

# EcoCharger hybrid HWH water heaters



- Hot Water recovery rates from 540 to 2100 l/h at a 50°C temperature rise
- Integral water heater/solar controller to maximise solar output
- Suitable for use with high efficiency flat plate solar collectors
- Natural gas and LPG models available
- HeatPak option; can provide up to 40kW space heating
- BMS interface option; for detailed information on system parameters
- Remote Display available
- Built in legionella cycle

**UK Water Supply Compliant**  
WRAS recertification application pending



**Lochinvar**<sup>®</sup>  
HIGH EFFICIENCY BOILERS & WATER HEATERS

# Lochinvar

## EcoCharger hybrid HWH water heaters

Lochinvar EcoCharger hybrid (HWH) condensing gas-fired water heaters have been designed to work with solar thermal installations, featuring a pre-heat vessel and our high efficiency flat plate collectors.

### EcoCharger hybrid HWH water heaters

Hot water from solar gain is stored in a pre-heat vessel which is connected to the hybrid water heater.

The integral controller continuously measures the temperature within the pre-heat vessel and hybrid water heater. Solar priority is provided when there is demand for hot water and when the temperature within the Pre-heat vessel is 5°C higher than within the hybrid water heater. In these cases hot water is circulated from the pre-heat vessel to the hybrid unit, preventing the burner from firing.

If the solar-generated water in the pre-heat vessel cannot satisfy hot water demand, the controller activates the burner within the hybrid water heater.

The integral controller within the HWH water heater gives priority to the solar-generated hot water, ensuring maximum utilisation of the renewable energy source.



EcoCharger Hybrid  
HWH Water Heaters  
7 models available

### Ancillary options

A range of ancillary items are available as follows:

Ancillary description	Part No.
BMS interface	LV311290
Solar remote display	LV311405
Isolating transformer	LV311289
Unvented kit	WH17
Solar dummy sensor	LV309152
<b>Heatpak</b>	
HeatPak, 20kW and $\Delta T = 6^{\circ}C$	H 20 06
HeatPak, 20kW and $\Delta T = 10^{\circ}C$	H 20 10
HeatPak, 20kW and $\Delta T = 20^{\circ}C$	H 20 20
HeatPak, 30kW and $\Delta T = 6^{\circ}C$	H 30 06
HeatPak, 30kW and $\Delta T = 10^{\circ}C$	H 30 10
HeatPak, 30kW and $\Delta T = 20^{\circ}C$	H 30 20
HeatPak, 40kW and $\Delta T = 6^{\circ}C$	H 40 06
HeatPak, 40kW and $\Delta T = 10^{\circ}C$	H 40 10
HeatPak, 40kW and $\Delta T = 20^{\circ}C$	H 40 20
<b>Horizontal concentric flue kits</b>	
Models HWH32-220GCE, HWH33-370GCE, HWH52-370GCE and HWH63-370GCE	ECBH001
Models HWH87-480GCE, HWH106-480GCE and HWH129-480GCE	ECBH002
<b>Vertical concentric flue kits</b>	
Models HWH32-220GCE, HWH33-370GCE, HWH52-370GCE and HWH63-370GCE	ECBV001
Models HWH87-480GCE, HWH106-480GCE and HWH129-480GCE	ECBV002
<b>Horizontal parallel (twin pipe) flue kits</b>	
Models HWH32-220GCE, HWH33-370GCE, HWH52-370GCE and HWH63-370GCE	ECPH001
Models HWH87-480GCE, HWH106-480GCE and HWH129-480GCE	ECPH002
<b>Vertical parallel (twin pipe) flue kits</b>	
Models HWH32-220GCE, HWH33-370GCE, HWH52-370GCE and HWH63-370GCE	ECPV001
Models HWH87-480GCE, HWH106-480GCE and HWH129-480GCE	ECPV002
<b>Horizontal conventional flue kits</b>	
Models HWH32-220GCE, HWH33-370GCE, HWH52-370GCE and HWH63-370GCE	ECCH001
Models HWH87-480GCE, HWH106-480GCE and HWH129-480GCE	ECCH002
<b>Vertical conventional flue kits</b>	
Models HWH32-220GCE, HWH33-370GCE, HWH52-370GCE and HWH63-370GCE	ECCV001
Models HWH87-480GCE, HWH106-480GCE and HWH129-480GCE	ECCV002

Additional flue components are available for longer flue runs - Contact us for details.

### BMS interface ancillary option

The BMS interface option provides the facility to extract data such as hot water temperature, solar system temperatures, solar system contribution, operating hours from the EcoCharger hybrid water heater. This data can be converted for use with building management software, giving the user the opportunity to monitor the water heater and solar thermal installation.

*For further information please refer to BMS Interface specification sheet*

### HeatPak Ancillary option

HeatPak is a module which will provide a small amount of space heating. This option combined with the high efficiency of the EcoCharger hybrid condensing water heater, is ideal for applications with a low demand for space heating, but high demand for hot water.

Modules of 20, 30 and 40kW are available – dependent upon water heater model selected.

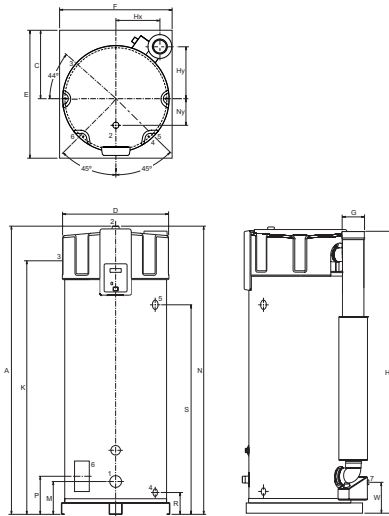
*For further information please refer to HeatPak specification sheet*

### Solar remote display option

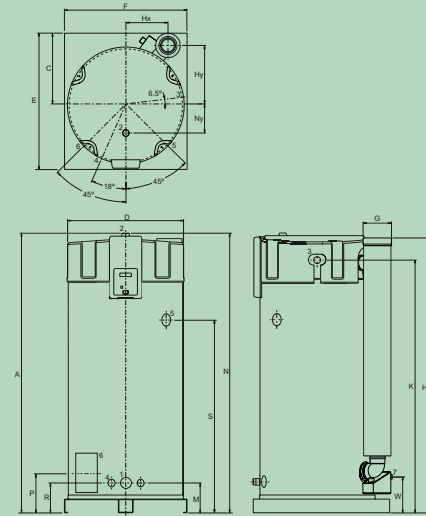
Using VBus low voltage protocol, this option provides the user with the ability to remotely view details of the Solar installation, including collector temperature, solar store temperature and energy gain from the solar thermal system.

*For further information please refer to the Remote display specification sheet*

## Dimensional drawings & connection details



HWH32-220GCE to HWH63-370GCE



HWH87-480GCE to HWH129-480GCE

Legend	Description	Unit	HWH 32-220 GCE	HWH 33-370 GCE	HWH 52-370 GCE	HWH 63-370 GCE	HWH 87-480 GCE	HWH 106-480 GCE	HWH 129-480 GCE
A	Height	mm	1485	2015	2015	2015	2060	2060	2060
C	Steel base (centre to rear)	mm	490	490	490	490	530	530	530
D	Diameter	mm	705	705	705	705	850	850	850
E	Steel base (depth)	mm	925	925	925	925	1000	1000	1000
F	Steel base (width)	mm	850	850	850	850	900	900	900
G	Flue diameter	mm	100/150	100/150	100/150	100/150	130/200	130/200	130/200
H	Height to flue outlet	mm	1460	1980	1980	1980	1995	1995	1995
Hx	Flue gas outlet (centre to right)	mm	265	265	265	265	310	310	310
Hy	Flue gas outlet (centre to rear)	mm	375	375	375	375	440	440	440
K	Gas valve connection	mm	1380	1910	1910	1910	1855	1855	1855
M	Cold water inlet	mm	265	255	255	255	225	225	225
N	Hot water outlet	mm	1485	2015	2015	2015	2060	2060	2060
Ny	Hot water outlet (from centre point)	mm	205	205	205	205	205	205	205
P	Clean out opening	mm	265	270	270	270	290	290	290
R	Drain	mm	180	170	170	170	225	225	225
S	T&P tapping	mm	995	1505	1505	1505	1425	1425	1425
W	Condensate drain	mm	220	245	245	245	240	240	240

Legend	Description	Thread Type	Size
1	Cold water inlet	BSP R (external taper)	1½"
2	Hot water outlet	BSP R (external taper)	1½"
3	Gas valve	BSP R (external taper)	¾"
4	Drain	n/a	Models 32-220 - 63-370 1" Models 87-480 - 129-480 ¾"
5	T&P tapping	n/a	1"
6	Clean out opening (height x width)	mm	95x70
7	Condensate drain	BSP Rp (internal parallel)	Ø40
9	Solar flow connection	BSP Rp (internal parallel)	1"
10	Solar return connection	BSP Rp (internal parallel)	1"
11	Immersion element	BSP Rp (internal parallel)	1½"
12	Plate heat exchanger inlet	BSP Rp (internal parallel)	1"
13	Plate heat exchanger outlet	BSP Rp (internal parallel)	1"
14	Building return	BSP Rp (internal parallel)	1"

## Flue details

### EcoCharger hybrid HWH water heaters - flue sizes and maximum equivalent flue runs

#### Room sealed concentric flue

Water heater model	Diameter (mm)	Max. length (meters)	Max. number of bends
HWH32-220GCE	100/150	40	7
HWH33-370GCE	100/150	40	7
HWH52-370GCE	100/150	40	7
HWH63-370GCE	100/150	40	7
HWH87-480GCE	130/200	15	4
HWH106-480GCE	130/200	15	4
HWH129-480GCE	130/200	15	4

**Note.** Maximum flue lengths should not be exceeded under any circumstances.

#### Conventional Flue

Water heater model	Diameter (mm)	Max. total length (meters)	Length for 90° bend (meters)	Length for 45° bend (meters)
HWH32-220GCE	100	55	4.6	1.2
HWH33-370GCE	100	55	4.6	1.2
HWH52-370GCE	100	55	4.6	1.2
HWH63-370GCE	100	55	4.6	1.2
HWH87-480GCE	130	65	2.4	1.4
HWH106-480GCE	130	65	2.4	1.4
HWH129-480GCE	130	65	2.4	1.4

**Note.** Lochinvar supplied flue is suitable for internal installation only, for external flue applications please consult a flue specialist.

#### Room sealed parallel (twin pipe) flue

Water Heater Model	Diameter (mm)	Max. total length (meters)	Length for 90° bend (meters)	Length for 45° bend (meters)
STANDARD				
HWH32-220GCE	100	55	4.6	1.2
HWH33-370GCE	100	55	4.6	1.2
HWH52-370GCE	100	55	4.6	1.2
HWH63-370GCE	100	55	4.6	1.2
HWH87-480GCE	130	65	2.4	1.4
HWH106-480GCE	130	65	2.4	1.4
HWH129-480GCE	130	65	2.4	1.4
ALTERNATIVE				
HWH32-220GCE	130	100	2.4	1.4
HWH33-370GCE	130	100	2.4	1.4
HWH52-370GCE	130	100	2.4	1.4
HWH63-370GCE	130	100	2.4	1.4
HWH87-480GCE	150	100	2.6	1.6
HWH106-480GCE	150	100	2.6	1.6
HWH129-480GCE	150	100	2.6	1.6

**Note.** If the maximum total length when using 100 mm diameter flue is exceeded then it is permissible to use 130 mm diameter flue.

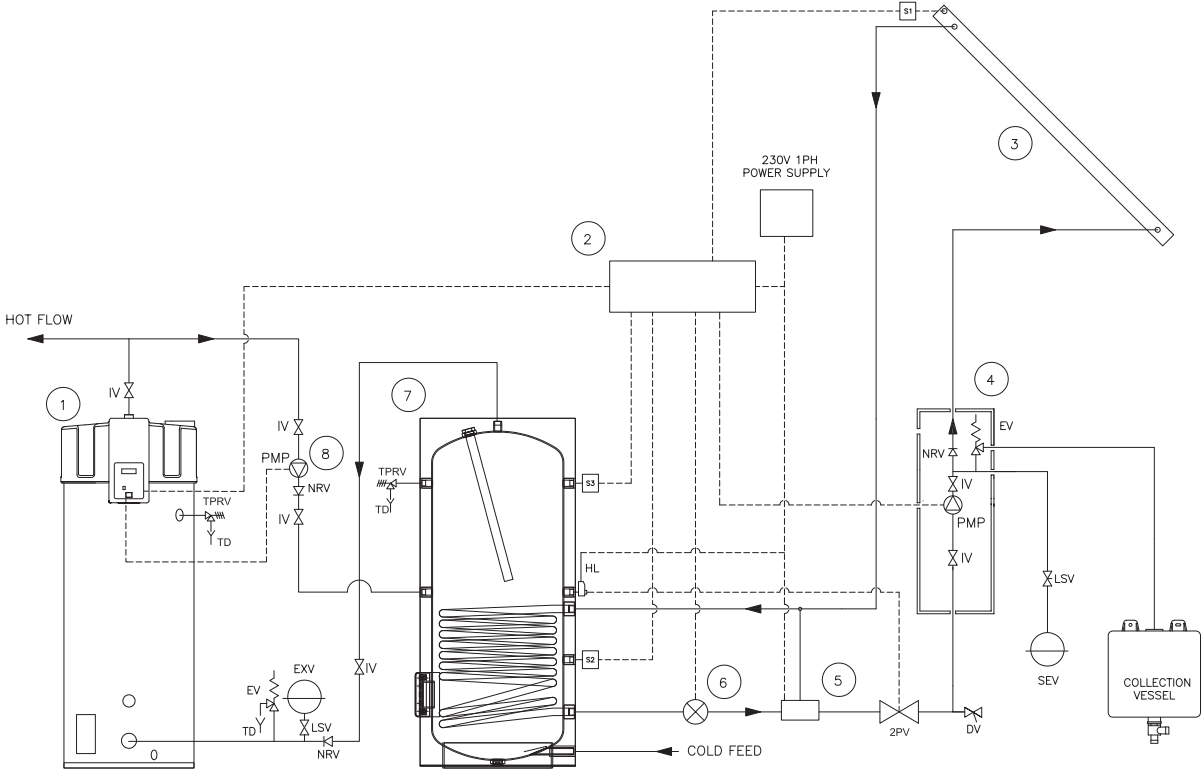
If the maximum total length when using 130 mm diameter flue is exceeded then it is permissible to use 150 mm diameter flue.

Any diameter enlargement must be carried out on both flue and air supply.

## Solar thermal packages

We also offer a range of Solar packages, with our established high efficiency LSP20+ flat plate range of collectors – please refer to our separate Solar specification sheet or our website [www.lochinvar.ltd.uk](http://www.lochinvar.ltd.uk)

In addition to the solar collectors each package consists of roof mounting frame, solar pump station, glycol, QT flow sensor, RHI compliant heat meter, solar expansion vessel, solar pre-heat vessel (up to 3000 litres capacity) and solar ‘priority’ pump.



The above drawing is for information purposes only. Please refer to our website for a detailed schematic.

Key	Description
1	EcoCharger hybrid HWH water heater
2	Solar control
3	Flat plate solar thermal collector
4	Solar pump station
5	Class two RHI compliant heat meter
6	QT flow sensor
7	Pre-heat vessel
8	Solar priority pump
S1	Sensor 1
S2	Sensor 2
S3	Sensor 3

Key	Description
TPRV	Temperature and pressure relief valve
EV	Expansion valve
EXV	Expansion vessel
SEV	Solar expansion vessel
TD	Tundish
2PV	Motorised two port valve (via high limit)
HL	High limit stat
NRV	Non return valve
IV	Isolation valve
LSV	Lockshield valve
DV	Drain valve
PMP	Pump

## Technical specification

Water heater model		HWH 32-220 GCE	HWH 33-370 GCE	HWH 52-370 GCE	HWH 63-370 GCE	HWH 87-480 GCE	HWH 106-480 GCE	HWH 129-480 GCE
Nominal input (net)	kW	29.4	30.5	47.8	57.9	79.3	96.6	117.9
Nominal input (gross)	kW	32.7	33.9	53.1	64.4	88.1	107.3	131
Gas flow rate (natural gas)	m <sup>3</sup> /hr	3.1	3.2	5.0	6.0	8.3	10.1	12.3
Nominal output	kW	31.5	33.3	51.2	61.5	85.7	102.4	123.9
<b>Efficiency data - part L2</b>								
Seasonal efficiency (part L2 gross CV)	%	96	98	96	95	97	95	95
NOx emission @0% O <sub>2</sub>	ppm	30	29	29	27	31	30	29
NOx emission @0% O <sub>2</sub>	mg/kWh	24	32	36	37	34	36	37
<b>Efficiency data - ErP and energy label</b>								
Ecodesign energy label rating		A	A	A	A	n/a	n/a	n/a
Water heater efficiency	%	91	91	91	90	93	93	92
<b>General data</b>								
Recovery rate @ 44°C	l/hr	610	640	990	1200	1700	2000	2400
Recovery rate @ 50°C	l/hr	540	570	870	1100	1500	1800	2100
Dimensions (height)	mm	1485	2015	2015	2015	2060	2060	2060
Dimensions (diameter)	mm	705	705	705	705	850	850	850
Storage capacity	litres	220	374	374	374	488	488	488
Weight (empty)	kg	177	214	214	214	480	480	480
Weight (full)	kg	397	588	588	588	968	968	968
Insulation thickness	mm	50	50	50	50	50	50	50
Insulation material		Polyurethane						
Hot outlet connection (inches)	BSP	R1½	R1½	R1½	R1½	R1½	R1½	R1½
Cold feed connection (inches)	BSP	R1½	R1½	R1½	R1½	R1½	R1½	R1½
Gas connection (inches)	BSP	R¾	R¾	R¾	R¾	R¾	R¾	R¾
Electrical requirements		230V/1ph/50Hz						
Power consumption	W	45	45	75	115	95	145	240
Sound power level	LWA(db)	46	47	55	59	54	59	62
Maximum flue gas temperature	°C	45	50	60	65	50	55	60
Max outlet temperature	°C	80	80	80	80	80	80	80
Minimum working pressure	bar	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Maximum working pressure	bar	8.0	8.0	8.0	8.0	8.0	8.0	8.0

Energy label, product fiche and ErP data table are available at [www.lochinvar.ltd.uk](http://www.lochinvar.ltd.uk)



For further information on the EcoCharger hybrid (HWH) water heaters, including ICM & user instructions and our full warranty terms and conditions, please visit our website: [www.lochinvar.ltd.uk](http://www.lochinvar.ltd.uk)



7 Lombard Way, The MXL Centre, Banbury, Oxon, OX16 4TJ

Tel: +44(0) 1295 269 981, Fax: +44(0) 1295 271 640, Email: [info@lochinvar.ltd.uk](mailto:info@lochinvar.ltd.uk)

[www.lochinvar.ltd.uk](http://www.lochinvar.ltd.uk)

*Lochinvar Ltd reserves the right to change specifications without prior notice*

LOC\_15\_0001 | HWH | September 2015