



FIREBIRD
ENVIROAIR 16kW
Air Source Heat Pump

ENTRY INTO DEAP 4

FOR
BER ASSESSMENT / PART L COMPLIANCE

Prior to entering the heat pump in **HEAT SOURCES**, you must complete the **CONTROLS AND RESPONSIVENESS** tab:

- **Heating System Category:** Central heating systems with radiators or underfloor heating
- **Sub Category:** Heat pumps
- **Heating System:** Air-to-water heat pump (electric)
- **Heat Emitter Type:** Underfloor heating, pipes in screed above insulation (*most likely - confirm*)
- **Heating System Controls:** Time and temperature zone control (*most likely - confirm*)
- **Load or weather compensation:** (*most likely – confirm*)

(You will now go to **HEAT SOURCES**, + ADD HEAT SOURCE, ADD NEW ITEM TO LIBRARY)

Create Library Item

Make the following entries in the BASIC PROPERTIES tab:

- **Item Type:** Heat Source
- **Item Name:** Enviroair 16kW
- **Keywords:** Optional
- **Manufacturer:** Firebird
- **Model:** Enviroair 16kW
- **Heating Source Type:** Heat pumps
- **Heat Pump Type:** Air to Water
- **Space Heating Standard:** I.S. EN 14825
- **Water Heating Standard:** I.S. EN 16147
- **Seasonal Space Heating Efficiency, hs [%]:** 125
- **Water Heating Efficiency, hwh [%]:** 114.04
- **Temperature Control (Capacity Control):** Variable Outlet
- **TOL:** -10 (° C)
- **WTOL:** 55 (°C)

Create Library Item



BASIC PROPERTIES

HEAT PUMP TEST DATA

Item Type *

Heat Source



Item Name *

Enviroair 16kW

Keywords

Manufacturer *

Firebird

Model *

Enviroair 16kW

Heating Source Type *

Heat pumps



Heat Pump Type *

Air to Water



Space Heating Standard

I.S. EN 14825



Water Heating Standard

I.S. EN 16147



Seasonal Space Heating Efficiency, η_s [%] *

125

Water Heating Efficiency, η_{wh} [%] *

114.04

CANCEL

SAVE

Create Library Item



Heat pumps

Air to Water

Space Heating Standard

Water Heating Standard

I.S. EN 14825

I.S. EN 16147

Seasonal Space Heating Efficiency, η_s [%] *

Water Heating Efficiency, η_{wh} [%] *

125

114.04

Temperature Control (Capacity Control) *

Variable Outlet

Integrated Immersion

Flow temperature \geq [60|65] $^{\circ}$ C

TOL *

WTOL *

-10

55

CANCEL

SAVE

Create Library Item

Make the following entries (in RED) in the HEAT PUMP TEST DATA tab:

➔ **Test condition - Low (35 °C)**

	A (88%) - 7 °C	B (54%) - 2 °C	C (35%) -7 °C	D (15%) 12 °C	E* (100%) TOL
Source	A-7	A2	A7	A12	A-15
Sink	W34	W30	W27	W24	W35
Heating Capacity (kW)	13.8	8.4	5.4	3.5	14.1
Coefficient of Performance (kW/kW)	2.4	3.9	5	6	2.3

Create Library Item



BASIC PROPERTIES

HEAT PUMP TEST DATA

Heating System Test data: I.S. EN 14825

Test Condition - Low (35°C)

	A (88%) -7°C	B (54%) 2°C	C (35%) 7°C	D (15%) 12°C	E* (100%) TOL
Source	A-7	A2	A7	A12	A-10
Sink	W34	W30	W27	W24	W35
Heating Capacity (kW)	13.8	8.4	5.4	3.5	14.1
Coefficient of Performance (kW/kW)	2.4	3.9	5	6	2.3

Test Condition - Medium (45°C)

CANCEL

SAVE

Create Library Item

Make the following entries (in RED) in the HEAT PUMP TEST DATA tab:

➔ **Test condition - High (55 °C) ***

	A (88%) - 7 °C	B (54%) - 2 °C	C (35%) -7 °C	D (15%) 12 °C	E* (100%) TOL
Source	A-7	A2	A7	A12	A-15
Sink	W52	W42	W36	W30	W55
Heating Capacity (kW)	11.2	6.82	4.38	3.6	10.5
Coefficient of Performance (kW/kW)	1.6	3.35	4.35	5.5	1.4

Create Library Item ✕

➔ Test Condition - Medium (45°C)

➔ **Test Condition - High (55°C)***

	A (88%) -7°C	B (54%) 2°C	C (35%) 7°C	D (15%) 12°C	E* (100%) TOL
Source	A-7	A2	A7	A12	A-10
Sink	W52	W42	W36	W30	W55
Heating Capacity (kW)	11.2	6.82	4.38	3.6	10.5
Coefficient of Performance (kW/kW)	1.6	3.35	4.35	5.5	1.4

➔ Test Condition - Very High (65°C)

Heating System Test data: ISO EN 16147

CANCEL

SAVE

Create Library Item

Make the following entries in the HEAT PUMP TEST DATA tab:

➔ Heating System Test Data I.S. EN 16147

- **Source of Data:** Water heating energy efficiency
- **Water heating energy efficiency, hwh [%]:** 114.04
- **Reference Hot Water Temperature (°C):** 49.3
- **Capacity of Heat Pump [kW]:** 7.27
- **Declared Load Profile:** XL
- **Standby Heat Loss [kWhr/day]:** 0.01
- **Volume of DHW accounted for in test [litre]:** 375

Now you can SAVE this Library Item.

Create Library Item ✕

Co-efficient of Performance (kW/kW)

⊞ Test Condition - Very High (65°C)

Heating System Test data: I.S. EN 16147

Source of Data *

Water heating energy efficiency ▼

Co-efficient of Performance [kW/kW]

Water heating energy efficiency, nwh [%] *

114.04

Reference Hot water Temperature [°C] *

49.3

Capacity of Heat Pump [kW] *

7.27

Declared load profile *

XL ▼

Standby Heat Loss [kWh/day] *

0.01

Volume of DHW accounted for in test [litre] *

375

CANCEL

SAVE

Add from Library

Heat sources filtered to match heating system properties in the controls and responsiveness tab



COMMON ITEMS

SEARCH

RECENT ITEMS

Search Library Items

Enviroair 16

Minimum 3 characters are required to start search

Type	Name & Product Details	Seasonal Efficiency (%)	Source
	Enviroair 16kW Manufacturer: Firebird , Model: Enviroair 16kW , Type: Heat pumps, Air to Water , Space Heating Standard: I.S. EN 14825 , Water Heating Standard: I.S. EN 16147 , Water Heating Seasonal Efficiency: 114.04%	125	

Items found: 1

|< < 1 > >|

ADD NEW ITEM TO LIBRARY

CANCEL

ADD SELECTED ITEM

You will ADD SELECTED ITEM and then DEAP will ask for more information:

Edit Primary Heat Source

- **Load or weather compensation:** (*most likely - confirm*)
- **Design Flow Temperature (°C):** from Designer Installer Sign-Off Form
- **Daily Operation [h]:** from Designer Installer Sign-Off Form
- **Back Up Space Heater Fuel:** None Present (most likely, as this refers to a hybrid Primary Heating System - NOT the Secondary Heating System in the dwelling.)
- **Back Up Water Heater Fuel:** Electricity (**most likely**, as this refers to an electric immersion which is occasionally used to boost the hot water temperature to 60°C+ to kill bacteria.)

Now you can SAVE this Heat Source to the DEAP Survey.

🔥 Edit Primary Heat Source ✕

🔍 Product Details	✎ Survey Details
Type: Heat pumps	Heat % * 100
Heat Pump Type: Air to Water	Fuel Type: Electricity <input checked="" type="checkbox"/> Heats Water
Manufacturer: Firebird	Design Flow Temperature [C] * 35
Model: Enviroair 16kW	Daily Operation [h] * 24
Seasonal Space Heating Efficiency, η _s 125 <small>This is the Ecodesign Seasonal Space Heating Efficiency, η_s. When the survey is completed, the efficiency will be updated to reflect the performance of the heat pump in this dwelling.</small>	Back Up Space Heater Fuel: None Present
Eff. Adj. Factor: 1	Back Up Space Heater Efficiency [%]
VIEW DETAILS IN LIBRARY	Back Up Water Heater Fuel: Electricity
	Back Up Water Heater Efficiency [%] * 100

CANCEL
SAVE

Both Design Flow Temperature and Daily Operation Hours from Designer Installer Sign-Off Form (commonly 35°C and 24 hrs respectively for underfloor heating).

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DEAP4 > Survey

Detached Dormer Bungalow

Dormer Firebird Test 16kW

CONTROLS AND RESPONSIVENESS PUMPS AND FANS **HEAT SOURCES** SUMMER INTERNAL TEMP.

Type	Heat %	Name	Manufacturer & Model	Seasonal Efficiency (η_s)	Efficiency Adj. Factor	Fuel Type	Design Flow Temp. [C]	Daily Operation [h]	Heats water
Primary	100	Enviroair 16kW	Firebird, Enviroair 16kW	125.00	1.00	Electricity	35	24	Yes
Total Heat [%]		100							

ADD HEAT SOURCE

CHP

CHP fuel type: None

Fraction of space and water heating from CHP: _____

Heat Efficiency of CHP: _____

Electrical Efficiency of CHP: _____

Errors caused by incomplete information on Water Heating tab – “Heat Pump Type of DHW” – go to Water Heating

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DEAP4 > Survey

Detached Dormer Bungalow

Dormer Firebird Test 16kW

Count	Room	Name	Description	Type	Mixer System	Flow Restrictor	Flow Rate	Waste Water Heat Recovery Efficiency	Waste Water Heat Recovery Utilisation Factor
1		Bath							
1		Instantaneous electric shower (vented or unvented)		Electric		No			

[+ ADD SHOWERS & BATHS](#)

Options

Distribution Losses Storage Losses Is supplementary electric water heating used in summer Is there a combi boiler

Storage

Is hot water storage indoors or in group heating scheme?

Storage Type: Cylinder, indirect Storage Volume [l]: 300

Heat Pump Type of DHW *
Separate Hot Water Storage

Results

Temperature Factor Unadjusted: 0.6
Temperature Factor Multiplier: 0.0

Select type of DHW storage.

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DEAP4 > Survey

Detached Dormer Bungalow

Dormer Firebird Test 16kW

CONTROLS AND RESPONSIVENESS PUMPS AND FANS **HEAT SOURCES** SUMMER INTERNAL TEMP.

Type	Heat %	Name	Manufacturer & Model	Seasonal Efficiency (η_s)	Efficiency Adj. Factor	Fuel Type	Design Flow Temp. [C]	Daily Operation [h]	Heats water	
Primary	100	Enviroair 16kW	Firebird, Enviroair 16kW	476.85	1.00	Electricity	35	24	Yes	
Total Heat [%]										+ ADD HEAT SOURCE
CHP										
CHP fuel type										
None										
Fraction of space and water heating from CHP										
Heat Efficiency of CHP										
Electrical Efficiency of CHP										

Errors now corrected and warnings gone from Space Heat Sources.

If you are installing the Firebird HP210ERP cylinder in the dwelling, the DEAP entries in the Water Heating tab are:

OPTIONS & STORAGE

- **Distribution Losses:** (*most likely - confirm*)
- **Storage Losses:**
- **Is hot water storage indoors or in group heating scheme:** (*most likely - confirm*)
- **Storage Type:** Cylinder, indirect
- **Storage Volume [l]:** 300
- **Heat Pump Type of DHW:** Separate Hot Water Storage
- **Is manufacturers declared loss available:**
- **Make and Model:** Firebird HP300ERP

If you are installing the Firebird HP180ERP cylinder in the dwelling, the DEAP entries in the Water Heating tab are:

OPTIONS & STORAGE

- **Declared Loss [kWh/day]:** 2.09 (*equal to 87W*)
- **Primary Circuit Loss Type:** Boiler with uninsulated primary pipework and with cylinder thermostat (*unless you can prove every mm of the primary pipework is actually insulated, also assuming there actually is a cylinder thermostat.*)
- **Cylinder Thermostat:**
- **Cylinder Heated by Boiler System having separate time control of DHW:** (*assuming this is actually the case*)

(In the HEAT SOURCE sub-tab, the Enviroair 16kW heat pump should already be entered as you selected the “Heats Water” option in the Space Heating tab.)

Distribution Losses
 Storage Losses
 Is supplementary electric water heating used in summer
 Is there a combi boiler

Storage Results

<input checked="" type="checkbox"/> Is hot water storage indoors or in group heating scheme?	Storage Type Cylinder, indirect	Storage Volume [l] 300	Heat Pump Type of DHW * Separate Hot Water Storage	Temperature Factor Unadjusted 0.6
<input checked="" type="checkbox"/> Is manufacturers declared loss available	Make and Model Firebird HP300ERP	Declared Loss [kWh/day] 2.09		Temperature Factor Multiplier 0.9
Insulation Type None		Insulation Thickness [mm]	Winter operating temp. of electric CPSU [°C]	
Primary Circuit Loss Type Boiler with uninsulated primary pipework and with cylinder thermostat				

Cylinder Thermostat
 Cylinder Heated by Boiler System having separate time control of DHW

Should you have any queries, please contact us at Firebird: info@firebird.ie.