Handover Pack

Installation:	Ground Source Heat Pump
Client:	Marcus Taylor
Project Number:	BPUK19-30
Site Address:	25 Carol Street London NW1 0HT
Commissioning Date:	02 June 2023
Date:	16 June 2023

This document has been developed to provide the client with complete information about his/her renewable energy system. The information given in this pack regarding the operation and maintenance of the system shall be followed and adhered to at all times.

List of Contents:

Better Planet UK Ltd
Registered office:
6 Northaw Place, Coopers Lane, Hertfordshire, EN6 4NQ
No. 144244531
Registered in England No. 08200311
www.betterplanet.co.uk
Tel. 01707 662408

1. Heat Pump Installation Certificate

Better Planet (UK) Ltd can confirm that the heat pump installation at 25 Carol Street, London, , , NW1 0HT for Marcus Taylor meets the requirements of the Microgeneration Installation Standard MIS 3005 (Issue 4.3).

Details

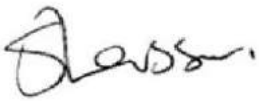
Contact:	Marcus Taylor
Installation / Contact Address:	25 Carol Street London NW1 0HT
Phone:	07979 530 623
Email:	marcus@makesomespace.co.uk
Contractor:	Better Planet (UK) Limited
Contact address:	6 Northaw Place, Coopers Lane, Potters Bar EN6 4NQ
Phone:	01707 662 408
Email:	info@betterplanet.co.uk
Company MCS number:	NIC 1137

Installed key components

Heat pump Unit:	Stiebel Eltron WPE-I-12
Serial number:	238612-9734-022702-0034
Hot water cylinder	Nibe Megacoil HA-WH5 300
Serial number:	121021142433039114
MCS Certificate No:	

Energy performance

Approximate heat loss of building:	8.66 kW
Domestic hot water:	YES
Heat pump capacity:	12.00 kW
Total provided heat:	24026.66 kWh
Total consumed electrical energy:	6058.42 kWh

Date:	16 June 2023
Print name:	Stephanie Larsson
Signature:	

2. Warranty for Installations

This is a warranty for the work carried out by Better Planet in connection to installations of renewable energy technologies at 25 Carol Street, London, NW1 0HT. The warranty is for one year from the date of commissioning. This is not a warranty for the installed equipments as they are subject to various warranties from the manufacturers.

1. Persons covered by the Warranty

The warranty applies to the original purchaser and any subsequent owner of the installation.

2. Validity period of the Warranty

The warranty period is one year from the date of commissioning.

3. Installation covered by the Warranty

The warranty applies to work carried out by Better Planet.

4. Scope

The warranty relates to the installation at the address indicated above and specified in the invoice and applies to faults originating from an incorrect installation. The warranty applies in the following cases:

a) When the installed system does not work correctly while there is nothing faulty with the installed components

b) If it turns out that the installation has not been done in compliance with the ***Microgeneration Certification Scheme*** standards relevant for the installed technologies

c) If it turns out that the installation did not comply with building regulations at the time of commissioning

Better Planet's commitment under this warranty is to rectify complaints relating to items a, b and c above with out any costs for the client.

Repair work may however not exceed the purchase price, cash compensation is not available. This warranty does not cover circumstances that are normally covered by home insurance e.g. fire, flood, etc.

5. General exceptions

Compensation is not provided for:

- Damage caused by normal wear and tear, inadequate maintenance or care
- Cost of inspecting, adjusting or cleaning the item, unless this relates to something that is eligible for compensation under this warranty
- Minor damage (e.g. scratches and marks) that does not affect the utility of the item
- Damage covered by insurance
- Indirect damage
- Loss or damage caused by gross negligence or intent, misappropriation, fraud or similar crime against property, breach of trust or fraudulent conversion
- Any consequential damage that the faulty installation may cause is not covered.

6. Care of Duty

The installation must be handled with normal care and attention to minimise the risk of damage or loss. If the duty of care has not been fulfilled, compensation is generally reduced accordingly. In the event of serious negligence, compensation is substantially reduced and may even be cancelled entirely.

7. Excess

No excess is payable on the warranty.

8. In the event of a claim under the warranty

If the owner of the installation becomes aware of any problem within the scope of this warranty (see points 4a-c), Better Planet must be notified immediately. If a claim for compensation is made one month after the problem has been identified, the warranty shall not apply. Better Planet will investigate the claim.

The warranty shall be invalidated if the owner fraudulently provides, withholds, or conceals any information of significance to the evaluation of the claim. If Better Planet is notified more than one year after the commissioning date, the warranty is not valid.

9. General Terms and Conditions

9.1 Force majeure

There shall be no liability for the loss arising as a result of the warranty investigation, payment or damage repair being delayed due to an act of war, civil war, revolution, terrorism or insurrection, or due to government action, strike, lockout blockade or any similar event.

9.2 Applicable law and governing court law

See other terms and conditions that came with installation.

3. Warranty for Main Equipment

IMPORTANT

PART OF THE TERMS AND CONDITIONS OF THE WARRANTY THAT THE EQUIPMENT IS SERVICED YEARLY. PLEASE CONTACT THE MANUFACTURERS FOR FULL DETAILS.

Equipment	Manufacturer Contact	Scope of Warranty
Heat Pump	Stiebel Eltron UK Ltd Unit 12 Stadium Court Stadium Road Wirral International BP Bromborough Wirral CH62 3RP 0151 346 2300 info@stiebel-eltron.co.uk	Up to 7 years peace of mind with our warranty offer All Stiebel Eltron products come with a standard 2 year guarantee. However, for extended peace of mind we offer our installer partners an additional 5 years free parts for systems up to 20kW provided the following conditions are met. Terms and Conditions ● Warranty only applies to products supplied by Stiebel Eltron. Use of unapproved parts may invalidate the warranty. ● The installer must supply us with the commissioning sheet on completion of installation, and a yearly service sheet every year for the duration of the warranty. ● Offer applies to systems up to 20 kW in size.
Buffer Tank	NIBE Energy Systems Ltd Unit 3C Broom Business Park Bridge Way Chesterfield S41 9QG 0845 095 1200 info@nibe.co.uk	Subject to terms and conditions. For conditions and further information please contact Manufacturer.
Hot Water Cylinder	NIBE Energy Systems Ltd Unit 3C Broom Business Park Bridge Way Chesterfield S41 9QG 0845 095 1200 info@nibe.co.uk	Subject to terms and conditions. For conditions and further information please contact Manufacturer. The NIBE guarantee is based on the unit being installed and commissioned by a NIBE accredited installer, serviced every year and the Benchmark documents completed.

4. Points of Consideration

4.1. Maintenance Recommendation

- Make sure the central heating system is operating within an admissible pressure range.
- Note that the air input and output to the heat pump must be undisturbed at all times.
- Make sure the brine circuit is operating within an admissible anti-freeze range

5. Building and Water Regulation

As a company registered under the Competent Person Scheme, Better Planet UK will issue any certificates required for compliance with Building Regulation, Part G and P.

6. Heat Pump Performance

Heat Pump Performance Data - Page 1

Heat Pump System Performance Estimate

Installer Project Reference	2019-2644-GSHP-01
Client Name	Marcus Taylor
Installation Address Line 1	25
Installation Address Line 2	Carol Street
Installation Address Line 3	London
Installation Postcode	NW1 0HT

Energy Performance Certificate (EPC) Information

Does this estimate relate to a new build or proposal for extension or reduction in size of an existing building? No

EPC No. for building Based on Heat Loss Calculation

Energy required to heat property 24,026 kWh

Energy required for hot water 2,000 kWh

New Renewable System Information

Type of System*	Ground Source Heat Pump	**This calculator is not designed to be used for Solar Assisted Heat Pumps*
Manufacturer Name	Stiebel Eltron	
Manufacturer Model	WPE-I 12 H 230 Premium	
MCS Certification Number*	011-1W0395_01	**Available from the MCS Product Directory*

Flow Temperature* 45 °C ** Determined by the temp. of the water leaving the HP when supplying space heating at the external design temp.*

MCS SCOP Heating* 4.76 ** SCoP - Seasonal Coefficient of Performance. This value is based on the MCS HP SCoP Table below*

MCS SCOP Hot Water* 2.24 ** If providing space heating and DHW then default value from SAP2012. If DHW only see methodology in MIS3005*

Renewable System Provides Heating and Hot Water

Hot Water Immersion Use* Once per week ** based on 50C up to 60C, 3kW*

Size of Hot Water Cylinder 300 ltr

Existing Heating System

Existing heating system fuel* Gas * If new build model the most likely alternative fuel

Hot Water heated by* Gas * If new build model the most likely alternative fuel

Age of existing system Pre-1994

Efficiency of existing system 82 %

Estimated System Performance / Comparison

Energy Requirement for the building

	Heating	Hot water	Total	
Net Energy required to heat property	24,026	2,000	26,026	kWh
Existing System Consumption	29,300	2,710	32,010	kWh

New HP System Estimated Consumption

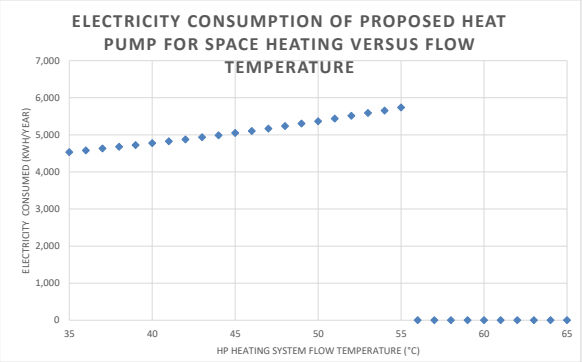
Full Heat Pump System (if selected above)

HP System Electricity Consumption	**5,047**	**1,075**	**6,122**	kWh

Hybrid System (if selected above)

HP System Electricity Consumption	0	0	0	kWh
Hybrid system other consumption	0	0	0	kWh
Hybrid Total Consumption			0	kWh

Note: There are different types of hybrid system. This calculation presumes a hybrid where both sources of heat supply the same hydraulic circuits (heating and hot water) according to the proportion selected above.



Flow temperature	SCOP
35°C	5.3
36°C	5.25
37°C	5.19
38°C	5.14
39°C	5.09
40°C	5.03
41°C	4.98
42°C	4.93
43°C	4.87
44°C	4.82
45°C	4.76
46°C	4.71
47°C	4.65
48°C	4.59
49°C	4.53
50°C	4.48
51°C	4.42
52°C	4.36
53°C	4.3
54°C	4.25
55°C	4.19
56°C	0
57°C	0
58°C	0
59°C	0
60°C	0
61°C	0
62°C	0
63°C	0
64°C	0
65°C	0

Cut and paste the heat pump's SCOP values for the relevant product from the MCS Product Directory (here) into the table to the left. Include SCOP data for the entire temperature range (35 °C - 65 °C) even if the SCOP is listed as '0'.

SCoP Definition

SCoP = Seasonal Coefficient of Performance:

MCS SCoP is a theoretical indication of the anticipated efficiency of a heat pump aggregated over a year using standard climate data across Europe. It indicates the units of total heat energy generated (output) for each unit of energy (electricity) consumed (input). It is slightly different to ErP SCoP as it contains efficency losses due to controls and brine pumps (for a GSHP). As a guide a heat pump with a MCS SCoP of 3 generates 3 kWh of heat energy for every 1 kWh of electrical energy it consumes.

Important Information:

This performance estimate should be accomanied by the Key Facts which explain the factors that can affect the performance of a heat pump.

Any technical variation to the specification could affect the performance of the Heat Pump System in which case the MCS Contractor MUST update and re-issue this document and advise the customer of their Consumer Rights.

MCS 031 - v3.0

7. Ground Heat Exchange Design

Ground heat exchanger design		
Parameter	**Value**	**Comments**
Estimate of total heating energy consumption over a year for space heating and domestic hot water	24360 kWh	
HP heating capacity at 0 °C ground return temperature and design emitter temperature	12 kW	Heating Flow Temperature: 45°C
FLEQ run hours	2003 hrs	
Estimated average ground temperature	9.8 °C	
Estimated ground thermal conductivity	1.8 W/mK	Sand & gravel
Maximum power to be extracted per unit length of borehole, horizontal or slinky ground heat exchanger	33.9 W/m	
Assumed heat pump SPF	4.09	
Maximum power extracted from the ground	9065 W	
Length of ground heat exchanger calculated using the look-up tables	268 m	
horizontal loop spacing	6 m	
Total length of needed ground heat exchanger active elements	268 m	
Total length of ground heat exchanger active elements installed in the ground	660 m	3 x 110 m of 40mm SDR11 Pipe

8. Installation Schematic

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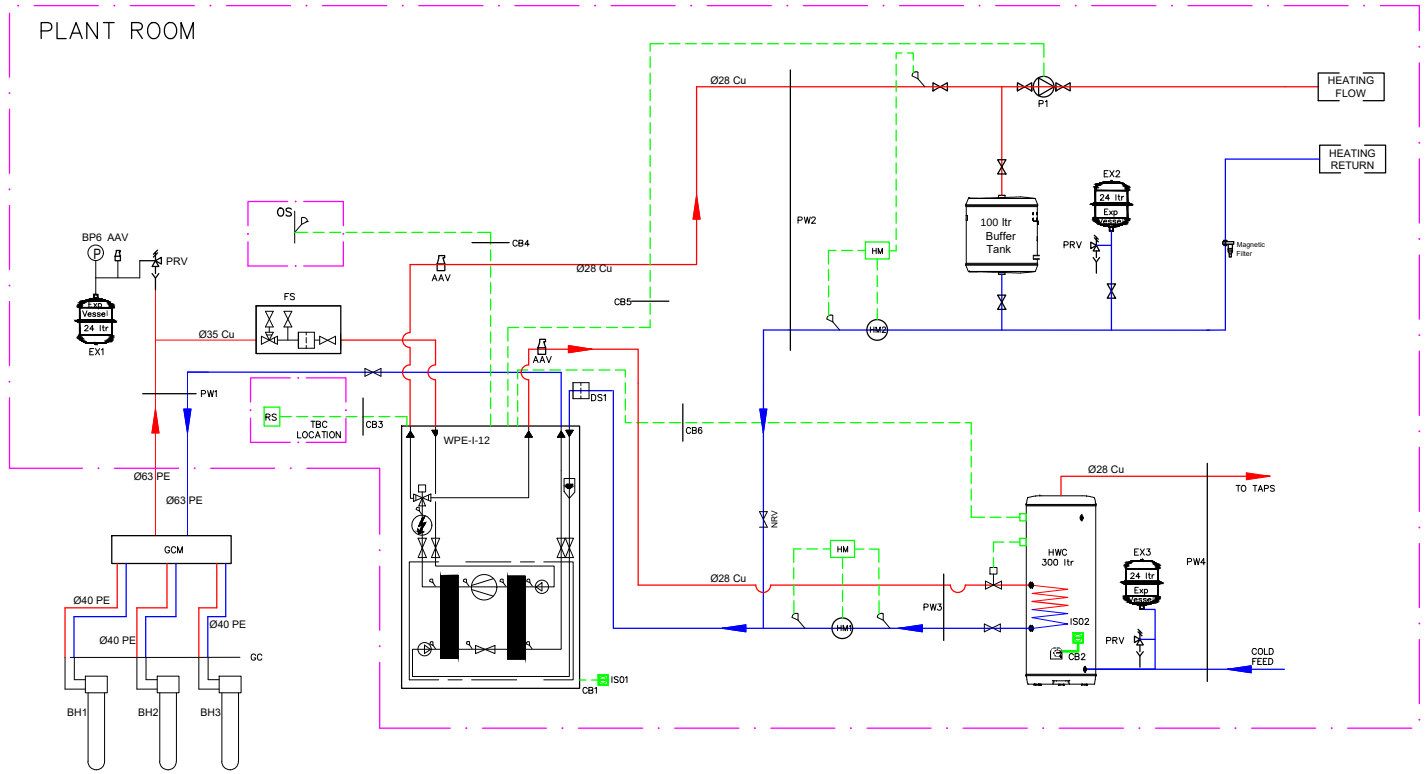

BETTER PLANET

Knuway House
Cranborne Road
Potters Bar
Hertfordshire
EN6 3JN

Tel: 0845 643 1280
Fax: 08717 145160

Project:
BPUK19-30

Client:
Make Some Space Limited

Title:
Mechanical Schematic

Status:
DESIGN SYSTEM

No:	Date:

Scale / Size:	Drawn / Checked:
-/@A3	MMP/ MMP

A) Appendix – Commissioning & Testing Report

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GROUND SOURCE HEAT PUMP COMMISSIONING CHECKLIST

This Commissioning Checklist is to be completed in full by the competent person who commissioned the heat pump and associated equipment as a means of demonstrating compliance with the appropriate Building Regulations and then handed to the customer to keep for future reference.
Failure to install and commission this equipment to the manufacturer's instructions may invalidate the warranty but does not affect statutory rights

Customer Name: Marcus Taylor

Address: 25 Carol Street, London, NW1 0HT

Telephone Number:

Heat Pump Make and Model: Stiebel Eltron WPE-I 12 H 230 Premium

Heat Pump Serial Number: 2 3 8 6 1 2 - 9 7 3 4 - 0 2 2 7 0 2 - 0 0 3 4

Commissioned by *(print name)*: Andrew Gregoriou

Certified Operative Reg. No. [1]: NIC 1137

Company Name & Address: Better Planet UK Ltd

Commissioning Date: 02/06/2023

6 Northaw Place, Coopers Lane, Potters Bar, EN6 4NQ

Telephone No.: 01707 662408

Building Regulations Notification Number *(if applicable)* [2]

CONTROLS - SYSTEM AND HEAT PUMP *Tick the appropriate boxes if applicable*

1. Time & Temperature Control to Heating	Room Thermostat & Programmer/Timer	X	Programmable Roomstat	☐	Load/Weather Compensation	X	Optimum Start Control ☐
2. Time & Temperature Control to Hot Water	N/A				Cylinder Thermostat & Programmer/Timer	☐	Combined with Heat pump main controls ☐
3. Heating Zone Valves (including underfloor loops)					Fitted	X	Not Required ☐
4. Hot Water Zone Valves					Fitted	☐	Not Required X
5. Thermostatic Radiator Valves					Fitted	☐	Not Required X
6. Heat Pump Safety Interlock [3]					Built In	X	Provided ☐
7. Outdoor Sensor					Fitted	X	Not Required ☐
8. Automatic Bypass System					Fitted	X	Not Required ☐
9. Buffer Vessel Fitted					Yes X	No ☐	If YES, Volume 100 Litres

ALL SYSTEMS

The heating system has been filled and pressure tested	Yes X
Expansion vessel for heating is sized, fitted & charged in accordance with manufacturer's instructions	Yes X
The heat pump is fitted on a solid/stable surface capable of taking its weight	Yes X
The system has been flushed and cleaned in accordance with BS7593 and heat pump manufacturer's instructions	Yes X
What system cleaner was used?	
What inhibitor was used?	Qty ☐ litres
Are all exposed external pipeworks insulated?	Yes X

BORE HOLE/GROUND LOOPS

X Bore Hole ☐ Ground Loop — ~~Length~~/Depth 3 x 110 m

The ground loops/bore hole pipes have been filled and pressure tested in accordance with relevant British Standards	Yes X
If more than one 1 collector has been used has the system been hydraulically balanced (Flow balancing/regulating valves fitted & adjusted)?	Yes X
Has the system been vented/de-aired?	Yes X
Are system filters fitted & clean?	Yes X
Is the system topped up to the correct level?	Yes X
Was the system cleaned & flushed prior to use?	Yes X
Are isolating valves in their correct position	Yes X
What system cleaner was used?	Qty ☐ litres
What antifreeze was used?	Qty ☐ litres
What temperature will the antifreeze protect to?	-15 °C
What inhibitor was used (if not included in Antifreeze)?	Qty ☐ litres
Record incoming collector fluid temperature	10 °C
Record outgoing collector fluid temperature	5 °C

CENTRAL HEATING MODE *Measure and Record*

Heating Flow Temperature 35 °C Heating Return Temperature 32 °C

DOMESTIC HOT WATER MODE *Measure and Record*

Is the heat pump connected to a hot water cylinder? X Unvented ☐ Vented ☐ Thermal Store ☐ Not Connected

Hot water has been checked at all outlets X Yes Have Thermostatic Blending Valves been fitted? ☐ Yes X Not required

ADDITIONAL SYSTEM INFORMATON

Additional heat sources connected: ☐ Gas Boiler ☐ Oil Boiler ☐ Electric Heater ☐ Solar Thermal Other _____

ALL INSTALLATIONS

The heating, hot water and ventilation systems complies with the appropriate Building Regulations	Yes X
All electrical work complies with the appropriate Regulations	Yes X
The heat pump and associated products have been installed and commissioned in accordance with the manufacturer's instructions	Yes X
The operation of the heat pump and system controls have been demonstrated to the customer	Yes X
The manufacturer's literature, including Benchmark Checklist and Service Record, has been explained and left with the customer	Yes X

Commissioning Engineer's Signature

Customer's Signature

(To confirm demonstration of equipment and receipt of appliance instructions)

Notes: [1] Installers should be members of an appropriate Competent Persons Scheme. [2] All installations in England and Wales must be notified to Local Area Building Control (LABC) either directly or through a Competent Persons Scheme. A Building Regulations Compliance Certificate will then be issued to the customer. [3] May be required for systems covered by G3 Regulations

benchmark COLLECTIVE MARK
THE MARK OF QUALITY FOR THE INSTALLATION, COMMISSIONING AND SERVICING OF DOMESTIC HEATING AND HOT WATER SYSTEMS

www.centralheating.co.uk

MAINS PRESSURE HOT WATER STORAGE SYSTEM COMMISSIONING CHECKLIST

This Commissioning Checklist is to be completed in full by the competent person who commissioned the storage system as a means of demonstrating compliance with the appropriate Building Regulations and then handed to the customer to keep for future reference.

Failure to install and commission this equipment to the manufacturer's instructions may invalidate the warranty but does not affect statutory rights.

Customer Name: Marcus Taylor — Telephone Number:
Address: 25 Carol Street, London, NW1 0HT
Cylinder Make and Model: NIBE Megacoil HA-WH5 300
Cylinder Serial Number: 12102114243303911 4
Commissioned by *(print name)*: Andrew Gregoriou — Registered Operative ID Number: NIC 1137
Company Name: Better Planet UK Ltd — Telephone Number: 01707 662408
Company Address: 6 Northaw Place, Coopers Lane, Potters Bar, EN6 4NQ
Commissioning Date: 02/06/2023

To be completed by the customer on receipt of a Building Regulations Compliance Certificate*:

Building Regulations Notification Number *(if applicable)*:

ALL SYSTEMS PRIMARY SETTINGS (indirect heating only)

Is the primary circuit a sealed or open vented system?	Sealed [X]	Open [ ]
What is the maximum primary flow temperature?	55 °C	

ALL SYSTEMS

What is the incoming static cold water pressure at the inlet to the system?			3 bar
Has a strainer been cleaned of installation debris (if fitted)?	Yes [X]	No [ ]	
Is the installation in a hard water area (above 200ppm)?	Yes [ ]	No [ ]	
If yes, has a water scale reducer been fitted?	Yes [ ]	No [ ]	
What type of scale reducer has been fitted?			
What is the hot water thermostat set temperature?			55 °C
What is the maximum hot water flow rate at set thermostat temperature (measured at high flow outlet)?			l/min
Time and temperature controls have been fitted in compliance with Part L of the Building Regulations?		Yes [X]	
Type of control system (if applicable)	Y Plan [X] S Plan [ ]	Other [ ]	
Is the cylinder solar (or other renewable) compatible?	Yes [X]	No [ ]	
What is the hot water temperature at the nearest outlet?			55 °C
All appropriate pipes have been insulated up to 1 metre or the point where they become concealed		Yes [X]	

UNVENTED SYSTEMS ONLY

Where is the pressure reducing valve situated (if fitted)?			
What is the pressure reducing valve setting?			3 bar
Has a combined temperature and pressure relief valve and expansion valve been fitted and discharge tested?	Yes [X]	No [ ]	
The tundish and discharge pipework have been connected and terminated to Part G of the Building Regulations		Yes [X]	
Are all energy sources fitted with a cut out device?	Yes [X]	No [ ]	
Has the expansion vessel or internal air space been checked?	Yes [X]	No [ ]	

THERMAL STORES ONLY

What store temperature is achievable?		°C
What is the maximum hot water temperature?		°C

ALL INSTALLATIONS

The hot water system complies with the appropriate Building Regulations	Yes [X]
The system has been installed and commissioned in accordance with the manufacturer's instructions	Yes [X]
The system controls have been demonstrated to and understood by the customer	Yes [X]
The manufacturer's literature, including Benchmark Checklist and Service Record, has been explained and left with the customer	Yes [X]

Commissioning Engineer's Signature

Customer's Signature

(To confirm satisfactory demonstration and receipt of manufacturer's literature)

*All installations in England and Wales must be notified to Local Authority Building Control (LABC) either directly or through a Competent Persons Scheme. A Building Regulations Compliance Certificate will then be issued to the customer.

benchmark COLLECTIVE MARK
THE MARK OF QUALITY FOR THE INSTALLATION, COMMISSIONING AND SERVICING OF DOMESTIC HEATING AND HOT WATER SYSTEMS

This certificate is not valid if the serial number has been defaced or altered **UHC1/** 020011

COMMISSIONING OF UNVENTED HOT WATER SYSTEMS

To show compliance with the requirements of Building Regulations G3

Original (To the person ordering the work)

COMPANY DETAILS

Company registration number	NIC 1137
Engineer (print name)	Andrew Gregoriou
Company	Better Planet UK Ltd
Address	6 Northaw Place, Coopers Lane, Potters Bar,
Postcode	EN6 4NQ
Telephone No	01707 662408

SITE ADDRESS

Customer name	Marcus Taylor
Site address	25 Carol Street, London,
Postcode	NW1 0HT
Telephone No	

LANDLORD DETAILS

Landlord details (if applicable)	N/A
Name	N/A
Address	N/A
Postcode	N/A
Telephone No	N/A

INSTALLATION DETAILS

Manufacturer	Nibe	Model No	HA-WH5 Megacoil 300	Serial No	121021142433039114
Date Commissioned	02/06/2023				

Commissioning Details	Yes / No / NA		Yes / No / NA		
Installed to manufactures instructions	YES	D1 pipe correct size and materials	YES	Engineers comments	
Stop tap installed and tested	YES	D2 pipe correct size and materials	YES		
Pressure limiting valve installed and tested	YES	System operation explained to customer	YES		
Pressure reducing valve installed and tested	YES				N/A
Strainer installed	YES	Water standing pressure	3 Bar		
Check valve installed and tested	YES	Water working pressure	3 Bar		
Expansion vessel installed and tested	YES	Water flow rate	- L/min		
Pressure relief valve installed and tested	YES	Water temperature at cyclinder	55 °C		
Temperature and pressure relief valve installed and tested	YES	Water temperature at terminal fittings	- °C	Customers signature	
High limit stat installed	YES				
Tundish installed	YES			Engineers signature	

NICEIC DOMESTIC INSTALLER

This certificate is not valid if the serial number has been defaced or altered **27462536** **DEIC18.2c**

ELECTRICAL INSTALLATION CERTIFICATE

Issued in accordance with *BS 7671: 2018+A2:2022* – Requirements for Electrical Installations

Original (to the person ordering the work)

PART 1 : DETAILS OF THE CONTRACTOR, CLIENT AND INSTALLATION

DETAILS OF THE CONTRACTOR (*Where applicable)

Registration N°: D115450 Branch N°*:

Trading Title: Better Planet (UK) Ltd

Address: 6 Northaw Place, Potters Bar, Hertfordshire

Postcode: EN6 4NQ Tel No: 01707662408

DETAILS OF THE CLIENT

Contractor Reference Number (CRN): N/A

Name: Marcus Taylor

Address: 25 Carol Street, London

Postcode: NW1 0HT Tel No: N/A

DETAILS OF THE INSTALLATION

Occupier: Marcus Taylor

Unique Property Reference Number (UPRN): N/A

Address: 25 Carol Street, London

Postcode: NW1 0HT Tel No: N/A

PART 2 : DETAILS OF THE ELECTRICAL WORK COVERED BY THIS INSTALLATION CERTIFICATE

Date works completed: 02/06/2023 **The installation is** New: (✔) An addition: (N/A) An alteration: (N/A) Replacement of a distribution board: (N/A)

Description and extent of the installation covered by this certificate: Ground source heat pump Installation

Where necessary, continue on a separate numbered page: Page No(s) (N/A)

PART 3 : COMMENTS ON THE EXISTING INSTALLATION (in the case of an addition or alteration see Regulation 644.1.2)

New Electrical Installation done by others

Where necessary, continue on a separate numbered page: Page No(s) (N/A)

PART 4A : DECLARATION FOR THE ELECTRICAL INSTALLATION WORK (use where the design, construction, inspection & testing have been the responsibility of one person)

DESIGN, CONSTRUCTION, INSPECTION & TESTING (the extent of liability of the signatory is limited to the work detailed in PART 2)

I, being the person responsible for the design, construction, inspection and testing of the electrical installation, particulars of which are described in PART 2, having exercised reasonable skill and care when carrying out the design, hereby CERTIFY that the design, construction, inspection and testing for which I have been responsible is to the best of my knowledge and belief in accordance with *BS 7671: 2018+A2:2022* except for the departures, if any (Regulations 120.3, 133.1.3 and 133.5), detailed as follows:

N/A

where required, continued on attached separate page(s) (N/A)

- Permitted exception applied (411.3.3): Yes/NA (N/A) Risk assessment attached: (N/A) Page No(s) (N/A)

I, being the designer of the electrical installation, also RECOMMEND that this installation is further inspected and tested by: 02/06/2028 (date)

The proposed date for the next inspection should take into consideration any legislative or licensing requirements and the frequency and quality of maintenance that the installation can reasonably be expected to receive during its intended life. The period should be agreed between relevant parties

Name (capitals): MARK SUTHERLAND Organisation: Better Planet (UK) Ltd Registration No*: D115450

Address: 6 Northaw Place Potters Bar Hertfordshire

Signature:  Date: 02/06/2023 Postcode: EN6 4NQ Tel No: 01707662408

REVIEWED BY QUALIFIED SUPERVISOR

Name (capitals): MARK SUTHERLAND Signature:  Date: 02/06/2023

Enter a (✓) or value in the respective fields, as appropriate.
Where an item is not applicable insert N/A

Please see the 'Notes for Recipients'

ELECTRICAL INSTALLATION CERTIFICATE

Issued in accordance with *BS 7671: 2018+A2:2022* – Requirements for Electrical Installations

Original (to the person ordering the work)

PART 4B : DECLARATION FOR THE ELECTRICAL INSTALLATION WORK (to be completed where different parties are responsible for the design, construction, inspection & testing)

DESIGN (The extent of liability of the signatories is limited to the work detailed in PART 2)

I/We being the person(s) responsible for the design of the electrical installation, particulars of which are described in PART 2, having exercised reasonable skill and care when carrying out the design, hereby CERTIFY that the design work for which I/we have been responsible is to the best of my/our knowledge and belief in accordance with *BS 7671: 2018+A2:2022* except for the departures, if any, detailed on attached page(s) (N/A) (Regulations 120.3, 133.1.3 and 133.5).

- Permitted exception applied (411.3.3): ~~Yes~~/NA Risk assessment attached: (N/A) Page No(s) (N/A)

DESIGNER 1 Name (capitals): N/A Signature: N/A Date: N/A

DESIGNER 2 (where there is divided responsibility for design) Name (capitals): N/A Signature: N/A Date: N/A

I/we, being the designer(s) of the electrical installation, also RECOMMEND that this installation is further inspected and tested by: ..... (date) (*Where applicable)

The proposed date for the next inspection should take into consideration any legislative or licensing requirements and the frequency and quality of maintenance that the installation can reasonably be expected to receive during its intended life. The period should be agreed between relevant parties.

Organisation (Designer 1): N/A Registration No*: N/A Organisation (Designer 2): N/A Registration No*: N/A

Address: N/A Address: N/A

Postcode: N/A Tel No: N/A Postcode: N/A Tel No: N/A

CONSTRUCTION (The extent of liability of the signatory is limited to the work detailed in PART 2)

I, being the person responsible for the construction of the electrical installation, particulars of which are described in PART 2, having exercised reasonable skill and care when carrying out the construction, hereby CERTIFY that the said work for which I have been responsible is, to the best of my knowledge and belief, in accordance with *BS 7671: 2018+A2:2022* except for the departures, if any, detailed on attached page(s) (N/A) (Regulations 120.3 and 133.5).

Name (capitals): N/A Organisation: N/A Registration No*: N/A

Address: N/A N/A

Signature: Date: N/A Postcode: N/A Tel No: N/A

INSPECTION & TESTING (The extent of liability of the signatory is limited to the work detailed in PART 2)

I, being the person responsible for the inspection and testing of the electrical installation, particulars of which are described in PART 2, having exercised reasonable skill and care when carrying out the inspection and testing, hereby CERTIFY that the said work for which I have been responsible is, to the best of my knowledge and belief, in accordance with *BS 7671: 2018+A2:2022* except for the departures, if any, detailed on attached page(s) (N/A) (Regulations 120.3 and 133.5).

Name (capitals): N/A Organisation: N/A Registration No*: N/A

Address: N/A

Signature: N/A Date: N/A Postcode: N/A Tel No: N/A

REVIEWED BY QUALIFIED SUPERVISOR (for the Contractor detailed in PART 1)

Name (capitals): N/A Signature: N/A Date: N/A

Where the electrical work to which this certificate relates includes the installation of a fire alarm system and/or an emergency lighting system (or a part of such systems), this electrical safety certificate should be accompanied by the particular certificate(s) for the system(s).

Enter a (✓) or value in the respective fields, as appropriate.
Where an item is not applicable insert N/A

NICEIC DOMESTIC INSTALLER

This certificate is not valid if the serial number has been defaced or altered **27462536** **DEIC18.2c**

ELECTRICAL INSTALLATION CERTIFICATE

Issued in accordance with *BS 7671: 2018+A2:2022* – Requirements for Electrical Installations

Original (to the person ordering the work)

PART 5 : SUPPLY CHARACTERISTICS AND EARTHING ARRANGEMENTS

System type and earthing arrangements

TN-C: (N/A) TN-S: (N/A) TN-C-S: (✔)

TT: (N/A) IT: (N/A)

Supply protective device

BS EN: (1361) Type: (II) Rated current: (100) A

Number and type of live conductors

AC 1-phase, 2-wire: (N/A) 2-phase, 3-wire: (N/A)

3-phase, 3-wire: (N/A) 3-phase, 4-wire: (✔)

DC 2-wire: (N/A) 3-wire: (N/A) Other: (N/A)

Confirmation of supply polarity: (✔)

Other sources of supply (Schedule of Test Results) Page No: (N/A)

Nature of supply parameters

Nominal voltage between lines, U [1]: (400) V

Nominal line voltage to Earth, U_0 [1]: (230) V

Nominal frequency, f [1]: (50) Hz

Prospective fault current, I_{pf} [2]*: (1.7) kA

Earth fault loop impedance, Z_e [2]*: (0.27) Ω

[1] By enquiry

[2] By enquiry or by measurement

PART 6 : PARTICULARS OF INSTALLATION REFERRED TO IN THIS CERTIFICATE

Maximum demand (load): (60) ~~XX~~A

(*delete as appropriate*)

Means of Earthing

Distributor's facility: (✔)

Installation earth electrode(s): (N/A)

Earth electrode type – rod(s), tape, etc: (None)

Location: (N/A)

Electrode resistance to Earth: (N/A) Ω

Main protective conductors

Earthing conductor:

(material Copper)

csa (16) mm² Connection/continuity verified: (N/A)

Main protective bonding conductors:

(material Copper)

csa (10) mm² Connection/continuity verified: (✔)

Main protective bonding connections

Water installation pipes: (✔)

Gas installation pipes: (N/A)

Structural steel: (N/A)

Oil installation pipes: (N/A)

Lightning protection: (N/A)

Other (state):

N/A (N/A)

N/A (N/A)

Main switch / Switch-fuse / Circuit-breaker / RCD

Location: (Plantroom)

BS EN: (60947-2) Type: ( ) Rating / setting of device: (N/A) A

No. of poles: (3) Current rating: (125) A Voltage rating: (400) V

Where an RCD is used as the main switch

RCD rated residual operating current, $I_{\Delta n}$: (N/A) mA RCD Type: (N/A)

Rated time delay: (N/A) ms Measured operating time: (N/A) ms

PART 7 : SCHEDULE OF ITEMS INSPECTED (enter ✓or N/A, as applicable)

		Outcome
1.	Condition of consumer's intake equipment (visual inspection only)	(✔)
2.	Parallel or switched alternative sources of supply	(N/A)
3.	Protective measure: Automatic disconnection of supply (ADS)	(✔)
4.	Basic protection	(✔)
5.	Protective measures other than ADS	(N/A)
6.	Additional protection	(✔)
7.	Distribution equipment	(✔)
8.	Circuits (distribution and final)	(✔)
9.	Isolation and switching	(✔)
10.	Current-using equipment (permanently connected)	(✔)
11.	Identification and notices	(✔)
12.	Location(s) containing a bath or shower	(N/A)
13.	Other special installations or locations	(N/A)
14.	Prosumer's low voltage installation(s)	(N/A)

Schedule of Items Inspected by

Name (capitals): MARK SUTHERLAND

Signature: Date: 02/06/2023

PART 8 : SCHEDULES AND ADDITIONAL PAGES (the pages identified are an essential part of this report (see Regulation 653.2))

Schedule of Circuit Details and Schedule of Test Results for the installation (PARTS 9A & 9B)

Page No(s): (4 & 5)

Additional pages, including data sheets for additional sources

Page No(s): (None)

Special installations or locations (indicated in item 13 of PART 7)

Page No(s): (None)

Schedules relating to Prosumer's installations (indicated in item 14 of PART 7)

Page No(s): (None)

Continuation sheets

Page No(s): (None)

**Where the installation is supplied by more than one source, the higher or highest values of prospective fault current, I_{pf}, and external earth fault loop impedance, Z_e, must be recorded.*

Enter a (✓) or value in the respective fields, as appropriate.
Where an item is not applicable insert N/A

ELECTRICAL INSTALLATION CERTIFICATE

Issued in accordance with *BS 7671: 2018+A2:2022* – Requirements for Electrical Installations

Original (to the person ordering the work)

PART 9A : SCHEDULE OF CIRCUIT DETAILS (GO TO Part 9B 'Schedule of Test Results' to enter test results for the corresponding circuit listed in this part)

Circuit number	Circuit description	Type of wiring (see footer to PART 9B)	Reference Method (BS 7671)	Number of points served	Circuit conductor (number & csa)		Max. disconnection time (BS 7671)	Overcurrent protective device					RCD			
					Live (mm²)	cpc (mm²)	(s)	BS (EN)	Type	Rating (A)	Short-circuit capacity (kA)	Maximum permitted Zs* (Ω)	BS (EN)	Type	Rating (A)	Operating current, $I_{\Delta n}$ (mA)
1-2-3	HEAT PUMP	A	B	1	2.5	2.5	0.4	60898	C	20	10	1.09	N/A	N/A	N/A	N/A
4	HEAT PUMP CONTROLS	A	B	1	2.5	2.5	0.4	61009	C	20	10	1.09	61009	AC	20	30
5	IMMERSION	A	B	1	2.5	2.5	0.4	61009	C	20	10	1.09	61009	AC	20	30

DISTRIBUTION BOARD (DB) DETAILS (complete in every case)

DB designation: MAIN DB

Location of DB: PLANTROOM

Z_{db}: 0.28 (Ω) I_{pf} at DB†: 1.7 (kA)

Confirmation of supply polarity: (✔) Phase sequence confirmed†: (✔)

SPD Details** Types: T1 (N/A) T2 (N/A) T3 (N/A) N/A (N/A)

Status indicator checked (where functionality indicator is present): (N/A)

**SPD Type.

Where combined T1 + T2 or T2 + T3 device is installed, indicate by ticking both Type brackets.

Where T3 devices are installed on a circuit to protect sensitive equipment, enter details in 'Comments' (PART 9B), (See Section 534 for further details).

Note that not all SPDs have visible functionality indication.

TO BE COMPLETED ONLY IF THE DB IS NOT CONNECTED DIRECTLY TO THE ORIGIN OF THE INSTALLATION

Supply to DB is from: N/A

Overcurrent protective device for the distribution circuit

BS (EN): (N/A) Type: ( ) Nominal voltage: (N/A) V Rating: (N/A) A No. of phases: (N/A)

Associated RCD (if any)

BS (EN): (N/A) RCD Type: (N/A) $I_{\Delta n}$: (N/A) mA No. of poles: (N/A) Operating time: (N/A) ms

This certificate is based on the model forms shown in Appendix 6 of *BS 7671: 2018+A2:2022*

Enter a (✓) or value in the respective fields, as appropriate. Where an item is not applicable insert N/A

† Where applicable. *Where figure is not taken from *BS 7671*, state source: N/A

NICEIC DOMESTIC INSTALLER

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ELECTRICAL INSTALLATION CERTIFICATE

Issued in accordance with *BS 7671: 2018+A2:2022* – Requirements for Electrical Installations

Original (to the person ordering the work)

PART 9B : SCHEDULE OF TEST RESULTS (MUST reflect circuits entered into 'Schedule of Circuit Details' in Part 9A)

Circuit number	Continuity (Ω)					Insulation resistance			Polarity	Max. measured earth fault loop impedance, Zs	RCD		AFDD**	Comments and additional information, where required
	Ring final circuits only (measured end to end)			All circuits (complete at least one column)		Live / Live	Live / Earth	Test voltage DC			Operating time*	Test button	AFDD test button	
	(Line) r_1	(Neutral) r_n	(cpc) r_2	$(R_1 + R_2)$	R_2	(MΩ)	(MΩ)	(V)	(✓)	(Ω)	(ms)	(✓)	(✓)	
1-2-3				0.06		>200	>200	500	✔	0.34				
4				0.05		>200	>200	500	✔	0.33	17	✔		
5				0.05		>200	>200	500	✔	0.33	18	✔		

Circuits/equipment vulnerable to damage when testing (where applicable): N/A

TESTED BY Name (capitals): MARK SUTHERLAND Position: QS Signature: Date: 04/04/2023

TEST INSTRUMENTS (ENTER SERIAL NUMBER AGAINST EACH INSTRUMENT USED)

Multi-function:	Continuity:	Insulation resistance:	Earth fault loop impedance:	Earth electrode resistance:	RCD:
1902074	N/A	N/A	N/A	N/A	N/A

* RCD effectiveness is verified using an alternating current test at rated residual operating current ($I_{\Delta n}$)

** Where installed. Note, not all AFDDs have a test function. Where a circuit contains an AFDD this should be stated in the field for that circuit in the 'Comments and additional information, where required' column.

CODES for Type of wiring	(A) Thermoplastic insulated / sheathed cables	(B) Thermoplastic cables in metallic conduit	(C) Thermoplastic cables in non-metallic conduit	(D) Thermoplastic cables in metallic trunking	(E) Thermoplastic cables in non-metallic trunking	(F) Thermoplastic / SWA cables	(G) Thermosetting / SWA cables	(H) Mineral-insulated cables	Other (state): N/A

Enter a (✓) or value in the respective fields, as appropriate.
Where an item is not applicable insert N/A

B) Appendix – MCS and Compliance Certificate

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MCS CERTIFIED

MCS Certificate

MCS INSTALLATION CERTIFICATE NO. MCS-01698485-F

CERTIFICATE VERSION 1

16/06/2023

INSTALLER DETAILS

MCS Certified Installer Company Name and MCS Number
Better Planet (UK) Ltd (NIC1137)
TSI Consumer Code: RECC
TSI Consumer Code ID: 0

INSURANCE BACKED GUARANTEE

IBG Provider: IWA

INSTALLATION DETAILS

Total Installed Capacity (kW): 12.00
Estimated Annual Generation (kWh): 24026.00
Green Deal Installation: No
Planning Regulations Compliance: Permitting Development Rights
Building Regulations Notification: After The Installation Through A Self Certification Competent Persons Scheme (CPS)

SITE DETAILS

Address: 25, CAROL STREET, LONDON, NW1 0HT

Supply MPAN: 1200062643710

Commissioning Date: 02/06/2023

PRODUCT DETAILS

TECHNOLOGY TYPE: GROUND/WATER SOURCE HEAT PUMP

MCS PRODUCT NUMBER	PRODUCT MANUFACTURER	MCS CERTIFIED PRODUCT NAME	FLOW TEMP	SCOP
011-1W0395_01	Stiebel Eltron	WPE-I 12 H 230 Premium	45	4.76

MCS INSTALLATION CERTIFICATE NO. MCS-01698485-F

CERTIFICATE VERSION 1

16/06/2023

ADDITIONAL DETAILS

Renewable System Designed to Provide:
Space heat and DHW

No. of MCS certs:
1

Alternative Heating System Type:
None (or Default - Portable electric heaters)

Alternative Heating System Fuel Type:
None

Install New at Commissioning:
Yes

SPACE / WATER HEAT

Annual Space Heating Demand:
24026.00

Annual Water Heating Demand:
2000.00

Annual Space Heating Supplied:
2000.00

Annual Water Heating Supplied:
24026.00

MCS
CERTIFIED

eNotification

The Certificate of Compliance for your installation work has arrived. Please take time to read the document and the notes overleaf.

The Registered Installer named below has certified that the installation work detailed is compliant with Regulations 4 & 7 of The Building Regulations 2010 for England and Wales or; where applicable, based on the address of the installation, the Registered Installer has certified the work detailed is compliant with the requirements of bye-laws 5 & 7 of the Building Bye-Laws (Jersey), or Regulation 9 of the Isle of Man Building Regulations 2014.

Building Regulations Certificate of Compliance

Certificate Number
29086196

Date Completed
02/06/2023

Installer Name
Better Planet (UK) Ltd
Registered no. D115450

Address of Installation
25 Carol Street
London, NW10HT

Description of Location
Dwelling

Description of Notifiable Work
CPS Heating and Hot Water
4002 - Install an unvented hot water storage vessel
4004 - Install a heating system
CPS Electrical
8002 - Install one or more new circuits
MCS-CPS Installation
15010 - Install a ground source heat pump

This certificate is issued by NICEIC, a trading brand of Certsure LLP, as agent for and on behalf of the NICEIC registered installer named above. This certificate is evidence, but not conclusive evidence, that the requirements specified in the certificate have been complied with. NICEIC does not accept any responsibility for the content of this certificate or for the quality of work detailed, except under the NICEIC Platinum Promise described overleaf.

This certificate is a valuable document. Please retain it in a safe place. If this is not an original certificate or if there is any doubt to its authenticity, visit www.checkmynotification.com

NOTES FOR RECIPIENTS

FOR WORK IN ENGLAND & WALES - This Building Regulations Certificate of Compliance is the NICEIC registered installer's confirmation that the certified work identified overleaf complies with Regulations 4 and 7 of The Building Regulations 2010. Details of the certified work have been notified to your local authority.

FOR WORK IN JERSEY - The installation work outlined overleaf has been undertaken by a person/enterprise registered with the States of Jersey-approved NICEIC Jersey Scheme. The certificate is the person/enterprise's confirmation their work complies with the Building Regulations and details of that work have been notified to the States of Jersey Building Control Department.

FOR WORK IN ISLE OF MAN - This Building Regulations Certificate of Compliance is the NICEIC registered installer's confirmation that the certified work identified overleaf complies with Regulation 9 of The Isle of Man Building Regulations 2014. Details of the certified work have been notified to your local authority.

Please check the details on this certificate are correct, ensuring the description of work undertaken, completion dates are both correct and the installer's name is that of the business that actually undertook the certified work. If you have any concerns regarding the work-type, date or the installer's name, please contact our Building Compliance team on 0333 015 6625.

Additional or replacement copies of Building Regulations Certificates of Compliance can be purchased from www.checkmynotification.com

OUR PLATINUM PROMISE

NICEIC registered contractors are required to ensure they have a robust complaints-handling process. If you have concerns about any non-compliant works completed by a contractor who is registered with NICEIC, the first step is to make contact with the contractor. You should raise your concerns and allow a reasonable amount of time for them to be resolved.

If that doesn't resolve the situation, NICEIC may be able to step in to investigate. If you believe your contractor has delivered work with clear deviations from industry standards, we'll discuss the technical nature of your complaint with our registered contractor. We aim to mediate between all parties to reach a resolution.

Should the contractor cease to trade then please contact us and we will guide you through the NICEIC Platinum promise and how we can help.

Further details including full conditions and exclusions can be found at -

www.niceic.com/householder/platinumpromise

C) Appendix – Energy Labels

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STIEBEL ELTRON

WPE-I 12 H 230
Premium

	55 °C	35 °C
	A+++	A+++

A+++
A++
A+
A
B
C
D

39 dB

	12	12
	12	**12**
	12	12
	kW	kW

2019

811/2013

Product datasheet: Room heater to regulation (EU) no. 811/2013 / (S.I. 2019 No. 539 / Schedule 2)

		WPE-I 12 H 230 Premium
		238612
Manufacturer		STIEBEL ELTRON
Energy efficiency class for central heating in moderate climates for medium temperature applications		A+++
Energy efficiency class for central heating in moderate climates for low temperature applications		A+++
Rated heating output in moderate climates for average temperature applications (Prated)	kW	12
Rated heating output in moderate climates for low temperature applications (Prated)	kW	12
Seasonal room heating efficiency in moderate climates for average temperature applications (Ƞs)	%	169
Seasonal room heating efficiency in moderate climates for low temperature applications (Ƞs)	%	216
Annual energy consumption in moderate climates for average temperature applications (QHE)	kWh/a	5607
Annual energy consumption in moderate climates for low temperature applications (QHE)	kWh/a	4445
Sound power level internal	dB(A)	39
Special measures		For all special measures to be taken during assembly, installation or maintenance of the room heater, see the installation instructions
Rated heating output in colder climates for average temperature applications (Prated)	kW	12
Rated heating output in colder climates for low temperature applications (Prated)	kW	12
Rated heating output in warmer climates for average temperature applications (Prated)	kW	12
Rated heating output in warmer climates for low temperature applications (Prated)	kW	12
Seasonal room heating efficiency in colder climates for average temperature applications (Ƞs)	%	174.3
Seasonal room heating efficiency in colder climates for low temperature applications (Ƞs)	%	224.1
Seasonal room heating efficiency in warmer climates for average temperature applications (Ƞs)	%	167.6
Seasonal room heating efficiency in warmer climates for low temperature applications (Ƞs)	%	213.9
Annual energy consumption in colder climates for average temperature applications (QHE)	kWh/a	6485
Annual energy consumption in colder climates for low temperature applications (QHE)	kWh/a	5108
Annual energy consumption in warmer climates for average temperature applications (QHE)	kWh/a	3650
Annual energy consumption in warmer climates for low temperature applications (QHE)	kWh/a	2896

ENERG Y IJA IE IA

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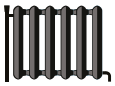
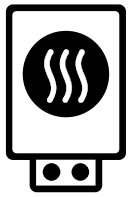
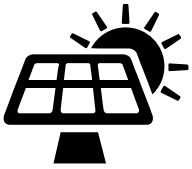
STIEBEL ELTRON

WPE-I 12 H 230 Premium



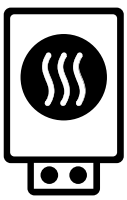


A+++

+  ☐

+  ☐

+  X

+  ☐

A+++

A++

A+

A

B

C

D

E

F

G

A+++

2015

811/2013

Product datasheet: Composite system consisting of room heater and temperature controller to regulation (EU) no. 811/2013 / (S.I. 2019 No. 539 / Schedule 2)

		WPE-I 12 H 230 Premium
		238612
Manufacturer		STIEBEL ELTRON
Seasonal room heating efficiency in moderate climates for average temperature applications (Ƞs)	%	169
Contribution of temperature controller to room heating energy efficiency	%	4
Room heating energy efficiency of composite system under moderate climatic conditions	%	172.3
Room heating energy efficiency of composite system under colder climatic conditions	%	177.8
Room heating energy efficiency of composite system under warmer climatic conditions	%	171.1
Value of differential between room heating energy efficiency under moderate climatic conditions and that under colder climatic conditions	%	5.6
Value of differential between room heating energy efficiency under warmer climatic conditions and that under moderate climatic conditions	%	1.2
Energy efficiency class for central heating in moderate climates for medium temperature applications		A+++
Room heating energy efficiency class of composite system under moderate climatic conditions		A+++

Required details about room heater and combi heater with heat pump to regulation (EU) no. 813/2013 & 811/2013

		WPE-I 12 H 230 Premium
		238612
Manufacturer		STIEBEL ELTRON
Heat source		Brine
Low temperature heat pump		-
With booster heater		x
Combi boiler with heat pump		-
Rated heating output in colder climates for average temperature applications (Prated)	kW	12
Rated heating output in moderate climates for average temperature applications (Prated)	kW	12
Rated heating output in warmer climates for average temperature applications (Prated)	kW	12
Tj = -7 °C heating output, partial load range in colder climates (Pdh)	kW	7.24
Tj = -7 °C heating output, partial load range under moderate climatic conditions (Pdh)	kW	10.59
Tj = 2 °C heating output, partial load range in colder climates (Pdh)	kW	4.4
Tj = 2 °C heating output, partial load range under moderate climatic conditions (Pdh)	kW	6.44
Tj = 2 °C heating output, partial load range in warmer climates (Pdh)	kW	11.99
Tj = 7 °C heating output, partial load range in colder climates (Pdh)	kW	2.82
Tj = 7 °C heating output, partial load range under moderate climatic conditions (Pdh)	kW	4.13
Tj = 7 °C heating output, partial load range in warmer climates (Pdh)	kW	7.69
Tj = 12 °C heating output, partial load range in colder climates (Pdh)	kW	2.23
Tj = 12 °C heating output, partial load range under moderate climatic conditions (Pdh)	kW	2.21
Tj = 12 °C heating output, partial load range in warmer climates (Pdh)	kW	3.41
Tj = dual mode temperature in colder climates (Pdh)	kW	11.99
Tj = dual mode temperature under moderate climatic conditions (Pdh)	kW	11.99
Tj = dual mode temperature in warmer climates (Pdh)	kW	11.99
Tj = operating temperature limit in colder climates (Pdh)	kW	11.99
Tj = operating temperature limit under moderate climatic conditions (Pdh)	kW	11.99
Tj = operating temperature limit in warmer climates (Pdh)	kW	11.99
Dual mode temperature in colder climates (Tbiv)	°C	-22
Dual mode temperature in moderate climates (Tbiv)	°C	-10
Dual mode temperature in warmer climates (Tbiv)	°C	2
Seasonal room heating efficiency in colder climates for average temperature applications (Ƞs)	%	174.3
Seasonal room heating efficiency in moderate climates for average temperature applications (Ƞs)	%	169
Seasonal room heating efficiency in warmer climates for average temperature applications (Ƞs)	%	167.6
Tj = -7 °C COP, partial load range in colder climates (COPd)		4.31
Tj = -7 °C COP, partial load range under moderate climatic conditions (COPd)		3.55
Tj = 2 °C COP, partial load range in colder climates (COPd)		4.91
Tj = 2 °C COP, partial load range under moderate climatic conditions (COPd)		4.49
Tj = 2 °C COP, partial load range in warmer climates (COPd)		3.29
Tj = 7 °C COP, partial load range in colder climates (COPd)		5.16
Tj = 7 °C COP, partial load range under moderate climatic conditions (COPd)		4.99
Tj = 7 °C COP, partial load range in warmer climates (COPd)		4.12
Tj = 12 °C COP, partial load range in colder climates (COPd)		5.4
Tj = 12 °C COP, partial load range under moderate climatic conditions (COPd)		5,25
Tj = 12 °C COP, partial load range in warmer climates (COPd)		5.1
Tj = dual mode temperature in colder climates (COPd)		3.29
Tj = dual mode temperature under moderate climatic conditions (COPd)		3.29
Tj = dual mode temperature in warmer climates (COPd)		3.29

Tj = operating temperature limit in colder climates (COPd)		3.29
Tj = operating temperature limit under moderate climatic conditions (COPd)		3.29
Tj = operating temperature limit in warmer climates (COPd)		3.29
Operating temperature limit in moderate climates (TOL)	°C	-10
Heating water operating temperature limit (WTOL)	°C	75
Power consumption, OFF state (Poff)	W	19
Power consumption, thermostat OFF state (PTO)	W	19
Standby power consumption (PSB)	W	19
Power consumption, operating state, with crankcase heating (PCK)	W	0
Booster heater heating output in colder climates (Psup)	kW	0
Booster heater heating output (PSUB)	kW	0.00
Booster heater heating output in warmer climates (Psup)	kW	0
Type of energy supply, booster heater		electric
Power control		variable
Sound power level internal	dB(A)	39
Annual energy consumption in colder climates for average temperature applications (QHE)	kWh/a	6485
Annual energy consumption in moderate climates for average temperature applications (QHE)	kWh/a	5607
Annual energy consumption in warmer climates for average temperature applications (QHE)	kWh/a	3650
Flow rate, heat source side	m^3/h	1,08
Energy efficiency for DHW heating (Ƞwh) under moderate climatic conditions	%	-
Special measures		For all special measures to be taken during assembly, installation or maintenance of the room heater, see the installation instructions