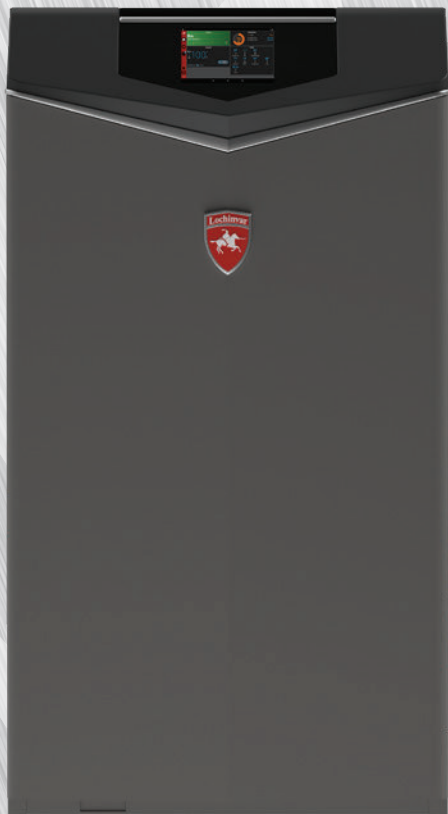


# ECOKNIGHT XL

## FLOOR STANDING GAS-FIRED CONDENSING WATER HEATER



### KEY FEATURES

- 4 models with outputs from 113kW to 283kW
- 10:1 downturn
- High efficiency condensing technology
- Stainless steel heat exchanger
- Integral smart touch controls
- Cascade control for up to 8 units
- Low NO<sub>x</sub> emissions <37mg/kWh

## Connections



- ① 7" TOUCH SCREEN  
Provides a simple user interface with all standard parameters easily located for simple changes.
- ② STAINLESS STEEL HEAT EXCHANGER  
Latest design providing the ultimate efficiency.
- ③ 10:1 TURNDOWN  
Accurately matches load to demand increasing efficiency and saving energy. Matched with the standard cascade control this can provide a turndown of up to 80:1.
- ④ COMBUSTION AIR FILTER  
Prevents dust from entering the burner increasing efficiency and extending service intervals.

## EcoKnight XL timeline



2010

EcoKnight water heater launched with MK1 Smart system User interface and stainless-steel heat exchanger



2015

EcoKnight water heater v2 featuring an enhanced Smart system User interface

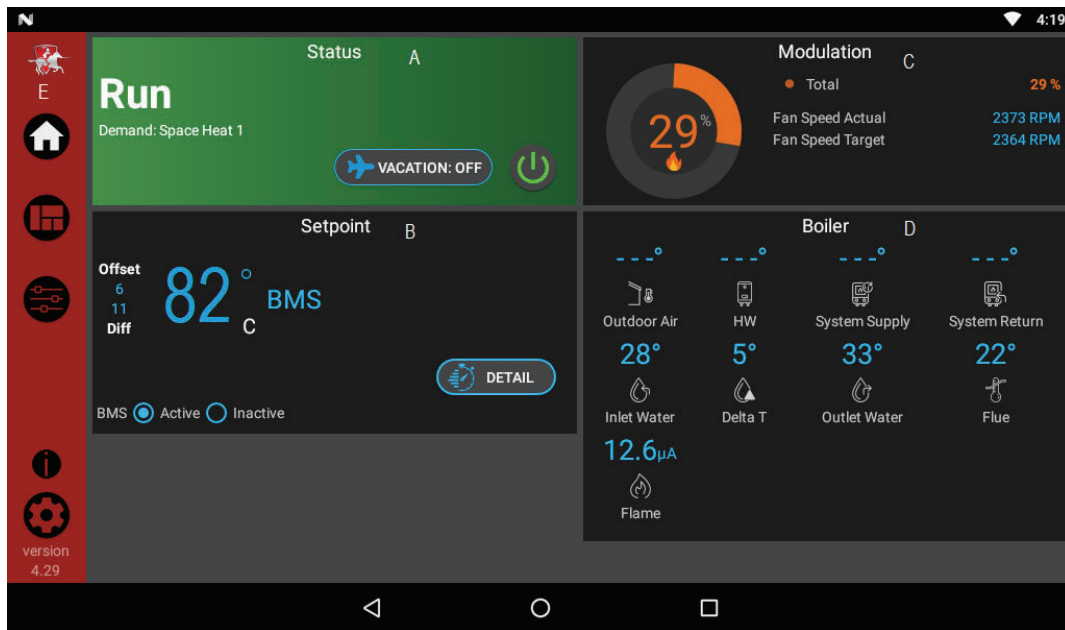


2024

Latest EcoKnight XL water heater launched featuring the latest touchscreen Smart system control and cutting-edge stainless-steel heat exchanger design.

## Smart system control

EcoKnight XL features the latest generation of the Lochinvar SMART SYSTEM CONTROL, the large touchscreen allows easy access to all the parameters regularly accessed, many parameters feature simple sliders making it easy to change temperatures without entering multiple screens.



## Cascade control

One of the key standard features within the EcoKnight XL water heater is cascade control, this allows up to 8 water heaters to be controlled. With a simple on signal to the Lead appliance the cascade will react to the domestic hot water load accurately matching heat output to the building load, increasing efficiency and spreading the working hours evenly. A cascade of 8 water heaters will have a 80:1 downturn available, making the installation ultra efficient in buildings which have a large peak demand such as hotels but still need to maintain a lower level of hot water during the rest of the day.

## Technical specifications

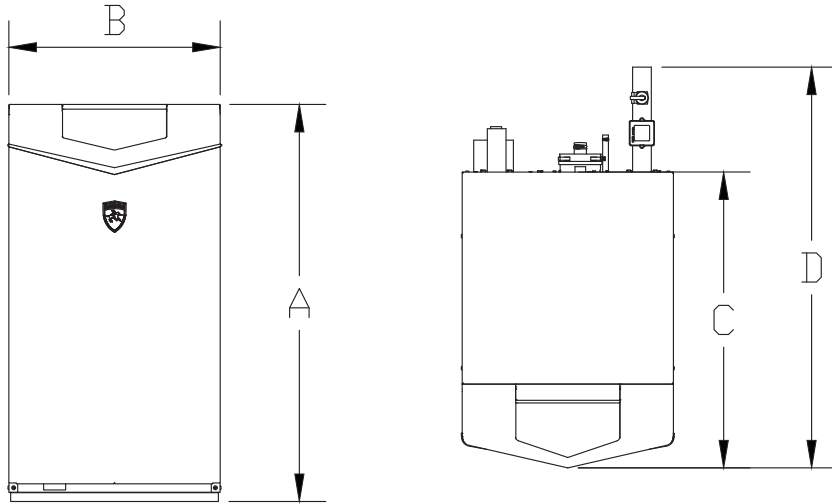
Model		EKW 117	EKW 190	EKW 235	EKW 295
<b>General data</b>					
<b>Product I.D. Number</b>		<b>0063DO3450</b>			
<b>Classification</b>		<b>I<sub>2</sub>H</b>			
Input (gross)	kW	128.1	187.3	226.6	285.9
Input (net)	kW	115.3	168.7	204.1	257.5
Output (PmMin-PnMax)	kW	11.5-113.1	16.7-184.4	23.1-226.8	28.9-283.1
Downturn		10:1	10:1	10:1	10:1
Heat generator seasonal efficiency	%	96.3	96.3	95.9	95.7
Shipping weight	kg	165.3	206.6	219.3	256.9
NO <sub>x</sub> @ 0% O <sub>2</sub> According to EU regulation 812/2013	mg/kw	22	30	33	37
NO <sub>x</sub> Class According to EU regulation EN15502		6			
Maximum allowable temperature of the combustion air	°C	40			
<b>Performance data - G20</b>					
Recovery Rate (44° ΔT)	l/hr	2186	3195	4443	4919
Recovery Rate (50° ΔT)	l/hr	1924	2812	3910	4329
<b>Gas data - G20</b>					
Nominal gas inlet pressure	mbar	21			
Maximum gas inlet pressure	mbar	25			
Minimum gas inlet pressure	mbar	17.5			
Gas flow rate	m <sup>3</sup> /hr	12.29	17.5	22.13	28.44
Flue gas mass rate (@9.0% CO <sub>2</sub> )	g/sec	57.72	80.73	102.18	129.94
Gas inlet connection size	"BSP	1	1¼	1¼	1¼
<b>Electrical data</b>					
Power consumption	W	238	767	979	1003
Power supply		Single phase 230v/50Hz			
Protection class		IP00			
<b>Water data</b>					
Water content	litres	17	24	28	34
Water connections (F & R)	"BSP	2	2	2	2½
Maximum water pressure (PMS)	bar	11			
Minimum water pressure	bar	0.5			
Maximum water temperature	°C	85			

## ErP data

Type		EKW117	EKW190	EKW235	EKW295
Condensing boiler:		Yes	Yes	Yes	Yes
Low temperature boiler:		No	No	No	No
B11 boiler:		No	No	No	No
Cogeneration space heater:		No	No	No	No
Combination heater:		No	No	No	No
	<b>Unit:</b>				
<b>Rated heat output</b>					
P-rated (P4) at 60-80°C	kW	111.7	163.1	197.3	248.4
Heat output (p1) 30% at 30-37°C	kW	37.8	55.3	66.6	83.9
<b>Seasonal space heating energy efficiency (η<sub>s</sub>)</b>					
Energy efficiency class space heating		A	A	A	A
Seasonal space heating efficiency (η <sub>s</sub> )	%	90.8	92	90.8	92
Energy efficiency (η <sub>4</sub> ) at 60-80°C	%	87.1	86.9	87.1	86.9
Energy efficiency (η <sub>1</sub> ) at 30-37°C	%	98	97.8	98	97.8
<b>Auxiliary electricity consumption</b>					
At full load (elmax)	kW	0.238	0.767	0.979	1.003
At part load (elmin)	kW	0.193	0.283	0.821	0.353
In standby mode (Psb)	kW	0.017	0.017	0.018	0.045
<b>Other</b>					
Standby heat loss (Pstby)	kW	0.14348	0.14583	0.14348	0.15623
Emissions (NO <sub>x</sub> ) of nitrogen oxides (EN15502)	mg/kWh	22	30	33	37
Sound power level, indoors (EN 14436 - 1:2006)	db	79.2	80.7	81.8	83.3

## Installation

The unit is supplied mounted on a pallet with a cardboard outer surrounding the unit. This packaging should be removed as close as possible to the installation point to reduce the chances of damage while manoeuvring into position. EcoKnight XL is a semi-instantaneous gas fired condensing water heater and must be installed with at least one domestic hot water storage vessel.



Item		EKW117	EKW190	EKW235	EKW295
A	mm	1143	1143	1143	1143
B	mm	610	610	610	610
C	mm	851	1079	1079	1270
D	mm	1079	1346	1346	1575
Gas connection	Inch BSP	1"	1¼"	1¼"	1¼"
Flow connection	Inch BSP	2"	2"	2"	2½"
Return connection	Inch BSP	2"	2"	2"	2½"

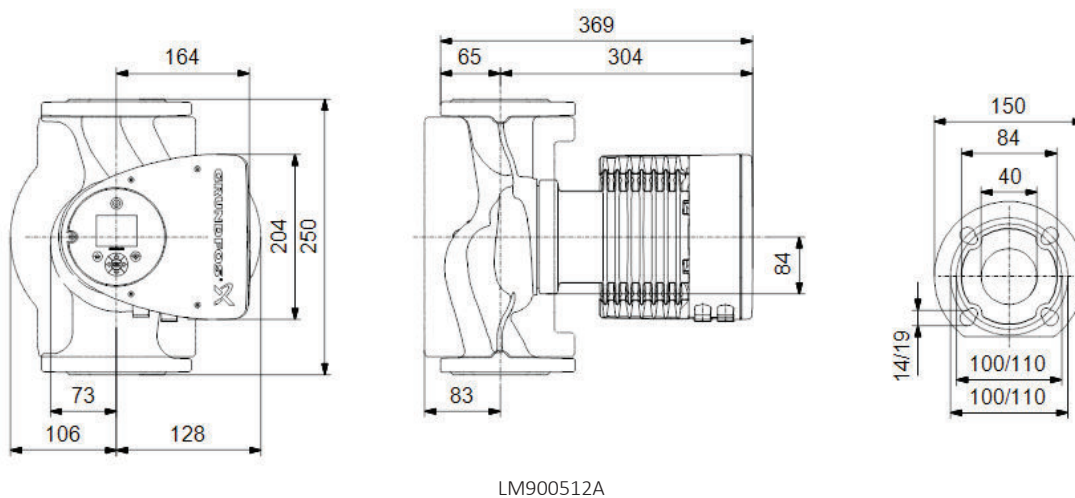
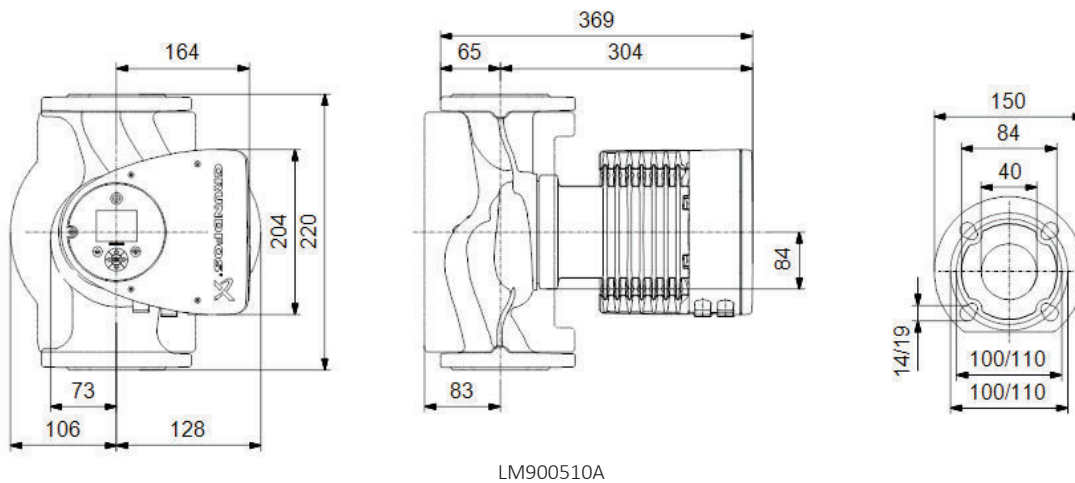
## Ancillary items

The following items are available as ancillaries for the EcoKnight XL water heater:

- Matched bronze primary pump
- Flowswitch
- Flue kit and ancillary items
- Unvented system kit and expansion vessel
- Domestic hot water storage vessels from 300-3000litres capacity in both glass lined or stainless steel versions

### Matched bronze primary pump

Model	Primary shunt pump	Volts	Amps
EKW117	LM900510A	230	1.66
EKW190	LM900510A	230	1.66
EKW235	LM900512A	230	2.78
EKW295	LM900512A	230	2.78



## Flow switch

To protect the water heater a flow switch must be fitted to the heater return, failure of the heat exchanger due to low or no flow is not covered by the heat exchanger warranty a flow switch will protect the heater from low flow conditions.



A suitable unit is available from Lochinvar, item number LM900442P.

## Flue options

Another feature of the EcoKnight XL water heater range is its ability to be installed with a range of flue types, including room-sealed concentric or twin pipe and traditional conventional flue systems.

\* Note model 295 is only suitable for B23 or C63 flue systems.

Most flue options are available from Lochinvar, contact our head office or your local area sales manager for more details.

- B23** An appliance intended to be connected to a flue that evacuates the products of combustion to the outside of the room containing the appliance. The combustion air is drawn directly from the room.
- C13** An appliance connected to either a concentric or twin-pipe flue system with a horizontal flue terminal. Both the air inlet and flue exhaust must be in the same pressure zone.
- C33** An appliance connected to either a concentric or twin-pipe flue system with a vertical flue terminal. Both the air inlet and flue exhaust must be in the same pressure zone.
- C43** An appliance connected to a common air inlet and flue exhaust system, which is designed for more than one appliance. This common system has a single air inlet and flue exhaust and is part of the building not the appliance.
- C53** An appliance connected to a twin-pipe flue system with a horizontal or vertical flue terminal. Both air inlet and flue exhaust may be in different pressure zones.
- C63** An appliance intended to be connected to a separately approved and marketed system for the supply of combustion air and discharge of combustion products (i.e. other than that supplied by the water heater manufacturer).

## Flue gas data

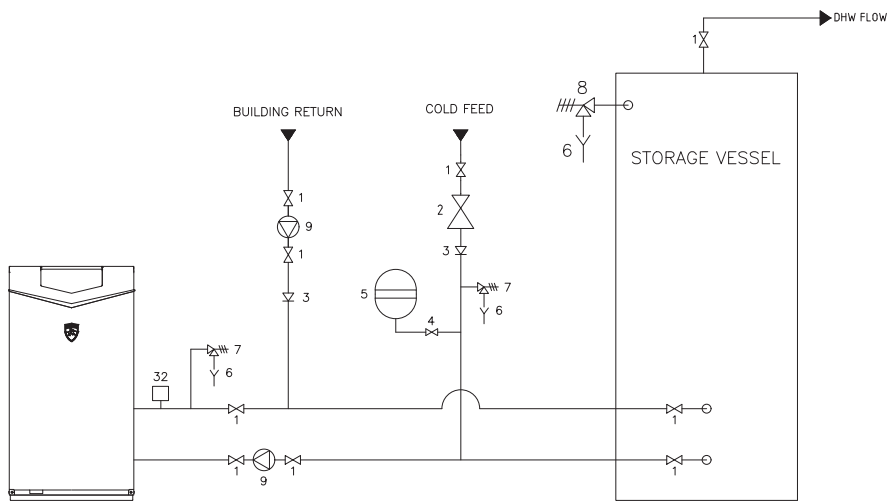
Model Number		EKW117	EKW190	EKW235	EKW295
<b>Flue data type B23</b>					
Nominal flue diameter	mm	150	150	150	200
Minimum flue gas temp	°C	35			
Average flue gas temp	°C	70			
Maximum flue gas temp.	°C	120			
Maximum equivalent length	m	27.0	27.0	16.0	24.9
Roof terminal	m	1.00	1.00	0.55	1.00
Equivalent length 90° bend – mm	mm	7.1	7.1	7.1	1.1
Equivalent length 45° bend – mm	mm	1.8	1.8	1.8	0.7
Flue draught requirements	mbar	-0.03 to -0.10			
<b>Flue data type C13 &amp; C33</b>					
Nominal flue diameter	mm	150	150	150	150
Nominal air inlet diameter	mm	150	150	150	150
Minimum flue gas temp	°C	35			
Average flue gas temp	°C	70			
Maximum flue gas temp.	°C	120			
Maximum equivalent length	m	27	27	16	N/A
Roof terminal	m	1.00	1.00	0.55	N/A
Wall terminal	m	0.86	0.86	0.60	N/A
Equivalent length 90° bend	mm	7.1	7.1	7.1	N/A
Equivalent length 45° bend	mm	1.8	1.8	1.8	N/A
<b>Flue data type C43 &amp; C53</b>					
Nominal flue diameter	mm	100	150	150	150
Nominal air inlet diameter	mm	100	100	100	150
Minimum flue gas temp	°C	35			
Average flue gas temp	°C	70			
Maximum flue gas temp	°C	120			
Maximum equivalent length	m	27	27	16	N/A
Equivalent length 90° bend	mm	7.1	7.1	7.1	N/A
Equivalent length 45° bend	mm	1.8	1.8	1.8	N/A

## Unvented system kits

When installing an EcoKnight XL water heater on an unvented system a suitable kit of components is available from Lochinvar as an extra ancillary. This will be sized according to individual project requirements.

The unvented kit will include:

- Non return valve
- Pressure relief valve
- Pressure reducing valve
- T&P valve(s) one for each vessel supplied with the kit
- Tundish
- A suitable sized expansion vessel (Dependent on system volume)



Item	Description
1	Isolation valve
2	Pressure reducing valve
3	Non return valve
4	Lockshield valve
5	Expansion vessel
6	Tundish
7	Expansion valve (pressure relief)
8	T&P valve
9	Circulating Pump
10	Drain valve
32	Flow switch

## Storage vessels

EcoKnight XL water heaters are designed for installation with a separate storage vessel; this provides a great deal of installation flexibility as multiple storage and hot water recovery combinations are available.

Our LST and LSTR range are specifically designed for use with circular water heaters and are available with storage capacity ranging from 312-2820 litres.

If a complete stainless option is required, the EFW water heater can be paired with our SST range providing storage capacities from 300-1000 litres.

For further details please use the link to our website pages:

<https://lochivar.ltd.uk/product-ranges/direct-storage-vessels/>



## Pipework sizing

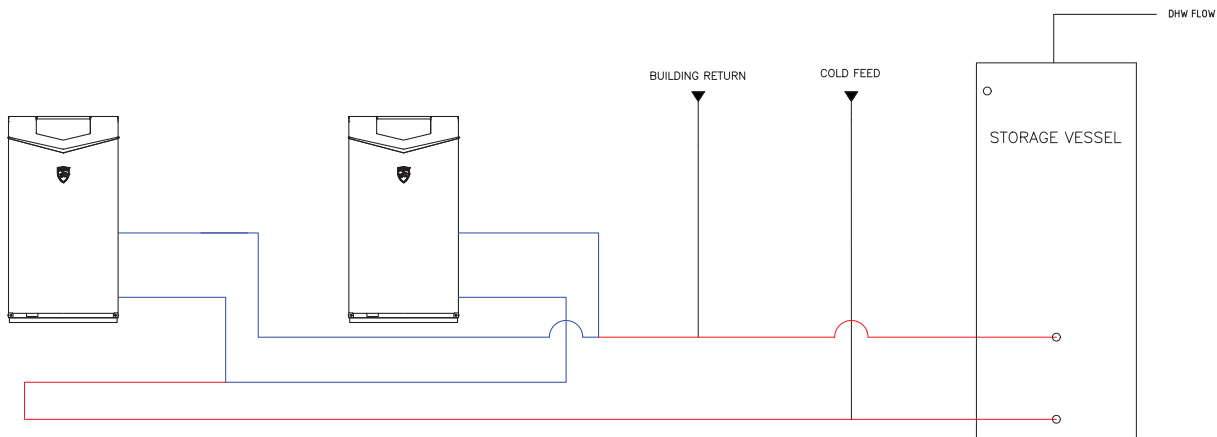
EcoKnight XL water heaters need the primary pipework between the water heater(s) and storage vessels(s) to be sized correctly to ensure the system works correctly and to give the water heaters a long service life. Pipe sizing should be based on the flow rates as shown below.

### Water heater flow rates

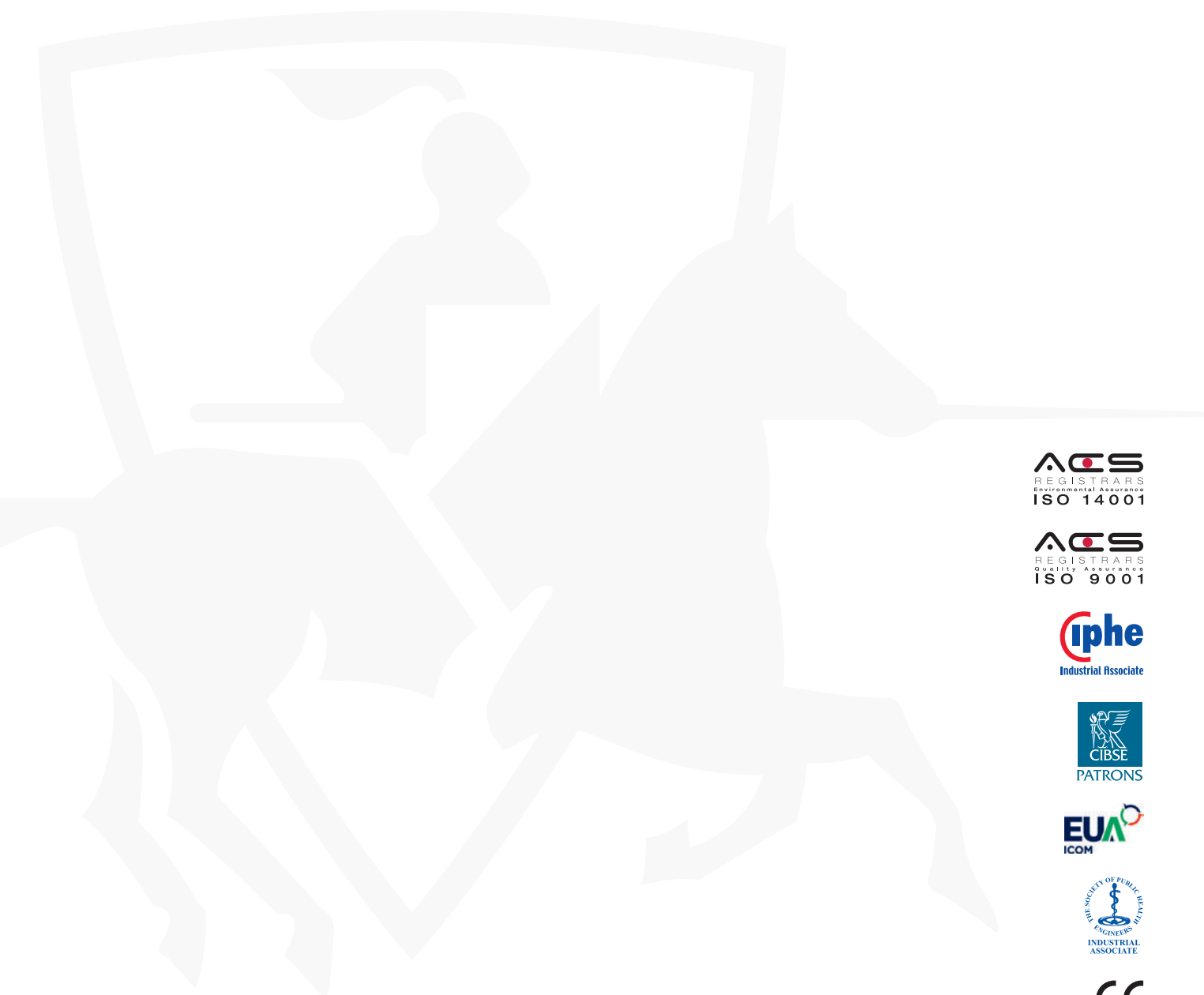
Model	Minimum pipe size	l/sec	kPa	dT
EKW117	2"	2,2	26,9	12
EKW190	2"	2,8	44,8	16
EKW235	2"	3,8	65,7	14
EKW295	2½"	5	44,8	14

### Pipework header sizing

The pipework header should be sized as per the drawing and table below, for installations outside this guidance please contact Lochinvar technical support.



Model	PIPEWORK (A) BLUE SIZE (mm)	PIPEWORK (B) RED SIZE (mm)			
	NUMBER OF EcoKnight XL WATER HEATERS				
	1	2	3	4	
EKW117	54	67	76	108	
EKW190	54	76	108	108	
EKW235	67	108	108	133	
EKW295	67	108	133	133	



ACS  
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Quality Assurance  
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EUA  
ICOM

THE SOCIETY OF PUBLIC HEALTH  
ENGINEERS  
INDUSTRIAL  
ASSOCIATE

CE

UK  
CA

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 EcoKnight floor standing gas fired condensing 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)

 **Lochinvar**<sup>®</sup>

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

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