

|                                    |                                                          |
|------------------------------------|----------------------------------------------------------|
| Model                              | Enviroair ASH016FHP                                      |
| Type of heat source                | Air-to-water                                             |
| Low-temperature heat pump          | No                                                       |
| Equipped with supplementary heater | No                                                       |
| Heat pump combination heater       | Yes                                                      |
| Climate condition                  | Average                                                  |
| Temperature application            | Low temperature (35°C)                                   |
| Applied standards                  | EN14511, EN14825 (Space Heating), EN16147 (DHW), EN12102 |

|                                                                                                               |                                                                                               |             |           |                                                                                                                                             |                      |              |                   |
|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------|-------------------|
| Item                                                                                                          | Symbol                                                                                        | Value       | Unit      | Item                                                                                                                                        | Symbol               | Value        | Unit              |
| <b>Rated Heat Output <sup>(1)</sup></b>                                                                       | <b>P<sub>rated</sub></b>                                                                      | <b>15.2</b> | <b>kW</b> | <b>Seasonal space heating energy efficiency</b>                                                                                             | <b>η<sub>s</sub></b> | <b>181.7</b> | <b>%</b>          |
| Declared capacity for heating for part load at indoor temperature 20°C and outdoor temperature T <sub>j</sub> |                                                                                               |             |           | Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20°C and outdoor temperature T <sub>j</sub> |                      |              |                   |
| T <sub>j</sub> = -7°C (A Condition)                                                                           | P <sub>dh</sub>                                                                               | 13.45       | kW        | T <sub>j</sub> = -7°C (A Condition)                                                                                                         | COP <sub>d</sub>     | 2.72         | -                 |
| T <sub>j</sub> = +2°C (B Condition)                                                                           | P <sub>dh</sub>                                                                               | 8.56        | kW        | T <sub>j</sub> = +2°C (B Condition)                                                                                                         | COP <sub>d</sub>     | 4.41         | -                 |
| T <sub>j</sub> = +7°C (C Condition)                                                                           | P <sub>dh</sub>                                                                               | 5.70        | kW        | T <sub>j</sub> = +7°C (C Condition)                                                                                                         | COP <sub>d</sub>     | 6.56         | -                 |
| T <sub>j</sub> = +12°C (D Condition)                                                                          | P <sub>dh</sub>                                                                               | 3.78        | kW        | T <sub>j</sub> = +12°C (D Condition)                                                                                                        | COP <sub>d</sub>     | 8.51         | -                 |
| T <sub>j</sub> = bivalent temperature                                                                         | P <sub>dh</sub>                                                                               | 13.45       | kW        | T <sub>j</sub> = bivalent temperature                                                                                                       | COP <sub>d</sub>     | 2.72         | -                 |
| T <sub>j</sub> = TOL (E Condition)                                                                            | P <sub>dh</sub>                                                                               | 12.52       | kW        | T <sub>j</sub> = TOL (E Condition)                                                                                                          | COP <sub>d</sub>     | 2.48         | -                 |
| T <sub>j</sub> = -15°C (if TOL < -20°C)                                                                       | P <sub>dh</sub>                                                                               | -           | kW        | T <sub>j</sub> = -15°C (if TOL < -20°C)                                                                                                     | COP <sub>d</sub>     | -            | -                 |
|                                                                                                               |                                                                                               |             |           |                                                                                                                                             |                      |              |                   |
| Bivalent temperature                                                                                          | T <sub>biv</sub>                                                                              | -7          | °C        | Operation limit temperature                                                                                                                 | TOL                  | -10          | °C                |
| Cycling interval capacity for heating                                                                         | P <sub>cych</sub>                                                                             | -           | kW        | Cycling interval efficiency                                                                                                                 | COP <sub>cyc</sub>   |              | -                 |
| Degradation co-efficient <sup>(2)</sup>                                                                       | C <sub>dh</sub>                                                                               | 0.90        | -         | Heating water operating limit                                                                                                               | WTOL                 | 65           | °C                |
|                                                                                                               |                                                                                               |             |           |                                                                                                                                             |                      |              |                   |
| <b>Power consumption in modes other than active mode</b>                                                      |                                                                                               |             |           | <b>Supplementary heater</b>                                                                                                                 |                      |              |                   |
| Off mode                                                                                                      | P <sub>OFF</sub>                                                                              | 0.014       | kW        | Rated heat output                                                                                                                           | P <sub>sup</sub>     | -            | kW                |
| Thermostat-off mode                                                                                           | P <sub>TO</sub>                                                                               | 0.024       | kW        |                                                                                                                                             |                      |              |                   |
| Standby mode                                                                                                  | P <sub>SB</sub>                                                                               | 0.014       | kW        | Type of energy input                                                                                                                        | Electric             |              |                   |
| Crankcase heater mode                                                                                         | P <sub>CK</sub>                                                                               | 0.000       | kW        |                                                                                                                                             |                      |              |                   |
| <b>Other items</b>                                                                                            |                                                                                               |             |           |                                                                                                                                             |                      |              |                   |
| Capacity control                                                                                              | Variable                                                                                      |             |           | Rated air flow rate, outdoors                                                                                                               |                      | 4650         | m <sup>3</sup> /h |
| Sound power level, indoors/outdoors                                                                           | L <sub>WA</sub>                                                                               | 68          | dB        | Rated water flow rate, indoor heat exchanger                                                                                                |                      | -            | m <sup>3</sup> /h |
| Annual energy consumption                                                                                     | Q <sub>HE</sub>                                                                               | 6804        | kWh       | Rated brine or water flow rate, outdoor heat exchanger                                                                                      |                      | -            | m <sup>3</sup> /h |
| <b>For heat pump combination heater</b>                                                                       |                                                                                               |             |           |                                                                                                                                             |                      |              |                   |
| Declared load profile                                                                                         | -                                                                                             |             |           | Water heating energy efficiency                                                                                                             | η <sub>wh</sub>      | -            | %                 |
| Capacity of heat pump                                                                                         | P <sub>rated</sub>                                                                            | -           | kW        | Reference hot water temperature                                                                                                             | Θ <sub>WH</sub>      | -            | °C                |
| Daily electricity consumption                                                                                 | Q <sub>elec</sub>                                                                             | -           | kWh       | Vol. of DHW accounted for in test                                                                                                           |                      | -            | Litres            |
| Annual electricity consumption                                                                                | AEC                                                                                           | -           | kWh       | Standby heat loss / day                                                                                                                     |                      | -            | kWh               |
| Contact Details:                                                                                              | Firebird Heating Solutions Ltd., Údarás Industrial Estate, Baile Mhic Íre, Co. Cork, P12 HK51 |             |           |                                                                                                                                             |                      |              |                   |

(1) For heat pumps space heaters and heat pump combination heaters, the rated heat output P<sub>rated</sub> is equal to the design load for heating P<sub>designh</sub>, and the rated heat output of a supplementary heater P<sub>sup</sub> is equal to the supplementary capacity for heating sup(T<sub>j</sub>).

(2) If C<sub>dh</sub> is not determined by measurement then the default degradation coefficient is C<sub>dh</sub> = 0.9.

|                                    |                                                          |  |  |
|------------------------------------|----------------------------------------------------------|--|--|
| Model                              | Enviroair ASH016FHP                                      |  |  |
| Type of heat source                | Air-to-water                                             |  |  |
| Low-temperature heat pump          | No                                                       |  |  |
| Equipped with supplementary heater | No                                                       |  |  |
| Heat pump combination heater       | Yes                                                      |  |  |
| Climate condition                  | Average                                                  |  |  |
| Temperature application            | Medium Temperature (55°C)                                |  |  |
| Applied standards                  | EN14511, EN14825 (Space Heating), EN16147 (DHW), EN12102 |  |  |

|                                                                                                               |                                                                                               |             |           |                                                                                                                                             |                      |            |                   |
|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------|-------------------|
| Item                                                                                                          | Symbol                                                                                        | Value       | Unit      | Item                                                                                                                                        | Symbol               | Value      | Unit              |
| <b>Rated Heat Output <sup>(1)</sup></b>                                                                       | <b>P<sub>rated</sub></b>                                                                      | <b>13.0</b> | <b>kW</b> | <b>Seasonal space heating energy efficiency</b>                                                                                             | <b>η<sub>s</sub></b> | <b>134</b> | <b>%</b>          |
| Declared capacity for heating for part load at indoor temperature 20°C and outdoor temperature T <sub>j</sub> |                                                                                               |             |           | Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20°C and outdoor temperature T <sub>j</sub> |                      |            |                   |
| T <sub>j</sub> = -7°C (A Condition)                                                                           | P <sub>dH</sub>                                                                               | 11.52       | kW        | T <sub>j</sub> = -7°C (A Condition)                                                                                                         | COP <sub>d</sub>     | 1.99       | -                 |
| T <sub>j</sub> = +2°C (B Condition)                                                                           | P <sub>dH</sub>                                                                               | 7.18        | kW        | T <sub>j</sub> = +2°C (B Condition)                                                                                                         | COP <sub>d</sub>     | 3.34       | -                 |
| T <sub>j</sub> = +7°C (C Condition)                                                                           | P <sub>dH</sub>                                                                               | 4.67        | kW        | T <sub>j</sub> = +7°C (C Condition)                                                                                                         | COP <sub>d</sub>     | 4.61       | -                 |
| T <sub>j</sub> = +12°C (D Condition)                                                                          | P <sub>dH</sub>                                                                               | 3.31        | kW        | T <sub>j</sub> = +12°C (D Condition)                                                                                                        | COP <sub>d</sub>     | 6.07       | -                 |
| T <sub>j</sub> = bivalent temperature                                                                         | P <sub>dH</sub>                                                                               | 11.52       | kW        | T <sub>j</sub> = bivalent temperature                                                                                                       | COP <sub>d</sub>     | 1.99       | -                 |
| T <sub>j</sub> = TOL (E Condition)                                                                            | P <sub>dH</sub>                                                                               | 10.33       | kW        | T <sub>j</sub> = TOL (E Condition)                                                                                                          | COP <sub>d</sub>     | 1.80       | -                 |
| T <sub>j</sub> = -15°C (if TOL < -20°C)                                                                       | P <sub>dH</sub>                                                                               | -           | kW        | T <sub>j</sub> = -15°C (if TOL < -20°C)                                                                                                     | COP <sub>d</sub>     | -          | -                 |
|                                                                                                               |                                                                                               |             |           |                                                                                                                                             |                      |            |                   |
| Bivalent temperature                                                                                          | T <sub>biv</sub>                                                                              | -7          | °C        | Operation limit temperature                                                                                                                 | TOL                  | -10        | °C                |
| Cycling interval capacity for heating                                                                         | P <sub>cych</sub>                                                                             | -           | kW        | Cycling interval efficiency                                                                                                                 | COP <sub>cyc</sub>   |            | -                 |
| Degradation co-efficient <sup>(2)</sup>                                                                       | C <sub>dH</sub>                                                                               | 0.90        | -         | Heating water operating limit                                                                                                               | WTOL                 | 65         | °C                |
|                                                                                                               |                                                                                               |             |           |                                                                                                                                             |                      |            |                   |
| <b>Power consumption in modes other than active mode</b>                                                      |                                                                                               |             |           | <b>Supplementary heater</b>                                                                                                                 |                      |            |                   |
| Off mode                                                                                                      | P <sub>OFF</sub>                                                                              | 0.014       | kW        | Rated heat output                                                                                                                           | P <sub>sup</sub>     | -          | kW                |
| Thermostat-off mode                                                                                           | P <sub>TO</sub>                                                                               | 0.024       | kW        |                                                                                                                                             |                      |            |                   |
| Standby mode                                                                                                  | P <sub>SB</sub>                                                                               | 0.014       | kW        | Type of energy input                                                                                                                        | Electric             |            |                   |
| Crankcase heater mode                                                                                         | P <sub>CK</sub>                                                                               | 0.000       | kW        |                                                                                                                                             |                      |            |                   |
| <b>Other items</b>                                                                                            |                                                                                               |             |           |                                                                                                                                             |                      |            |                   |
| Capacity control                                                                                              | Variable                                                                                      |             |           | Rated air flow rate, outdoors                                                                                                               |                      | 4650       | m <sup>3</sup> /h |
| Sound power level, indoors/outdoors                                                                           | L <sub>WA</sub>                                                                               | 68          | dB        | Rated water flow rate, indoor heat exchanger                                                                                                |                      | -          | m <sup>3</sup> /h |
| Annual energy consumption                                                                                     | Q <sub>HE</sub>                                                                               | 7895        | kWh       | Rated brine or water flow rate, outdoor heat exchanger                                                                                      |                      | -          | m <sup>3</sup> /h |
| <b>For heat pump combination heater</b>                                                                       |                                                                                               |             |           |                                                                                                                                             |                      |            |                   |
| Declared load profile                                                                                         | XL                                                                                            |             |           | Water heating energy efficiency                                                                                                             | η <sub>wh</sub>      | 130        | %                 |
| Capacity of heat pump                                                                                         | P <sub>rated</sub>                                                                            | -           | kW        | Reference hot water temperature                                                                                                             | Θ <sub>WH</sub>      | 47.15      | °C                |
| Daily electricity consumption                                                                                 | Q <sub>elec</sub>                                                                             | 6.026       | kWh       | Vol. of DHW accounted for in test                                                                                                           |                      | 288        | Litres            |
| Annual electricity consumption                                                                                | AEC                                                                                           | 1288        | kWh       | Standby heat loss / day                                                                                                                     |                      | 1.76       | kWh               |
| Contact Details:                                                                                              | Firebird Heating Solutions Ltd., Údarás Industrial Estate, Baile Mhic Íre, Co. Cork, P12 HK51 |             |           |                                                                                                                                             |                      |            |                   |

(1) For heat pumps space heaters and heat pump combination heaters, the rated heat output P<sub>rated</sub> is equal to the design load for heating P<sub>designh</sub>, and the rated heat output of a supplementary heater P<sub>sup</sub> is equal to the supplementary capacity for heating sup(T<sub>j</sub>).

(2) If C<sub>dH</sub> is not determined by measurement then the default degradation coefficient is C<sub>dH</sub> = 0.9.