

EcoForce™ wall hung circulating-type gas-fired water heaters



- Recovery rates from 1312 to 2961 litres/hour
- Efficiencies up to 95.5%
- Fully modulating pre-mix burner
- Stainless steel heat exchanger
- High working pressure – up to 8 bar
- Low NO_x emissions ≤46mg/kWh
- Wall-hung space-saving design



Lochinvar®
HIGH EFFICIENCY BOILERS & WATER HEATERS

EcoForce™ wall hung circulating-type water heaters

EcoForce™ is a range of fully condensing gas-fired water heaters, available in 5 models with hot water recovery rates from 1312 to 2961 litres per hour, based upon a temperature rise of 50°C. EcoForce circulating-type water heaters are designed for installation with separate direct storage vessels (see page 3).

The wall-hung design provides an alternative solution to more traditional water heaters, especially in plant rooms that are restricted for space. EcoForce water heaters can provide a reliable, efficient solution for a range of commercial and industrial projects



EcoForce water heater
5 models

Stainless steel heat exchanger

At the heart of the EcoForce is a stainless steel heat exchanger; this material provides superior resistance to corrosion. The coiled design of the heat exchanger allows the unit to condense and create high efficiency, particularly on initial heat up.



EcoForce stainless steel heat exchanger

Fully modulating pre-mix burner with 4:1 turndown

This design accurately matches output to demand and helps to achieve higher efficiencies, lower fuel consumption and lower carbon emissions.

Wall hung space saving design

EcoForce water heaters can provide a solution where plant room space is restricted and installing a traditional floor standing water heater is difficult or not possible. The wall hung design can also make life easier for maintenance engineers.

Integral controls

BMS connectivity is provided for with a 0-10 volt option but the on-board control system contains many features, which are beneficial where users do not have BMS installations, including:

- 2 line, text only display- helping service and maintenance teams to quickly identify and rectify faults and minimise hot water downtime.
- Anti-legionella/pasteurisation function- this particularly important aspect for hot water installations is a standard feature, provided without the need for BMS control.
- Cascade management – up to 8 water heaters can be operated in cascade mode, providing even closer burner control versus system demand, providing optimum efficiency and built-in redundancy
- Additional system controls – we have the capability to connect with other system controls eg pump, zone valves etc.



EcoForce control display

Direct storage vessels

EcoForce circulating water heaters are designed for use with separate storage vessels and this type of installation can provide a great deal of installation flexibility with multiple storage and hot water recovery options. We provide two ranges of direct storage vessels as follows:



LST enamelled-steel range

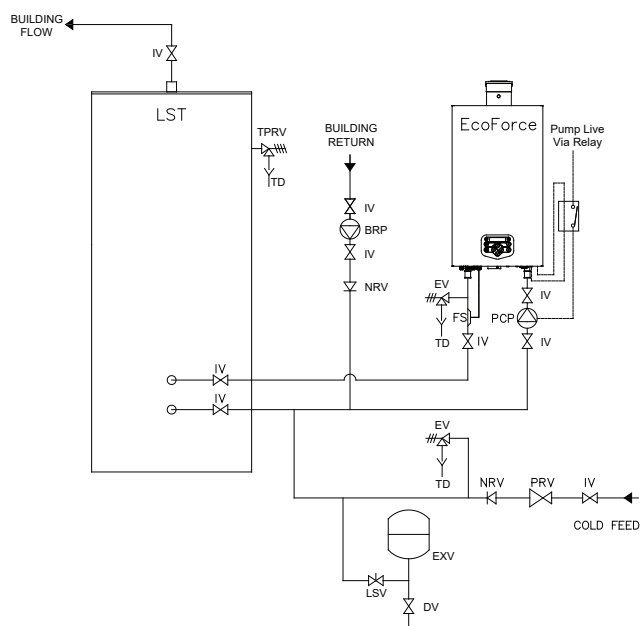
- Storage capacities from 312 to 2820 litres
- Up to 10 bar working pressure



SST stainless steel range

- Storage capacities from 300 to 1000 litres
- 6 bar working pressure

Typical EcoForce/direct storage vessel installation



Electric immersion heaters

Immersion Heaters ranging from 18 to 90kW are available (as ancillary options) with Lochinvar direct storage vessels, therefore an EcoForce water heater with separate storage vessel can also provide alternative fuel stand-by

Flue options

A wide range of flue options are available, including:

- Room sealed concentric balanced flue
- Room sealed twin pipe balanced flue (wall hung models only)
- Cascade flue system suitable for up to 3 water heaters (EF80,EF100,EF120 only)
- Conventional flue

Balanced flue assemblies of up to 50m equivalent length are achievable in addition to common flue arrangements.

Model	Concentric flue dia (mm)	Twin-pipe flue dia (mm)	Conventional flue dia (mm)
EF80	80/125	80-80	80
EF100	100/150	100-100	100
EF120	100/150	100-100	100
EF150	100/150	130-130	130
EF180	100/150	130-130	130



Primary circulation pump

It is particularly important to maintain a constant flow through the EcoForce™ heat exchangers, therefore we offer a range of suitably sized circulating pumps.

Technical specification

Water heater model		EF80	EF100	EF120	EF150	EF180
Nominal Input (Net) min-max	kW	14.6 - 74.3	17.2 - 92.2	26.0 - 111	34.0 - 138	45.0 - 166
Nominal Input (Gross) min-max	kW	16.2 - 82.5	19.1 - 102	28.9 - 123	37.8 - 153	50.0 - 184
Gas Flow Rate (Natural Gas)	m³/hr	7.9	9.8	11.8	14.6	17.6
Nominal output min-max	Kw	14.0 - 76.3	16.5 - 94.7	24.7 - 114.1	32.6 - 141.7	43.3 - 172.2
Efficiency data - building regulations						
Heat Generator Seasonal Efficiency (Gross CV)	%	95.0	95.5	95.4	95.3	95.3
Efficiency data - ErP and energy label						
Ecodesign energy label rating		N/A	N/A	N/A	N/A	N/A
Seasonal space heating energy efficiency	%	86	86.3	85.9	89	88.6
NO _x emissions						
NO _x emission (according to EN15502)@0% O2	mg/kWh	46	40	45	41	44
NO _x class according to EN15502		6				
General data						
Recovery rate @ 44°C	l/hr	1491	1851	2230	2770	3365
Recovery rate @ 50°C	l/hr	1312	1629	1963	2438	2961
Recovery rate @ 56°C	l/hr	1172	1455	1752	2176	2644
Dimensions (height)	mm	842	842	842	898	898
Dimensions (width)	mm	476	476	476	476	476
Dimensions (depth)	mm	486	486	486	677	677
Water content	litres	5	6.5	8.3	10.4	12.9
Weight (empty)	kg	68	73	78	87	96
Weight (full)	kg	73	79.5	86.3	97.4	108.9
Flow connection (inches)	BSP	1½	2	2	2	2
Return connection (inches)	BSP	1½	2	2	2	2
Gas connection (inches)	BSP	R ¾	R ¾	R ¾	R1	R1
Flue connection (concentric)	mm	80/125	100/150	100/150	100/150	100/150
Flue connection (twin-pipe)	mm	80-80	100-100	100-100	130-130	130-130
Electrical requirements		230V /1Ph/ 50hz				
Power consumption	W	136	142	151	214	229
Sound power level	LWA(db)	67	65	62	66	69
Nominal flue gas temperature	°C	85	85	85	85	85
Max outlet temperature	°C	75	75	75	75	75
Working pressure minimum	bar	1	1	1	1	1
Working pressure maximum	bar	8	8	8	8	8

Energy label, product fiche and ErP data table are available at www.lochinvar.ltd.uk

Ancillary items – required

- Matched primary circulation pump
- Direct storage vessels

Ancillary items – optional

- Unvented system kits
- Condensate neutralisation kit
- Range of flue options (see page 3)

For further information on the EcoForce™ wall hung water heaters, including ICM & user instructions and our full warranty terms and conditions, please visit our website: www.lochinvar.ltd.uk

