with minimal service requirements.

COPPER-FIN HEAT EXCHANGER

The Heat Exchanger's finned copper tube construction besides giving increased heat transfer over plain tube also ensures rapid response to demand, achieving fast recovery of hot water. The tubes operate in a two pass arrangement and are expanded into a gasketless header which is built from lined cast iron.

Lochinvar Copper-Fin® heat exchangers carry a five year warranty.

HIGH THERMAL EFFICIENCIES

Lochinvar Copper-Fin® Water Heaters operate at temperatures up to 90°C with thermal efficiencies of up to 94% (net).

DIRECT HOT WATER

When linked to a Direct Storage vessel Lochinvar Water Heaters give a reliable, efficient supply of direct hot water, on the principle of system separation. "On-site" storage cylinders can be used and Lochinvar also offer the LST and CST range of energy saving storage vessels which are designed for use with Copper-Fin® products.

SCALE FREE OPERATION

Each Lochinvar Copper-Fin® water heater comes complete with a Bronze Glanded pump and Flow switch. The pump gives an even distribution of water across the heat exchanger and also ensures that any scale is kept in suspension, guaranteeing a "scale free" heat exchanger, even in hard water areas. Any scale present will usually settle in the storage vessel, which is not harmful and can be easily cleaned. This results in high operating efficiency and a prolonged working life for the water heater.

LOW NO_x EMISSIONS

Stainless steel burners produce an efficient low profile flame providing durability and an environmentally friendly NO_x emission of 12.5mg/kWh (6ppm) at 0% oxygen.

LOW WEIGHT

The combustion chambers are lined with Loch Heat ceramic tiles which are 25% lighter than less efficient refractory combustion chamber materials and will also not crack or flake.



EFFICIENCY+ WATER HEATERS



4 MODELS

The Efficiency+ is the latest in the *Copper-Fir*[®] series with hot water outputs from 720 to 1440 litres per hour and the additional benefit of 94% (net) thermal efficiency combined with ultra low NO_x emissions of 12.5mg/kWh (6ppm) at 0% oxygen. A wide range of flueing options is available including conventional, horizontal or vertical balanced flues.

OTHER FEATURES

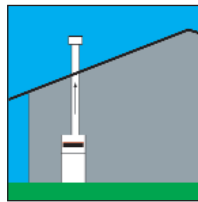
- ▼ Stainless steel burners
- ▼ Stacking options available for restricted plant room space
- ▼ Fully automatic ignition
- ▼ Manual reset high temperature limit thermostat
- ▼ Diagnostic control panel
- ▼ Temperature and pressure relief valve
- ▼ Certified to 11.0 bar working pressure
- ▼ Wide range of ancillary options available

PRE-PIPEWORK ARRANGEMENT AVAILABLE AS AN OPTION

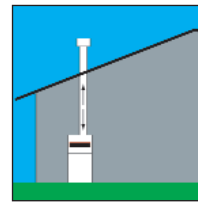
FLUEING OPTIONS - A MAJOR BENEFIT TO SPECIFIERS

A major benefit to the specifier, installer and end user is this ability to offer the options of Conventional or Balanced flues. Horizontal or vertical balanced flue runs of up to 10 metres in length are possible and include provision for 2 x 90° bends. Further bends can be included on shorter flue runs.

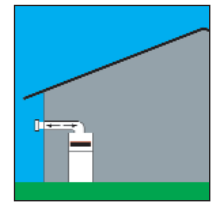
The complete balanced flue assembly is designed and supplied by Lochinvar and ensures that combustion air can be drawn directly from outside, isolating the Water Heater from negative air pressure areas, such as commercial kitchens.



Conventional Flue



Vertical Balanced Flue



Horizontal Balanced Flue

MCW SERIES WATER HEATERS



9 MODELS

The MCW series comprises nine models with hot water outputs ranging from 432 to 2340 litres per hour (44°C rise) and temperatures of 90°C achievable. Thermal efficiency is in excess of 90% (net) making the water heaters particularly suitable for commercial and industrial applications, as the fast recovery of hot water can be matched to peak demand requirements. MCW series water heaters are extremely compact, offering a great deal of installation flexibility.

OTHER FEATURES

- ▼ Bronze "Glanded" pump supplied
- ▼ Temperature & Pressure relief valve to protect heat exchanger
- ▼ Volt Free contacts for "Run" and "Fault" conditions
- ▼ Built in draught diverter
- ▼ Optional automatic combustion circuit shut-off device
- ▼ Certified to 11.0 bar working pressure
- ▼ Stacking options available
- ▼ Wide range of ancillary options

CFW SERIES WATER HEATERS



3 MODELS

The CFW series features a fan assisted sealed combustion chamber designed to control the optimum gas/air ratio for consistently high operating efficiency. Hot water outputs of 2376, 3105 and 3564 litres per hour are available with thermal efficiencies of 94% (net) and ultra low NO_x emissions of 12.5mg/kWh (6ppm) at 0% oxygen.

DIAGNOSTIC CONTROLS

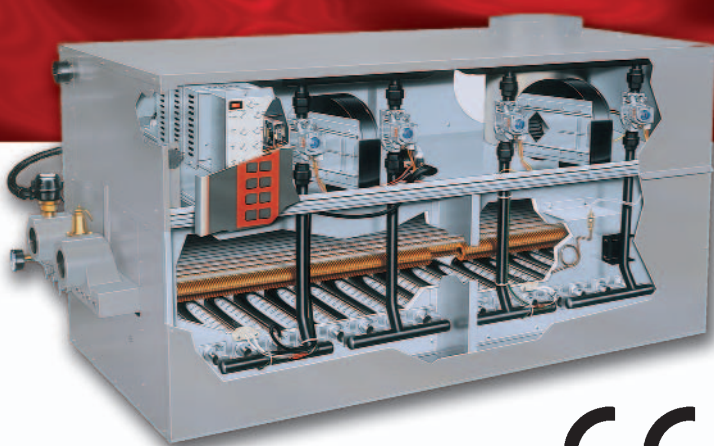
CFW Series Water Heaters come complete with fully automatic electronic ignition and diagnostic lights which continually monitor the major functions of the unit making it fully compatible with building Energy Management systems.



OTHER FEATURES

- ▼ Operation up to 90°C
- ▼ Certified for up to 11.0 bar working pressure
- ▼ Two-stage firing (optional)
- ▼ Remote flame failure signal
- ▼ Flame failure lockout re-set button
- ▼ Manual reset high temperature limit thermostat
- ▼ Control for Powered Flue Fan
- ▼ Temperature and pressure relief valve
- ▼ Stainless steel burners
- ▼ Wide range of ancillary options available

CFWII SERIES WATER HEATERS



OTHER FEATURES

- ▼ Operation up to 90°C
- ▼ Certified for up to 11.0 bar working pressure
- ▼ Diagnostic display
- ▼ Multi-stage proportional firing controller
- ▼ Flame failure volt free contacts
- ▼ Control for Powered Flue Fan
- ▼ Temperature & Pressure Relief valve
- ▼ Stainless steel burners
- ▼ Wide range of ancillary options

5 MODELS

The CFWII series features a fan assisted sealed combustion chamber designed to control the optimum gas/air ratio for consistently high operating efficiency. Hot water outputs from 4725 to 9882 litres per hour are available with thermal efficiencies of 94% (net) and ultra low NO_x emissions of 12.5mg/kWh (6ppm) at 0% oxygen.

TOTAL SYSTEM REDUNDANCY

The CFWII has multiple gas valves, fans and ignition systems giving the benefit of system standby in the event of component failure.

FLUEING OPTIONS

Installation flexibility is provided with the option of a Traditional Conventional Flue or Vertical Balanced Flue Assembly. The Vertical Balanced Flue Assembly has a 'twin pipe' system and requires part number VDK3008-5.

ENERGY SAVING HOT WATER CYLINDERS



LST RANGE

Constructed from A1 enamel-lined steel and available in 5 models with capacities from 297 to 1155 litres. Cathodic protection is provided by magnesium sacrificial anodes or maintenance-free factory fitted Correx Electrical Anodes (see ancillary options).

11 MODELS

CST RANGE

Copper Storage Cylinders are available in 6 sizes with capacities ranging from 210 to 1500 litres.

All LST and CST Hot Water Cylinders are particularly suitable for use with Copper-fin Water Heaters and carry a 5-year warranty against leakage.

CST Storage Tanks, LST166 and LST250 have the added benefit of Immersion Heater connections giving the option of alternative fuel stand-by.

ANCILLARY OPTIONS



MSF STACKING FRAMES

For applications where Plant Room space is at a premium MSF stacking frames offer an excellent solution. The range allows for two Copper-Fin® units to be "stacked up" giving up to 19,764 litres output from a floor space of only 2.65sq.m.

Frames are also available for EPW and MCW models for 'stacking' on top of LST cylinders, again saving valuable floor space.

UNVENTED SYSTEM KITS

For Direct Mains feed or Pressurised system installations. Unvented systems offer many advantages to installers, specifiers and end users and kits are available for each model.

DRAWINGS

Dimensional drawings for all models are available as CAD files which can be provided as a hard copy or downloaded from our website www.lochinvar.ltd.uk.

UNVENTED SYSTEM KIT COMPONENTS

- ▼ Pressure regulator with built in strainer
- ▼ Non-return valve
- ▼ Expansion vessel(s)
- ▼ Pressure relief valve
- ▼ Combined temperature and pressure relief valve
- ▼ Tundish

ANCILLARY KITS FOR Copper-Fin® WATER HEATERS

WH30.....	Flue Boost kit for MCW 91	PC1.....	Pump Over-run Control for EPW
WH31.....	Flue Boost kit for MCW 136 to 501, EPW 150 to 300 and CFW 500 to 750	PUMP/ACC1.....	Starter for Pump (models MCW, EPW & CFW 500 to 750)
WH32.....	Flue Boost kit for CFW 990 to 2070	PUMP/ACC2.....	Starter for Pump (models CFW 990 to 2070)
VDK 3005-8.....	Vertical Balanced Flue kit (Adapter and terminal)	CKT9001.....	Correx Electrical Anode Protection System - LST Range
TST5000.....	Two Stage Fire - CFW 500 to 750	RLY2718.....	High Temperature Indication Relay
F9/M9.....	Two-stage Firing for EPW		

	FLUE OPTION	MCW	CFW	CFWII	EPW
FLUE OPTION	TRADITIONAL CONVENTIONAL	Standard	Standard	Standard	Standard
	FAN- ASSISTED CONVENTIONAL	Option Flue Boost WH30 or WH31	Option Flue Boost WH31	Option Flue Boost WH32	Option Flue Boost WH31
	HORIZONTAL BALANCED FLUE	N/A	N/A	N/A	• Option: Price & Design on application • Flue Boost not required Runs of up to 10m
	VERTICAL BALANCED FLUE	N/A	Option (two-pipe) VDK 3005-8 Flue Boost not required	Option (two-pipe) VDK 3005-8 Flue boost not required	• Option: Price & Design on application • Flue Boost not required Runs of up to 10m

TECHNICAL SPECIFICATION

Copper-Fin® WATER HEATERS

RANGE	Model No.	Input kW net	Recovery rate for temp rise of		Flue Diameter (mm)	Flue Dia Balanced (mm)	Length (without header) (mm)	Depth (mm)	Height (mm)	Weight Empty (kg)
			44°C l/h	50°C l/h						
EFFICIENCY+	EPW150CE	40.0	720	634	125	100/150**	503	605	713	108
	EPW200CE	53.3	972	855	125	100/150**	602	605	713	118
	EPW250CE	66.7	1224	1077	150	130/200**	697	605	713	128
	EPW300CE	80.0	1440	1267	150	130/200**	795	605	713	137
MCW SERIES	MCW91CE	24	432	380	125	n/a	394	546	750	57
	MCW136CE	36	648	570	150	n/a	495	546	750	64
	MCW181CE	48	864	760	175	n/a	567	546	750	71
	MCW226CE	60	1044	919	175	n/a	673	546	750	84
	MCW271CE	72	1260	1109	200	n/a	749	546	750	89
	MCW316CE	84	1476	1299	200	n/a	825	546	750	99
	MCW361CE	96	1692	1489	225	n/a	902	546	750	104
	MCW401CE	106.7	1872	1647	250	n/a	1130	559	750	127
	MCW501CE	133.4	2340	2059	250	n/a	1334	559	876	132
CFW SERIES	CFW500CE	132	2376	2091	150	150*	1150	565	840	160
	CFW650CE	171	3105	2732	200	200*	1439	565	840	187
	CFW750CE	198	3564	3136	200	200*	1622	565	840	203
CFWII SERIES	CFW990CE	261	4725	4158	250	250*	1224	851	913	365
	CFW1260CE	332	6021	5298	300	300*	1486	851	913	462
	CFW1440CE	380	6858	6035	300	300*	1745	851	913	510
	CFW1800CE	475	8586	7556	350	350*	2086	851	913	576
	CFW2070CE	546	9882	8696	350	350*	2346	851	913	624

* Balanced Flue options on CFW and CFWII Series are Vertical twin pipe assemblies. ** EPW Balanced Flue Assemblies are concentric.

LST/CST STORAGE TANKS

	Model No.	Storage Capacity		Diameter (mm)	Height (mm)	Weight Empty (kg)
		litres	gallons			
STORAGE TANKS	LST66 direct energy saving cylinder	297	66	609	1492	84
	LST70 direct energy saving cylinder	315	70	711	1232	87
	LST100 direct energy saving cylinder	450	100	711	1587	157
	LST166 direct energy saving cylinder	747	166	812	1955	227
	LST250 direct energy saving cylinder	1155	254	1016	2082	451
	CST210 copper storage cylinder	210	46	550	1600	90
	CST450 copper storage cylinder	450	99	700	1758	180
	CST750 copper storage cylinder	750	165	850	1967	295
	CST1000 copper storage cylinder	1000	220	900	1970	310
	CST1200 copper storage cylinder	1200	264	900	2210	380
	CST1500 copper storage cylinder	1500	330	1150	2100	450



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