

This information was generated by the HP KEYMARK database on 17 Dec 2020

|                            |                               |          |             |
|----------------------------|-------------------------------|----------|-------------|
| Summary of                 | Thermia Atlas 12              | Reg. No. | 012-C700006 |
| Certificate Holder         |                               |          |             |
| Name                       | Thermia                       |          |             |
| Address                    | Snickaregatan 1               | Zip      |             |
| City                       | Arvika                        | Country  | Sweden      |
| Certification Body         | RISE CERT                     |          |             |
| Name of testing laboratory | RISE                          |          |             |
| Subtype title              | Thermia Atlas 12              |          |             |
| Heat Pump Type             | Brine/Water and Water/Water   |          |             |
| Refrigerant                | R410a                         |          |             |
| Mass Of Refrigerant        | 1.4 kg                        |          |             |
| Certification Date         | 02.03.2020                    |          |             |
| Testing basis              | HP Keymark Scheme Rules rev 7 |          |             |

## Model: ATLAS 12 400V

### General Data

|              |             |
|--------------|-------------|
| Power supply | 3x400V 50Hz |
|--------------|-------------|

Brine/Water Heat Pump

### Heating

#### EN 14511-4

|  |        |
|--|--------|
| Starting and operating test                | passed |
| Shutting off the heat transfer medium flow | passed |
| Complete power supply failure              | passed |
| Defrost test                               | passed |

#### EN 14511-2

|                        | Low temperature        | Medium temperature     |
|------------------------|------------------------|------------------------|
| Heat output            | 5.24 kW                | 4.78 kW                |
| El input               | 1.10 kW                | 1.68 kW                |
| COP                    | 4.75                   | 2.85                   |
| Indoor water flow rate | 0.91 m <sup>3</sup> /h | 0.52 m <sup>3</sup> /h |

### Average Climate

This information was generated by the HP KEYMARK database on 17 Dec 2020

### EN 12102-1

|                          | Low temperature | Medium temperature |
|--------------------------|-----------------|--------------------|
| Sound power level indoor | 33 dB(A)        | 33 dB(A)           |

### EN 14825

|               | Low temperature | Medium temperature |
|---------------|-----------------|--------------------|
| $\eta_s$      | 222 %           | 162 %              |
| Prated        | 11.49 kW        | 10.48 kW           |
| SCOP          | 5.75            | 4.25               |
| Tbiv          | -10 °C          | -10 °C             |
| TOL           | -10 °C          | -10 °C             |
| Pdh Tj = -7°C | 10.17 kW        | 9.27 kW            |
| COP Tj = -7°C | 4.82            | 3.24               |
| Cdh           | 0.99            | 0.99               |
| Pdh Tj = +2°C | 6.19 kW         | 5.64 kW            |
| COP Tj = +2°C | 5.95            | 4.30               |
| Cdh           | 0.98            | 0.99               |
| Pdh Tj = +7°C | 3.98 kW         | 3.63 kW            |
| COP Tj = +7°C | 6.50            | 5.02               |
| Cdh           | 0.98            | 0.98               |
| Pdh Tj = 12°C | 2.81 kW         | 2.77 kW            |

This information was generated by the HP KEYMARK database on 17 Dec 2020

|  |             |             |
|--|-------------|-------------|
| COP Tj = 12°C                              | 5.70        | 4.91        |
| Cdh  | 0.97        | 0.97        |
| Pdh Tj = Tbiv                              | 11.49 kW    | 10.48 kW    |
| COP Tj = Tbiv                              | 4.38        | 2.91        |
| Pdh Tj = TOL                               | 11.49 kW    | 10.48 kW    |
| COP Tj = TOL                               | 4.38        | 2.91        |
| WTOL                                       | 65 °C       | 65 °C       |
| Poff                                       | 15 W        | 15 W        |
| PTO  | 16 W        | 16 W        |
| PSB  | 16 W        | 16 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP                 | 0.00 kW     | 0.00 kW     |
| Annual energy consumption Qhe              | 4131 kWh    | 5097 kWh    |

## Colder Climate

| <b>EN 12102-1</b>        |                        |                           |
|--------------------------|------------------------|---------------------------|
|                          | <b>Low temperature</b> | <b>Medium temperature</b> |
| Sound power level indoor | 33 dB(A)               | 33 dB(A)                  |

| <b>EN 14825</b> |                        |                           |
|-----------------|------------------------|---------------------------|
|                 | <b>Low temperature</b> | <b>Medium temperature</b> |

This information was generated by the HP KEYMARK database on 17 Dec 2020

|               |          |          |
|---------------|----------|----------|
| $\eta_s$      | 226 %    | 167 %    |
| Prated        | 11.49 kW | 10.48 kW |
| SCOP          | 5.86     | 4.39     |
| Tbiv          | -22 °C   | -22 °C   |
| TOL           | -22 °C   | -22 °C   |
| Pdh Tj = -7°C | 6.96 kW  | 6.34 kW  |
| COP Tj = -7°C | 5.64     | 3.96     |
| Cdh           | 0.99     | 0.99     |
| Pdh Tj = +2°C | 4.23 kW  | 3.86 kW  |
| COP Tj = +2°C | 6.48     | 4.91     |
| Cdh           | 0.98     | 0.98     |
| Pdh Tj = +7°C | 2.72 kW  | 2.48 kW  |
| COP Tj = +7°C | 5.93     | 5.22     |
| Cdh           | 0.97     | 0.97     |
| Pdh Tj = 12°C | 2.80 kW  | 2.77 kW  |
| COP Tj = 12°C | 5.49     | 5.06     |
| Cdh           | 0.97     | 0.97     |
| Pdh Tj = Tbiv | 11.49 kW | 10.48 kW |
| COP Tj = Tbiv | 4.38     | 2.91     |
| Pdh Tj = TOL  | 11.49 kW | 10.48 kW |

This information was generated by the HP KEYMARK database on 17 Dec 2020

|  |             |             |
|--|-------------|-------------|
| COP Tj = TOL                               | 4.38        | 2.91        |
| WTOL                                       | 65 °C       | 65 °C       |
| Poff                                       | 15 W        | 15 W        |
| PTO  | 16 W        | 16 W        |
| PSB  | 16 W        | 16 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP                 | 0.00 kW     | 0.00 kW     |
| Annual energy consumption Qhe              | 4838 kWh    | 5887 kWh    |

Water/Water Heat Pump

## Heating

| <b>EN 14511-4</b>                          |        |
|--|--------|
|  |        |
| Starting and operating test                | passed |
| Shutting off the heat transfer medium flow | passed |
| Complete power supply failure              | passed |
| Defrost test                               | passed |

This information was generated by the HP KEYMARK database on 17 Dec 2020

| <b>EN 14511-2</b>      |                        |                           |
|------------------------|------------------------|---------------------------|
|                        | <b>Low temperature</b> | <b>Medium temperature</b> |
| Heat output            | 10.16 kW               | 12.54 kW                  |
| El input               | 1.56 kW                | 3.76 kW                   |
| COP                    | 6.52                   | 3.33                      |
| Indoor water flow rate | 1.79 m <sup>3</sup> /h | 1.39 m <sup>3</sup> /h    |

## Average Climate

| <b>EN 12102-1</b>        |                        |                           |
|--------------------------|------------------------|---------------------------|
|                          | <b>Low temperature</b> | <b>Medium temperature</b> |
| Sound power level indoor | 33 dB(A)               | 33 dB(A)                  |

| <b>EN 14825</b> |                        |                           |
|-----------------|------------------------|---------------------------|
|                 | <b>Low temperature</b> | <b>Medium temperature</b> |
| $\eta_s$        | 334 %                  | 217 %                     |
| Prated          | 10.16 kW               | 12.54 kW                  |
| SCOP            | 8.55                   | 5.62                      |
| Tbiv            | -10 °C                 | -10 °C                    |
| TOL             | -10 °C                 | -10 °C                    |
| Pdh Tj = -7°C   | 8.99 kW                | 11.10 kW                  |
| COP Tj = -7°C   | 6.95                   | 4.20                      |

This information was generated by the HP KEYMARK database on 17 Dec 2020

|  |             |             |
|--|-------------|-------------|
| Cdh  | 0.99        | 0.99        |
| Pdh Tj = +2°C                              | 5.47 kW     | 6.75 kW     |
| COP Tj = +2°C                              | 8.85        | 5.75        |
| Cdh  | 0.98        | 0.99        |
| Pdh Tj = +7°C                              | 3.52 kW     | 4.34 kW     |
| COP Tj = +7°C                              | 10.21       | 6.70        |
| Cdh  | 0.96        | 0.98        |
| Pdh Tj = 12°C                              | 3.85 kW     | 3.75 kW     |
| COP Tj = 12°C                              | 8.73        | 6.41        |
| Cdh  | 0.96        | 0.97        |
| Pdh Tj = Tbiv                              | 10.16 kW    | 12.54 kW    |
| COP Tj = Tbiv                              | 6.52        | 3.33        |
| Pdh Tj = TOL                               | 10.16 kW    | 12.54 kW    |
| COP Tj = TOL                               | 6.52        | 3.33        |
| WTOL                                       | 65 °C       | 65 °C       |
| Poff                                       | 15 W        | 15 W        |
| PTO  | 16 W        | 16 W        |
| PSB  | 16 W        | 16 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP                 | 0.00 kW     | 0.00 kW     |



This information was generated by the HP KEYMARK database on 17 Dec 2020

|   |          |          |
|---|----------|----------|
| Annual energy consumption Q <sub>he</sub> | 2454 kWh | 4615 kWh |
|---|----------|----------|

## Colder Climate

| <b>EN 12102-1</b>        |                        |                           |
|--------------------------|------------------------|---------------------------|
|                          | <b>Low temperature</b> | <b>Medium temperature</b> |
| Sound power level indoor | 33 dB(A)               | 33 dB(A)                  |

| <b>EN 14825</b>                       |                        |                           |
|---------------------------------------|------------------------|---------------------------|
|                                       | <b>Low temperature</b> | <b>Medium temperature</b> |
| $\eta_s$                              | 346 %                  | 226 %                     |
| Prated                                | 10.16 kW               | 12.54 kW                  |
| SCOP                                  | 8.86                   | 5.84                      |
| T <sub>biv</sub>                      | -22 °C                 | -22 °C                    |
| TOL                                   | -22 °C                 | -22 °C                    |
| P <sub>dh</sub> T <sub>j</sub> = -7°C | 6.15 kW                | 7.59 kW                   |
| COP T <sub>j</sub> = -7°C             | 8.54                   | 5.41                      |
| C <sub>dh</sub>                       | 0.98                   | 0.99                      |
| P <sub>dh</sub> T <sub>j</sub> = +2°C | 3.74 kW                | 4.62 kW                   |
| COP T <sub>j</sub> = +2°C             | 10.08                  | 6.70                      |
| C <sub>dh</sub>                       | 0.96                   | 0.98                      |
| P <sub>dh</sub> T <sub>j</sub> = +7°C | 3.85 kW                | 3.76 kW                   |

This information was generated by the HP KEYMARK database on 17 Dec 2020

|  |             |             |
|--|-------------|-------------|
| COP Tj = +7°C                              | 8.77        | 6.47        |
| Cdh  | 0.96        | 0.97        |
| Pdh Tj = 12°C                              | 3.83 kW     | 3.78 kW     |
| COP Tj = 12°C                              | 8.49        | 6.62        |
| Cdh  | 0.97        | 0.97        |
| Pdh Tj = Tbiv                              | 10.16 kW    | 12.54 kW    |
| COP Tj = Tbiv                              | 6.52        | 3.33        |
| Pdh Tj = TOL                               | 10.16 kW    | 12.54 kW    |
| COP Tj = TOL                               | 6.52        | 3.33        |
| WTOL                                       | 65 °C       | 65 °C       |
| Poff                                       | 15 W        | 15 W        |
| PTO  | 16 W        | 16 W        |
| PSB  | 16 W        | 16 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP                 | 0.00 kW     | 0.00 kW     |
| Annual energy consumption Qhe              | 2827 kWh    | 5291 kWh    |

## Model: ATLAS 12 DUO 400V

### General Data

|              |             |
|--------------|-------------|
| Power supply | 3x400V 50Hz |
|--------------|-------------|

Brine/Water Heat Pump

### Heating

#### EN 14511-4

|  |        |
|--|--------|
| Starting and operating test                | passed |
| Shutting off the heat transfer medium flow | passed |
| Complete power supply failure              | passed |
| Defrost test                               | passed |

#### EN 14511-2

|                        | Low temperature        | Medium temperature     |
|------------------------|------------------------|------------------------|
| Heat output            | 5.24 kW                | 4.78 kW                |
| El input               | 1.10 kW                | 1.68 kW                |
| COP                    | 4.75                   | 2.85                   |
| Indoor water flow rate | 0.91 m <sup>3</sup> /h | 0.52 m <sup>3</sup> /h |

### Average Climate

This information was generated by the HP KEYMARK database on 17 Dec 2020

### EN 12102-1

|                          | Low temperature | Medium temperature |
|--------------------------|-----------------|--------------------|
| Sound power level indoor | 34 dB(A)        | 34 dB(A)           |

### EN 14825

|               | Low temperature | Medium temperature |
|---------------|-----------------|--------------------|
| $\eta_s$      | 222 %           | 162 %              |
| Prated        | 11.49 kW        | 10.48 kW           |
| SCOP          | 5.75            | 4.25               |
| Tbiv          | -10 °C          | -10 °C             |
| TOL           | -10 °C          | -10 °C             |
| Pdh Tj = -7°C | 10.17 kW        | 9.27 kW            |
| COP Tj = -7°C | 4.82            | 3.24               |
| Cdh           | 0.99            | 0.99               |
| Pdh Tj = +2°C | 6.19 kW         | 5.64 kW            |
| COP Tj = +2°C | 5.95            | 4.30               |
| Cdh           | 0.98            | 0.99               |
| Pdh Tj = +7°C | 3.98 kW         | 3.63 kW            |
| COP Tj = +7°C | 6.50            | 5.02               |
| Cdh           | 0.98            | 0.98               |
| Pdh Tj = 12°C | 2.81 kW         | 2.77 kW            |

This information was generated by the HP KEYMARK database on 17 Dec 2020

|  |             |             |
|--|-------------|-------------|
| COP Tj = 12°C                              | 5.70        | 4.91        |
| Cdh  | 0.97        | 0.97        |
| Pdh Tj = Tbiv                              | 11.49 kW    | 10.48 kW    |
| COP Tj = Tbiv                              | 4.38        | 2.91        |
| Pdh Tj = TOL                               | 11.49 kW    | 10.48 kW    |
| COP Tj = TOL                               | 4.38        | 2.91        |
| WTOL                                       | 65 °C       | 65 °C       |
| Poff                                       | 15 W        | 15 W        |
| PTO  | 16 W        | 16 W        |
| PSB  | 16 W        | 16 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP                 | 0.00 kW     | 0.00 kW     |
| Annual energy consumption Qhe              | 4131 kWh    | 5097 kWh    |

## Colder Climate

| <b>EN 12102-1</b>        |                        |                           |
|--------------------------|------------------------|---------------------------|
|                          | <b>Low temperature</b> | <b>Medium temperature</b> |
| Sound power level indoor | 34 dB(A)               | 34 dB(A)                  |

| <b>EN 14825</b> |                        |                           |
|-----------------|------------------------|---------------------------|
|                 | <b>Low temperature</b> | <b>Medium temperature</b> |

This information was generated by the HP KEYMARK database on 17 Dec 2020

|               |          |          |
|---------------|----------|----------|
| $\eta_s$      | 226 %    | 167 %    |
| Prated        | 11.49 kW | 10.48 kW |
| SCOP          | 5.86     | 4.39     |
| Tbiv          | -22 °C   | -22 °C   |
| TOL           | -22 °C   | -22 °C   |
| Pdh Tj = -7°C | 6.96 kW  | 6.34 kW  |
| COP Tj = -7°C | 5.64     | 3.96     |
| Cdh           | 0.99     | 0.99     |
| Pdh Tj = +2°C | 4.23 kW  | 3.86 kW  |
| COP Tj = +2°C | 6.48     | 4.91     |
| Cdh           | 0.98     | 0.98     |
| Pdh Tj = +7°C | 2.72 kW  | 2.48 kW  |
| COP Tj = +7°C | 5.93     | 5.22     |
| Cdh           | 0.97     | 0.97     |
| Pdh Tj = 12°C | 2.80 kW  | 2.77 kW  |
| COP Tj = 12°C | 5.49     | 5.06     |
| Cdh           | 0.97     | 0.97     |
| Pdh Tj = Tbiv | 11.49 kW | 10.48 kW |
| COP Tj = Tbiv | 4.38     | 2.91     |
| Pdh Tj = TOL  | 11.49 kW | 10.48 kW |

This information was generated by the HP KEYMARK database on 17 Dec 2020

|  |             |             |
|--|-------------|-------------|
| COP Tj = TOL                               | 4.38        | 2.91        |
| WTOL                                       | 65 °C       | 65 °C       |
| Poff                                       | 15 W        | 15 W        |
| PTO  | 16 W        | 16 W        |
| PSB  | 16 W        | 16 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP                 | 0.00 kW     | 0.00 kW     |
| Annual energy consumption Qhe              | 4838 kWh    | 5887 kWh    |

Water/Water Heat Pump

## Heating

| <b>EN 14511-4</b>                          |        |
|--|--------|
|  |        |
| Starting and operating test                | passed |
| Shutting off the heat transfer medium flow | passed |
| Complete power supply failure              | passed |
| Defrost test                               | passed |

This information was generated by the HP KEYMARK database on 17 Dec 2020

| <b>EN 14511-2</b>      |                        |                           |
|------------------------|------------------------|---------------------------|
|                        | <b>Low temperature</b> | <b>Medium temperature</b> |
| Heat output            | 10.16 kW               | 12.54 kW                  |
| El input               | 1.56 kW                | 3.76 kW                   |
| COP                    | 6.52                   | 3.33                      |
| Indoor water flow rate | 1.79 m <sup>3</sup> /h | 1.39 m <sup>3</sup> /h    |

## Average Climate

| <b>EN 12102-1</b>        |                        |                           |
|--------------------------|------------------------|---------------------------|
|                          | <b>Low temperature</b> | <b>Medium temperature</b> |
| Sound power level indoor | 34 dB(A)               | 34 dB(A)                  |

| <b>EN 14825</b> |                        |                           |
|-----------------|------------------------|---------------------------|
|                 | <b>Low temperature</b> | <b>Medium temperature</b> |
| $\eta_s$        | 334 %                  | 217 %                     |
| Prated          | 10.16 kW               | 12.54 kW                  |
| SCOP            | 8.55                   | 5.62                      |
| Tbiv            | -10 °C                 | -10 °C                    |
| TOL             | -10 °C                 | -10 °C                    |
| Pdh Tj = -7°C   | 8.99 kW                | 11.10 kW                  |
| COP Tj = -7°C   | 6.95                   | 4.20                      |



This information was generated by the HP KEYMARK database on 17 Dec 2020

|  |             |             |
|--|-------------|-------------|
| Cdh  | 0.99        | 0.99        |
| Pdh Tj = +2°C                              | 5.47 kW     | 6.75 kW     |
| COP Tj = +2°C                              | 8.85        | 5.75        |
| Cdh  | 0.98        | 0.99        |
| Pdh Tj = +7°C                              | 3.52 kW     | 4.34 kW     |
| COP Tj = +7°C                              | 10.21       | 6.70        |
| Cdh  | 0.96        | 0.98        |
| Pdh Tj = 12°C                              | 3.85 kW     | 3.75 kW     |
| COP Tj = 12°C                              | 8.73        | 6.41        |
| Cdh  | 0.96        | 0.97        |
| Pdh Tj = Tbiv                              | 10.16 kW    | 12.54 kW    |
| COP Tj = Tbiv                              | 6.52        | 3.33        |
| Pdh Tj = TOL                               | 10.16 kW    | 12.54 kW    |
| COP Tj = TOL                               | 6.52        | 3.33        |
| WTOL                                       | 65 °C       | 65 °C       |
| Poff                                       | 15 W        | 15 W        |
| PTO  | 16 W        | 16 W        |
| PSB  | 16 W        | 16 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP                 | 0.00 kW     | 0.00 kW     |

This information was generated by the HP KEYMARK database on 17 Dec 2020

|                                    |          |          |
|------------------------------------|----------|----------|
| Annual energy consumption $Q_{he}$ | 2454 kWh | 4615 kWh |
|------------------------------------|----------|----------|

## Colder Climate

| <b>EN 12102-1</b>        |                        |                           |
|--------------------------|------------------------|---------------------------|
|                          | <b>Low temperature</b> | <b>Medium temperature</b> |
| Sound power level indoor | 34 dB(A)               | 34 dB(A)                  |

| <b>EN 14825</b> |                        |                           |
|-----------------|------------------------|---------------------------|
|                 | <b>Low temperature</b> | <b>Medium temperature</b> |
| $\eta_s$        | 346 %                  | 226 %                     |
| Prated          | 10.16 kW               | 12.54 kW                  |
| SCOP            | 8.86                   | 5.84                      |
| Tbiv            | -22 °C                 | -22 °C                    |
| TOL             | -22 °C                 | -22 °C                    |
| Pdh Tj = -7°C   | 6.15 kW                | 7.59 kW                   |
| COP Tj = -7°C   | 8.54                   | 5.41                      |
| Cdh             | 0.98                   | 0.99                      |
| Pdh Tj = +2°C   | 3.74 kW                | 4.62 kW                   |
| COP Tj = +2°C   | 10.08                  | 6.70                      |
| Cdh             | 0.96                   | 0.98                      |
| Pdh Tj = +7°C   | 3.85 kW                | 3.76 kW                   |

This information was generated by the HP KEYMARK database on 17 Dec 2020

|  |             |             |
|--|-------------|-------------|
| COP Tj = +7°C                              | 8.77        | 6.47        |
| Cdh  | 0.96        | 0.97        |
| Pdh Tj = 12°C                              | 3.83 kW     | 3.78 kW     |
| COP Tj = 12°C                              | 8.49        | 6.62        |
| Cdh  | 0.97        | 0.97        |
| Pdh Tj = Tbiv                              | 10.16 kW    | 12.54 kW    |
| COP Tj = Tbiv                              | 6.52        | 3.33        |
| Pdh Tj = TOL                               | 10.16 kW    | 12.54 kW    |
| COP Tj = TOL                               | 6.52        | 3.33        |
| WTOL                                       | 65 °C       | 65 °C       |
| Poff                                       | 15 W        | 15 W        |
| PTO  | 16 W        | 16 W        |
| PSB  | 16 W        | 16 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP                 | 0.00 kW     | 0.00 kW     |
| Annual energy consumption Qhe              | 2827 kWh    | 5291 kWh    |

## Model: ATLAS 12 230V

### General Data

|              |             |
|--------------|-------------|
| Power supply | 1x230V 50Hz |
|--------------|-------------|

Brine/Water Heat Pump

## Heating

### EN 14511-4

|  |        |
|--|--------|
| Starting and operating test                | passed |
| Shutting off the heat transfer medium flow | passed |
| Complete power supply failure              | passed |
| Defrost test                               | passed |

### EN 14511-2

|                        | Low temperature        | Medium temperature     |
|------------------------|------------------------|------------------------|
| Heat output            | 5.24 kW                | 4.78 kW                |
| El input               | 1.10 kW                | 1.68 kW                |
| COP                    | 4.75                   | 2.85                   |
| Indoor water flow rate | 0.91 m <sup>3</sup> /h | 0.52 m <sup>3</sup> /h |

## Average Climate

This information was generated by the HP KEYMARK database on 17 Dec 2020

### EN 12102-1

|                          | Low temperature | Medium temperature |
|--------------------------|-----------------|--------------------|
| Sound power level indoor | 33 dB(A)        | 33 dB(A)           |

### EN 14825

|               | Low temperature | Medium temperature |
|---------------|-----------------|--------------------|
| $\eta_s$      | 222 %           | 162 %              |
| Prated        | 11.49 kW        | 10.48 kW           |
| SCOP          | 5.75            | 4.25               |
| Tbiv          | -10 °C          | -10 °C             |
| TOL           | -10 °C          | -10 °C             |
| Pdh Tj = -7°C | 10.17 kW        | 9.27 kW            |
| COP Tj = -7°C | 4.82            | 3.24               |
| Cdh           | 0.99            | 0.99               |
| Pdh Tj = +2°C | 6.19 kW         | 5.64 kW            |
| COP Tj = +2°C | 5.95            | 4.30               |
| Cdh           | 0.98            | 0.99               |
| Pdh Tj = +7°C | 3.98 kW         | 3.63 kW            |
| COP Tj = +7°C | 6.50            | 5.02               |
| Cdh           | 0.98            | 0.98               |
| Pdh Tj = 12°C | 2.81 kW         | 2.77 kW            |

This information was generated by the HP KEYMARK database on 17 Dec 2020

|  |             |             |
|--|-------------|-------------|
| COP Tj = 12°C                              | 5.70        | 4.91        |
| Cdh  | 0.97        | 0.97        |
| Pdh Tj = Tbiv                              | 11.49 kW    | 10.48 kW    |
| COP Tj = Tbiv                              | 4.38        | 2.91        |
| Pdh Tj = TOL                               | 11.49 kW    | 10.48 kW    |
| COP Tj = TOL                               | 4.38        | 2.91        |
| WTOL                                       | 65 °C       | 65 °C       |
| Poff                                       | 15 W        | 15 W        |
| PTO  | 16 W        | 16 W        |
| PSB  | 16 W        | 16 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP                 | 0.00 kW     | 0.00 kW     |
| Annual energy consumption Qhe              | 4131 kWh    | 5097 kWh    |

## Colder Climate

| <b>EN 12102-1</b>        |                        |                           |
|--------------------------|------------------------|---------------------------|
|                          | <b>Low temperature</b> | <b>Medium temperature</b> |
| Sound power level indoor | 33 dB(A)               | 33 dB(A)                  |

| <b>EN 14825</b> |                        |                           |
|-----------------|------------------------|---------------------------|
|                 | <b>Low temperature</b> | <b>Medium temperature</b> |

This information was generated by the HP KEYMARK database on 17 Dec 2020

|               |          |          |
|---------------|----------|----------|
| $\eta_s$      | 226 %    | 167 %    |
| Prated        | 11.49 kW | 10.48 kW |
| SCOP          | 5.86     | 4.39     |
| Tbiv          | -22 °C   | -22 °C   |
| TOL           | -22 °C   | -22 °C   |
| Pdh Tj = -7°C | 6.96 kW  | 6.34 kW  |
| COP Tj = -7°C | 5.64     | 3.96     |
| Cdh           | 0.99     | 0.99     |
| Pdh Tj = +2°C | 4.23 kW  | 3.86 kW  |
| COP Tj = +2°C | 6.48     | 4.91     |
| Cdh           | 0.98     | 0.98     |
| Pdh Tj = +7°C | 2.72 kW  | 2.48 kW  |
| COP Tj = +7°C | 5.93     | 5.22     |
| Cdh           | 0.97     | 0.97     |
| Pdh Tj = 12°C | 2.80 kW  | 2.77 kW  |
| COP Tj = 12°C | 5.49     | 5.06     |
| Cdh           | 0.97     | 0.97     |
| Pdh Tj = Tbiv | 11.49 kW | 10.48 kW |
| COP Tj = Tbiv | 4.38     | 2.91     |
| Pdh Tj = TOL  | 11.49 kW | 10.48 kW |

This information was generated by the HP KEYMARK database on 17 Dec 2020

|  |             |             |
|--|-------------|-------------|
| COP Tj = TOL                               | 4.38        | 2.91        |
| WTOL                                       | 65 °C       | 65 °C       |
| Poff                                       | 15 W        | 15 W        |
| PTO  | 16 W        | 16 W        |
| PSB  | 16 W        | 16 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP                 | 0.00 kW     | 0.00 kW     |
| Annual energy consumption Qhe              | 4838 kWh    | 5887 kWh    |

Water/Water Heat Pump

## Heating

| <b>EN 14511-4</b>                          |        |
|--|--------|
|  |        |
| Starting and operating test                | passed |
| Shutting off the heat transfer medium flow | passed |
| Complete power supply failure              | passed |
| Defrost test                               | passed |



This information was generated by the HP KEYMARK database on 17 Dec 2020

| <b>EN 14511-2</b>      |                        |                           |
|------------------------|------------------------|---------------------------|
|                        | <b>Low temperature</b> | <b>Medium temperature</b> |
| Heat output            | 10.16 kW               | 12.54 kW                  |
| El input               | 1.56 kW                | 3.76 kW                   |
| COP                    | 6.52                   | 3.33                      |
| Indoor water flow rate | 1.79 m <sup>3</sup> /h | 1.39 m <sup>3</sup> /h    |

## Average Climate

| <b>EN 12102-1</b>        |                        |                           |
|--------------------------|------------------------|---------------------------|
|                          | <b>Low temperature</b> | <b>Medium temperature</b> |
| Sound power level indoor | 33 dB(A)               | 33 dB(A)                  |

| <b>EN 14825</b> |                        |                           |
|-----------------|------------------------|---------------------------|
|                 | <b>Low temperature</b> | <b>Medium temperature</b> |
| $\eta_s$        | 334 %                  | 217 %                     |
| Prated          | 10.16 kW               | 12.54 kW                  |
| SCOP            | 8.55                   | 5.62                      |
| Tbiv            | -10 °C                 | -10 °C                    |
| TOL             | -10 °C                 | -10 °C                    |
| Pdh Tj = -7°C   | 8.99 kW                | 11.10 kW                  |
| COP Tj = -7°C   | 6.95                   | 4.20                      |

This information was generated by the HP KEYMARK database on 17 Dec 2020

|  |             |             |
|--|-------------|-------------|
| Cdh  | 0.99        | 0.99        |
| Pdh Tj = +2°C                              | 5.47 kW     | 6.75 kW     |
| COP Tj = +2°C                              | 8.85        | 5.75        |
| Cdh  | 0.98        | 0.99        |
| Pdh Tj = +7°C                              | 3.52 kW     | 4.34 kW     |
| COP Tj = +7°C                              | 10.21       | 6.70        |
| Cdh  | 0.96        | 0.98        |
| Pdh Tj = 12°C                              | 3.85 kW     | 3.75 kW     |
| COP Tj = 12°C                              | 8.73        | 6.41        |
| Cdh  | 0.96        | 0.97        |
| Pdh Tj = Tbiv                              | 10.16 kW    | 12.54 kW    |
| COP Tj = Tbiv                              | 6.52        | 3.33        |
| Pdh Tj = TOL                               | 10.16 kW    | 12.54 kW    |
| COP Tj = TOL                               | 6.52        | 3.33        |
| WTOL                                       | 65 °C       | 65 °C       |
| Poff                                       | 15 W        | 15 W        |
| PTO  | 16 W        | 16 W        |
| PSB  | 16 W        | 16 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP                 | 0.00 kW     | 0.00 kW     |

This information was generated by the HP KEYMARK database on 17 Dec 2020

|   |          |          |
|---|----------|----------|
| Annual energy consumption Q <sub>he</sub> | 2454 kWh | 4615 kWh |
|---|----------|----------|

## Colder Climate

| <b>EN 12102-1</b>        |                        |                           |
|--------------------------|------------------------|---------------------------|
|                          | <b>Low temperature</b> | <b>Medium temperature</b> |
| Sound power level indoor | 33 dB(A)               | 33 dB(A)                  |

| <b>EN 14825</b>                       |                        |                           |
|---------------------------------------|------------------------|---------------------------|
|                                       | <b>Low temperature</b> | <b>Medium temperature</b> |
| $\eta_s$                              | 346 %                  | 226 %                     |
| Prated                                | 10.16 kW               | 12.54 kW                  |
| SCOP                                  | 8.86                   | 5.84                      |
| T <sub>biv</sub>                      | -22 °C                 | -22 °C                    |
| TOL                                   | -22 °C                 | -22 °C                    |
| P <sub>dh</sub> T <sub>j</sub> = -7°C | 6.15 kW                | 7.59 kW                   |
| COP T <sub>j</sub> = -7°C             | 8.54                   | 5.41                      |
| C <sub>dh</sub>                       | 0.98                   | 0.99                      |
| P <sub>dh</sub> T <sub>j</sub> = +2°C | 3.74 kW                | 4.62 kW                   |
| COP T <sub>j</sub> = +2°C             | 10.08                  | 6.70                      |
| C <sub>dh</sub>                       | 0.96                   | 0.98                      |
| P <sub>dh</sub> T <sub>j</sub> = +7°C | 3.85 kW                | 3.76 kW                   |

This information was generated by the HP KEYMARK database on 17 Dec 2020

|  |             |             |
|--|-------------|-------------|
| COP Tj = +7°C                              | 8.77        | 6.47        |
| Cdh  | 0.96        | 0.97        |
| Pdh Tj = 12°C                              | 3.83 kW     | 3.78 kW     |
| COP Tj = 12°C                              | 8.49        | 6.62        |
| Cdh  | 0.97        | 0.97        |
| Pdh Tj = Tbiv                              | 10.16 kW    | 12.54 kW    |
| COP Tj = Tbiv                              | 6.52        | 3.33        |
| Pdh Tj = TOL                               | 10.16 kW    | 12.54 kW    |
| COP Tj = TOL                               | 6.52        | 3.33        |
| WTOL                                       | 65 °C       | 65 °C       |
| Poff                                       | 15 W        | 15 W        |
| PTO  | 16 W        | 16 W        |
| PSB  | 16 W        | 16 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP                 | 0.00 kW     | 0.00 kW     |
| Annual energy consumption Qhe              | 2827 kWh    | 5291 kWh    |

## Model: ATLAS 12 DUO 230V

### General Data

|              |             |
|--------------|-------------|
| Power supply | 1x230V 50Hz |
|--------------|-------------|

Brine/Water Heat Pump

### Heating

#### EN 14511-4

|  |        |
|--|--------|
| Starting and operating test                | passed |
| Shutting off the heat transfer medium flow | passed |
| Complete power supply failure              | passed |
| Defrost test                               | passed |

#### EN 14511-2

|                        | Low temperature        | Medium temperature     |
|------------------------|------------------------|------------------------|
| Heat output            | 5.24 kW                | 4.78 kW                |
| El input               | 1.10 kW                | 1.68 kW                |
| COP                    | 4.75                   | 2.85                   |
| Indoor water flow rate | 0.91 m <sup>3</sup> /h | 0.52 m <sup>3</sup> /h |

### Average Climate

This information was generated by the HP KEYMARK database on 17 Dec 2020

### EN 12102-1

|                          | Low temperature | Medium temperature |
|--------------------------|-----------------|--------------------|
| Sound power level indoor | 34 dB(A)        | 34 dB(A)           |

### EN 14825

|               | Low temperature | Medium temperature |
|---------------|-----------------|--------------------|
| $\eta_s$      | 222 %           | 162 %              |
| Prated        | 11.49 kW        | 10.48 kW           |
| SCOP          | 5.75            | 4.25               |
| Tbiv          | -10 °C          | -10 °C             |
| TOL           | -10 °C          | -10 °C             |
| Pdh Tj = -7°C | 10.17 kW        | 9.27 kW            |
| COP Tj = -7°C | 4.82            | 3.24               |
| Cdh           | 0.99            | 0.99               |
| Pdh Tj = +2°C | 6.19 kW         | 5.64 kW            |
| COP Tj = +2°C | 5.95            | 4.30               |
| Cdh           | 0.98            | 0.99               |
| Pdh Tj = +7°C | 3.98 kW         | 3.63 kW            |
| COP Tj = +7°C | 6.50            | 5.02               |
| Cdh           | 0.98            | 0.98               |
| Pdh Tj = 12°C | 2.81 kW         | 2.77 kW            |

This information was generated by the HP KEYMARK database on 17 Dec 2020

|  |             |             |
|--|-------------|-------------|
| COP Tj = 12°C                              | 5.70        | 4.91        |
| Cdh  | 0.97        | 0.97        |
| Pdh Tj = Tbiv                              | 11.49 kW    | 10.48 kW    |
| COP Tj = Tbiv                              | 4.38        | 2.91        |
| Pdh Tj = TOL                               | 11.49 kW    | 10.48 kW    |
| COP Tj = TOL                               | 4.38        | 2.91        |
| WTOL                                       | 65 °C       | 65 °C       |
| Poff                                       | 15 W        | 15 W        |
| PTO  | 16 W        | 16 W        |
| PSB  | 16 W        | 16 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP                 | 0.00 kW     | 0.00 kW     |
| Annual energy consumption Qhe              | 4131 kWh    | 5097 kWh    |

## Colder Climate

| <b>EN 12102-1</b>        |                        |                           |
|--------------------------|------------------------|---------------------------|
|                          | <b>Low temperature</b> | <b>Medium temperature</b> |
| Sound power level indoor | 34 dB(A)               | 34 dB(A)                  |

| <b>EN 14825</b> |                        |                           |
|-----------------|------------------------|---------------------------|
|                 | <b>Low temperature</b> | <b>Medium temperature</b> |

This information was generated by the HP KEYMARK database on 17 Dec 2020

|               |          |          |
|---------------|----------|----------|
| $\eta_s$      | 226 %    | 167 %    |
| Prated        | 11.49 kW | 10.48 kW |
| SCOP          | 5.86     | 4.39     |
| Tbiv          | -22 °C   | -22 °C   |
| TOL           | -22 °C   | -22 °C   |
| Pdh Tj = -7°C | 6.96 kW  | 6.34 kW  |
| COP Tj = -7°C | 5.64     | 3.96     |
| Cdh           | 0.99     | 0.99     |
| Pdh Tj = +2°C | 4.23 kW  | 3.86 kW  |
| COP Tj = +2°C | 6.48     | 4.91     |
| Cdh           | 0.98     | 0.98     |
| Pdh Tj = +7°C | 2.72 kW  | 2.48 kW  |
| COP Tj = +7°C | 5.93     | 5.22     |
| Cdh           | 0.97     | 0.97     |
| Pdh Tj = 12°C | 2.80 kW  | 2.77 kW  |
| COP Tj = 12°C | 5.49     | 5.06     |
| Cdh           | 0.97     | 0.97     |
| Pdh Tj = Tbiv | 11.49 kW | 10.48 kW |
| COP Tj = Tbiv | 4.38     | 2.91     |
| Pdh Tj = TOL  | 11.49 kW | 10.48 kW |



This information was generated by the HP KEYMARK database on 17 Dec 2020

|  |             |             |
|--|-------------|-------------|
| COP Tj = TOL                               | 4.38        | 2.91        |
| WTOL                                       | 65 °C       | 65 °C       |
| Poff                                       | 15 W        | 15 W        |
| PTO  | 16 W        | 16 W        |
| PSB  | 16 W        | 16 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP                 | 0.00 kW     | 0.00 kW     |
| Annual energy consumption Qhe              | 4838 kWh    | 5887 kWh    |

Water/Water Heat Pump

## Heating

| <b>EN 14511-4</b>                          |        |
|--|--------|
|  |        |
| Starting and operating test                | passed |
| Shutting off the heat transfer medium flow | passed |
| Complete power supply failure              | passed |
| Defrost test                               | passed |

This information was generated by the HP KEYMARK database on 17 Dec 2020

| <b>EN 14511-2</b>      |                        |                           |
|------------------------|------------------------|---------------------------|
|                        | <b>Low temperature</b> | <b>Medium temperature</b> |
| Heat output            | 10.16 kW               | 12.54 kW                  |
| El input               | 1.56 kW                | 3.76 kW                   |
| COP                    | 6.52                   | 3.33                      |
| Indoor water flow rate | 1.79 m <sup>3</sup> /h | 1.39 m <sup>3</sup> /h    |

## Average Climate

| <b>EN 12102-1</b>        |                        |                           |
|--------------------------|------------------------|---------------------------|
|                          | <b>Low temperature</b> | <b>Medium temperature</b> |
| Sound power level indoor | 34 dB(A)               | 34 dB(A)                  |

| <b>EN 14825</b> |                        |                           |
|-----------------|------------------------|---------------------------|
|                 | <b>Low temperature</b> | <b>Medium temperature</b> |
| $\eta_s$        | 334 %                  | 217 %                     |
| Prated          | 10.16 kW               | 12.54 kW                  |
| SCOP            | 8.55                   | 5.62                      |
| Tbiv            | -10 °C                 | -10 °C                    |
| TOL             | -10 °C                 | -10 °C                    |
| Pdh Tj = -7°C   | 8.99 kW                | 11.10 kW                  |
| COP Tj = -7°C   | 6.95                   | 4.20                      |

This information was generated by the HP KEYMARK database on 17 Dec 2020

|  |             |             |
|--|-------------|-------------|
| Cdh  | 0.99        | 0.99        |
| Pdh Tj = +2°C                              | 5.47 kW     | 6.75 kW     |
| COP Tj = +2°C                              | 8.85        | 5.75        |
| Cdh  | 0.98        | 0.99        |
| Pdh Tj = +7°C                              | 3.52 kW     | 4.34 kW     |
| COP Tj = +7°C                              | 10.21       | 6.70        |
| Cdh  | 0.96        | 0.98        |
| Pdh Tj = 12°C                              | 3.85 kW     | 3.75 kW     |
| COP Tj = 12°C                              | 8.73        | 6.41        |
| Cdh  | 0.96        | 0.97        |
| Pdh Tj = Tbiv                              | 10.16 kW    | 12.54 kW    |
| COP Tj = Tbiv                              | 6.52        | 3.33        |
| Pdh Tj = TOL                               | 10.16 kW    | 12.54 kW    |
| COP Tj = TOL                               | 6.52        | 3.33        |
| WTOL                                       | 65 °C       | 65 °C       |
| Poff                                       | 15 W        | 15 W        |
| PTO  | 16 W        | 16 W        |
| PSB  | 16 W        | 16 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP                 | 0.00 kW     | 0.00 kW     |

This information was generated by the HP KEYMARK database on 17 Dec 2020

|   |          |          |
|---|----------|----------|
| Annual energy consumption Q <sub>he</sub> | 2454 kWh | 4615 kWh |
|---|----------|----------|

## Colder Climate

| <b>EN 12102-1</b>        |                        |                           |
|--------------------------|------------------------|---------------------------|
|                          | <b>Low temperature</b> | <b>Medium temperature</b> |
| Sound power level indoor | 34 dB(A)               | 34 dB(A)                  |

| <b>EN 14825</b>                       |                        |                           |
|---------------------------------------|------------------------|---------------------------|
|                                       | <b>Low temperature</b> | <b>Medium temperature</b> |
| $\eta_s$                              | 346 %                  | 226 %                     |
| Prated                                | 10.16 kW               | 12.54 kW                  |
| SCOP                                  | 8.86                   | 5.84                      |
| T <sub>biv</sub>                      | -22 °C                 | -22 °C                    |
| TOL                                   | -22 °C                 | -22 °C                    |
| P <sub>dh</sub> T <sub>j</sub> = -7°C | 6.15 kW                | 7.59 kW                   |
| COP T <sub>j</sub> = -7°C             | 8.54                   | 5.41                      |
| C <sub>dh</sub>                       | 0.98                   | 0.99                      |
| P <sub>dh</sub> T <sub>j</sub> = +2°C | 3.74 kW                | 4.62 kW                   |
| COP T <sub>j</sub> = +2°C             | 10.08                  | 6.70                      |
| C <sub>dh</sub>                       | 0.96                   | 0.98                      |
| P <sub>dh</sub> T <sub>j</sub> = +7°C | 3.85 kW                | 3.76 kW                   |

This information was generated by the HP KEYMARK database on 17 Dec 2020

|  |             |             |
|--|-------------|-------------|
| COP Tj = +7°C                              | 8.77        | 6.47        |
| Cdh  | 0.96        | 0.97        |
| Pdh Tj = 12°C                              | 3.83 kW     | 3.78 kW     |
| COP Tj = 12°C                              | 8.49        | 6.62        |
| Cdh  | 0.97        | 0.97        |
| Pdh Tj = Tbiv                              | 10.16 kW    | 12.54 kW    |
| COP Tj = Tbiv                              | 6.52        | 3.33        |
| Pdh Tj = TOL                               | 10.16 kW    | 12.54 kW    |
| COP Tj = TOL                               | 6.52        | 3.33        |
| WTOL                                       | 65 °C       | 65 °C       |
| Poff                                       | 15 W        | 15 W        |
| PTO  | 16 W        | 16 W        |
| PSB  | 16 W        | 16 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP                 | 0.00 kW     | 0.00 kW     |
| Annual energy consumption Qhe              | 2827 kWh    | 5291 kWh    |