

## Subtype Aquantia BI PRO 4 - 6 L DHW Tank

|                     |                                       |
|---------------------|---------------------------------------|
| Certificate Holder  | Frigicoll                             |
| Address             | Blasco de Garay, 4 6                  |
| ZIP                 | 08960                                 |
| City                | Sant Just Desvern                     |
| Country             | ES                                    |
| Certification Body  | BRE Global Limited                    |
| Subtype title       | Aquantia BI PRO 4 - 6 L DHW Tank      |
| Registration number | 041-K009-06                           |
| Heat Pump Type      | Outdoor Air/Water                     |
| Refrigerant         | R32                                   |
| Mass of Refrigerant | 1.5 kg                                |
| Certification Date  | 04.06.2021                            |
| Testing basis       | Heat Pump Keymark Scheme Rules Rev 09 |

## Model KHP-BI 4 DVR2+ KHPI-BI-10VR2L

|                                     |                                |
|-------------------------------------|--------------------------------|
| Model name                          | KHP-BI 4 DVR2+ KHPI-BI-10VR2L  |
| Application                         | Heating + DHW + low temp       |
| Units                               | Indoor, Outdoor                |
| Climate zone (for heating)          | Warmer Climate, Colder Climate |
| Reversibility                       | Yes                            |
| Cooling mode application (optional) | n/a                            |
| Any additional heat sources         | n/a                            |

## General data

|                  |             |
|------------------|-------------|
| Power supply     | 1x230V 50Hz |
| Off-peak product | n/a         |

## Outdoor Air/Water

### EN 16147 | Average Climate

|                                 |            |
|---------------------------------|------------|
| Declared load profile           | L          |
| Efficiency $\eta_{DHW}$         | 127 %      |
| COP                             | 3.10       |
| Heating up time                 | 1:47 h:min |
| Standby power input             | 22.0 W     |
| Reference hot water temperature | 47.0 °C    |
| Mixed water at 40°C             | 200 l      |

### EN 16147 | Colder Climate

|                                 |            |
|---------------------------------|------------|
| Declared load profile           | L          |
| Efficiency $\eta_{DHW}$         | 102 %      |
| COP                             | 2.50       |
| Heating up time                 | 1:54 h:min |
| Standby power input             | 24.0 W     |
| Reference hot water temperature | 47.0 °C    |
| Mixed water at 40°C             | 200 l      |

### EN 16147 | Warmer Climate

|                                 |            |
|---------------------------------|------------|
| Declared load profile           | L          |
| Efficiency $\eta_{DHW}$         | 157 %      |
| COP                             | 3.80       |
| Heating up time                 | 1:31 h:min |
| Standby power input             | 21.0 W     |
| Reference hot water temperature | 47.0 °C    |
| Mixed water at 40°C             | 200 l      |

## EN 14511-4 | Heating

|                                            |        |
|--------------------------------------------|--------|
| Shutting off the heat transfer medium flow | passed |
| Complete power supply failure              | passed |

|                                                     |                 |                    |
|-----------------------------------------------------|-----------------|--------------------|
| Defrost test                                        | passed          |                    |
| Starting and operating test                         | passed          |                    |
| EN 14511-2   Heating                                |                 |                    |
|                                                     | Low temperature | Medium temperature |
| Heat output                                         | 4.25 kW         | 4.40 kW            |
| El input                                            | 0.82 kW         | 1.49 kW            |
| COP                                                 | 5.20            | 2.95               |
| EN 12102-1   Average Climate                        |                 |                    |
|                                                     | Low temperature | Medium temperature |
| Sound power level indoor                            | 42 dB(A)        | 42 dB(A)           |
| Sound power level outdoor                           | 56 dB(A)        | 56 dB(A)           |
| EN 14825   Average Climate                          |                 |                    |
|                                                     | Low temperature | Medium temperature |
| $\eta_s$                                            | 191 %           | 130 %              |
| Prated                                              | 5.52 kW         | 4.40 kW            |
| SCOP                                                | 4.85            | 3.31               |
| Tbiv                                                | -7 °C           | -7 °C              |
| TOL                                                 | -10 °C          | -10 °C             |
| Pdh Tj = -7°C                                       | 4.88 kW         | 3.89 kW            |
| COP Tj = -7°C                                       | 3.19            | 2.17               |
| Cdh Tj = -7 °C                                      | 0.90            | 0.90               |
| Pdh Tj = +2°C                                       | 3.06 kW         | 2.38 kW            |
| COP Tj = +2°C                                       | 4.78            | 3.30               |
| Cdh Tj = +2 °C                                      | 0.90            | 0.90               |
| Pdh Tj = +7°C                                       | 1.93 kW         | 2.95 kW            |
| COP Tj = +7°C                                       | 6.13            | 4.41               |
| Cdh Tj = +7 °C                                      | 0.90            | 0.90               |
| Pdh Tj = 12°C                                       | 1.48 kW         | 1.32 kW            |
| COP Tj = 12°C                                       | 8.05            | 5.66               |
| Cdh Tj = +12 °C                                     | 0.90            | 0.90               |
| Pdh Tj = Tbiv                                       | 4.88 kW         | 3.89 kW            |
| COP Tj = Tbiv                                       | 3.19            | 2.17               |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 4.42 kW         | 3.42 kW            |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.86            | 1.91               |
| WTOL                                                | 65 °C           | 65 °C              |
| Poff                                                | 14 W            | 14 W               |
| PTO                                                 | 24 W            | 24 W               |
| PSB                                                 | 14 W            | 14 W               |
| PCK                                                 | 0 W             | 0 W                |
| Supplementary Heater: Type of energy input          | Electricity     | Electricity        |

|                                           |          |          |
|-------------------------------------------|----------|----------|
| Supplementary Heater: PSUP                | 1.11 kW  | 0.98 kW  |
| Annual energy consumption Q <sub>he</sub> | 2351 kWh | 2744 kWh |

#### EN 12102-1 | Colder Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level indoor  | 42 dB(A)        | 42 dB(A)           |
| Sound power level outdoor | 56 dB(A)        | 56 dB(A)           |

#### EN 14825 | Colder Climate

|                                                                                                                             | Low temperature | Medium temperature |
|-----------------------------------------------------------------------------------------------------------------------------|-----------------|--------------------|
| $\eta_s$                                                                                                                    | 159 %           | 102 %              |
| Prated                                                                                                                      | 4.57 kW         | 3.37 kW            |
| SCOP                                                                                                                        | 4.06            | 2.63               |
| T <sub>biv</sub>                                                                                                            | -15 °C          | -15 °C             |
| TOL                                                                                                                         | -22 °C          | -22 °C             |
| P <sub>dh</sub> T <sub>j</sub> = -7°C                                                                                       | 2.76 kW         | 2.14 kW            |
| COP T <sub>j</sub> = -7°C                                                                                                   | 3.49            | 2.32               |
| C <sub>dh</sub> T <sub>j</sub> = -7 °C                                                                                      | 0.90            | 0.90               |
| P <sub>dh</sub> T <sub>j</sub> = +2°C                                                                                       | 1.77 kW         | 1.28 kW            |
| COP T <sub>j</sub> = +2°C                                                                                                   | 4.95            | 2.99               |
| C <sub>dh</sub> T <sub>j</sub> = +2 °C                                                                                      | 0.90            | 0.90               |
| P <sub>dh</sub> T <sub>j</sub> = +7°C                                                                                       | 1.17 kW         | 1.01 kW            |
| COP T <sub>j</sub> = +7°C                                                                                                   | 5.53            | 3.86               |
| C <sub>dh</sub> T <sub>j</sub> = +7 °C                                                                                      | 0.90            | 0.90               |
| P <sub>dh</sub> T <sub>j</sub> = 12°C                                                                                       | 1.43 kW         | 1.36 kW            |
| COP T <sub>j</sub> = 12°C                                                                                                   | 7.67            | 6.28               |
| C <sub>dh</sub> T <sub>j</sub> = +12 °C                                                                                     | 0.90            | 0.90               |
| P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>                                                                           | 3.72 kW         | 2.75 kW            |
| COP T <sub>j</sub> = T <sub>biv</sub>                                                                                       | 2.57            | 1.74               |
| P <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub> | 2.80 kW         | 1.64 kW            |
| COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>                         | 1.97            | 1.02               |
| WTOL                                                                                                                        | 65 °C           | 65 °C              |
| P <sub>off</sub>                                                                                                            | 14 W            | 14 W               |
| PTO                                                                                                                         | 24 W            | 24 W               |
| PSB                                                                                                                         | 14 W            | 14 W               |
| PCK                                                                                                                         | 0 W             | 0 W                |
| Supplementary Heater: Type of energy input                                                                                  | Electricity     | Electricity        |
| Supplementary Heater: PSUP                                                                                                  | 1.76 kW         | 1.73 kW            |
| Annual energy consumption Q <sub>he</sub>                                                                                   | 2770 kWh        | 3159 kWh           |
| P <sub>dh</sub> T <sub>j</sub> = -15°C (if TOL                                                                              | 3.72            | 2.75               |
| COP T <sub>j</sub> = -15°C (if TOL                                                                                          | 2.57            | 1.74               |
| C <sub>dh</sub> T <sub>j</sub> = -15 °C                                                                                     | 0.90            | 0.90               |

#### EN 12102-1 | Warmer Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level indoor  | 42 dB(A)        | 42 dB(A)           |
| Sound power level outdoor | 56 dB(A)        | 56 dB(A)           |

#### EN 14825 | Warmer Climate

|                                                     | Low temperature | Medium temperature |
|-----------------------------------------------------|-----------------|--------------------|
| $\eta_s$                                            | 254 %           | 162 %              |
| Prated                                              | 5.54 kW         | 5.02 kW            |
| SCOP                                                | 6.52            | 4.14               |
| Tbiv                                                | 7 °C            | 7 °C               |
| TOL                                                 | 2 °C            | 2 °C               |
| Pdh Tj = +2°C                                       | 5.35 kW         | 4.84 kW            |
| COP Tj = +2°C                                       | 3.94            | 2.51               |
| Cdh Tj = +2 °C                                      | 0.90            | 0.90               |
| Pdh Tj = +7°C                                       | 3.56 kW         | 3.23 kW            |
| COP Tj = +7°C                                       | 5.92            | 3.68               |
| Cdh Tj = +7 °C                                      | 0.90            | 0.90               |
| Pdh Tj = 12°C                                       | 1.64 kW         | 1.47 kW            |
| COP Tj = 12°C                                       | 7.91            | 5.15               |
| Cdh Tj = +12 °C                                     | 0.90            | 0.90               |
| Pdh Tj = Tbiv                                       | 3.56 kW         | 3.23 kW            |
| COP Tj = Tbiv                                       | 5.92            | 3.68               |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 5.35 kW         | 4.84 kW            |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.94            | 2.51               |
| WTOL                                                | 65 °C           | 65 °C              |
| Poff                                                | 14 W            | 14 W               |
| PTO                                                 | 24 W            | 24 W               |
| PSB                                                 | 14 W            | 14 W               |
| PCK                                                 | 0 W             | 0 W                |
| Supplementary Heater: Type of energy input          | Electricity     | Electricity        |
| Supplementary Heater: PSUP                          | 0.19 kW         | 0.18 kW            |
| Annual energy consumption Qhe                       | 1152 kWh        | 1621 kWh           |

## Model KHP-BI 6 DVR2+ KHPI-BI-10VR2L

|                                     |                                |
|-------------------------------------|--------------------------------|
| Model name                          | KHP-BI 6 DVR2+ KHPI-BI-10VR2L  |
| Application                         | Heating + DHW + low temp       |
| Units                               | Indoor, Outdoor                |
| Climate zone (for heating)          | Warmer Climate, Colder Climate |
| Reversibility                       | Yes                            |
| Cooling mode application (optional) | n/a                            |
| Any additional heat sources         | n/a                            |

## General data

|                  |             |
|------------------|-------------|
| Power supply     | 1x230V 50Hz |
| Off-peak product | n/a         |

## Outdoor Air/Water

### EN 16147 | Average Climate

|                                 |            |
|---------------------------------|------------|
| Declared load profile           | L          |
| Efficiency $\eta_{DHW}$         | 127 %      |
| COP                             | 3.10       |
| Heating up time                 | 1:47 h:min |
| Standby power input             | 22.0 W     |
| Reference hot water temperature | 47.0 °C    |
| Mixed water at 40°C             | 200 l      |

### EN 16147 | Colder Climate

|                                 |            |
|---------------------------------|------------|
| Declared load profile           | L          |
| Efficiency $\eta_{DHW}$         | 102 %      |
| COP                             | 2.50       |
| Heating up time                 | 1:54 h:min |
| Standby power input             | 24.0 W     |
| Reference hot water temperature | 47.0 °C    |
| Mixed water at 40°C             | 200 l      |

### EN 16147 | Warmer Climate

|                                 |            |
|---------------------------------|------------|
| Declared load profile           | L          |
| Efficiency $\eta_{DHW}$         | 157 %      |
| COP                             | 3.80       |
| Heating up time                 | 1:31 h:min |
| Standby power input             | 21.0 W     |
| Reference hot water temperature | 47.0 °C    |
| Mixed water at 40°C             | 200 l      |

## EN 14511-4 | Heating

|                                            |        |
|--------------------------------------------|--------|
| Shutting off the heat transfer medium flow | passed |
| Complete power supply failure              | passed |

|                                                     |                 |                    |
|-----------------------------------------------------|-----------------|--------------------|
| Defrost test                                        | passed          |                    |
| Starting and operating test                         | passed          |                    |
| EN 14511-2   Heating                                |                 |                    |
|                                                     | Low temperature | Medium temperature |
| Heat output                                         | 6.20 kW         | 6.00 kW            |
| El input                                            | 1.24 kW         | 2.00 kW            |
| COP                                                 | 5.00            | 3.00               |
| EN 12102-1   Average Climate                        |                 |                    |
|                                                     | Low temperature | Medium temperature |
| Sound power level indoor                            | 42 dB(A)        | 42 dB(A)           |
| Sound power level outdoor                           | 58 dB(A)        | 58 dB(A)           |
| EN 14825   Average Climate                          |                 |                    |
|                                                     | Low temperature | Medium temperature |
| $\eta_s$                                            | 195 %           | 138 %              |
| Prated                                              | 6.82 kW         | 5.70 kW            |
| SCOP                                                | 4.95            | 3.52               |
| Tbiv                                                | -7 °C           | -7 °C              |
| TOL                                                 | -10 °C          | -10 °C             |
| Pdh Tj = -7°C                                       | 6.03 kW         | 5.05 kW            |
| COP Tj = -7°C                                       | 3.09            | 2.17               |
| Cdh Tj = -7 °C                                      | 0.90            | 0.90               |
| Pdh Tj = +2°C                                       | 3.88 kW         | 3.12 kW            |
| COP Tj = +2°C                                       | 4.85            | 3.51               |
| Cdh Tj = +2 °C                                      | 0.90            | 0.90               |
| Pdh Tj = +7°C                                       | 2.40 kW         | 2.09 kW            |
| COP Tj = +7°C                                       | 6.63            | 4.54               |
| Cdh Tj = +7 °C                                      | 0.90            | 0.90               |
| Pdh Tj = 12°C                                       | 1.39 kW         | 1.28 kW            |
| COP Tj = 12°C                                       | 7.83            | 5.59               |
| Cdh Tj = +12 °C                                     | 0.90            | 0.90               |
| Pdh Tj = Tbiv                                       | 6.03 kW         | 5.05 kW            |
| COP Tj = Tbiv                                       | 3.09            | 2.17               |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 5.36 kW         | 4.52 kW            |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.76            | 1.91               |
| WTOL                                                | 65 °C           | 65 °C              |
| Poff                                                | 14 W            | 14 W               |
| PTO                                                 | 24 W            | 24 W               |
| PSB                                                 | 14 W            | 14 W               |
| PCK                                                 | 0 W             | 0 W                |
| Supplementary Heater: Type of energy input          | Electricity     | Electricity        |

|                                           |          |          |
|-------------------------------------------|----------|----------|
| Supplementary Heater: PSUP                | 1.45 kW  | 1.18 kW  |
| Annual energy consumption Q <sub>he</sub> | 2846 kWh | 3345 kWh |

#### EN 12102-1 | Colder Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level indoor  | 42 dB(A)        | 42 dB(A)           |
| Sound power level outdoor | 58 dB(A)        | 58 dB(A)           |

#### EN 14825 | Colder Climate

|                                                                                                                             | Low temperature | Medium temperature |
|-----------------------------------------------------------------------------------------------------------------------------|-----------------|--------------------|
| $\eta_s$                                                                                                                    | 165 %           | 111 %              |
| Prated                                                                                                                      | 5.63 kW         | 4.26 kW            |
| SCOP                                                                                                                        | 4.21            | 2.85               |
| T <sub>biv</sub>                                                                                                            | -15 °C          | -15 °C             |
| TOL                                                                                                                         | -22 °C          | -22 °C             |
| P <sub>dh</sub> T <sub>j</sub> = -7°C                                                                                       | 3.42 kW         | 2.70 kW            |
| COP T <sub>j</sub> = -7°C                                                                                                   | 3.59            | 2.46               |
| C <sub>dh</sub> T <sub>j</sub> = -7 °C                                                                                      | 0.90            | 0.90               |
| P <sub>dh</sub> T <sub>j</sub> = +2°C                                                                                       | 2.06 kW         | 1.61 kW            |
| COP T <sub>j</sub> = +2°C                                                                                                   | 5.21            | 3.36               |
| C <sub>dh</sub> T <sub>j</sub> = +2 °C                                                                                      | 0.90            | 0.90               |
| P <sub>dh</sub> T <sub>j</sub> = +7°C                                                                                       | 1.47 kW         | 1.02 kW            |
| COP T <sub>j</sub> = +7°C                                                                                                   | 6.24            | 3.94               |
| C <sub>dh</sub> T <sub>j</sub> = +7 °C                                                                                      | 0.90            | 0.90               |
| P <sub>dh</sub> T <sub>j</sub> = 12°C                                                                                       | 1.44 kW         | 1.37 kW            |
| COP T <sub>j</sub> = 12°C                                                                                                   | 7.66            | 6.35               |
| C <sub>dh</sub> T <sub>j</sub> = +12 °C                                                                                     | 0.90            | 0.90               |
| P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>                                                                           | 4.60 kW         | 3.48 kW            |
| COP T <sub>j</sub> = T <sub>biv</sub>                                                                                       | 2.53            | 1.86               |
| P <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub> | 3.48 kW         | 2.10 kW            |
| COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>                         | 1.96            | 1.13               |
| WTOL                                                                                                                        | 65 °C           | 65 °C              |
| P <sub>off</sub>                                                                                                            | 20 W            | 20 W               |
| PTO                                                                                                                         | 24 W            | 24 W               |
| PSB                                                                                                                         | 14 W            | 14 W               |
| PCK                                                                                                                         | 0 W             | 0 W                |
| Supplementary Heater: Type of energy input                                                                                  | Electricity     | Electricity        |
| Supplementary Heater: PSUP                                                                                                  | 2.15 kW         | 2.16 kW            |
| Annual energy consumption Q <sub>he</sub>                                                                                   | 3301 kWh        | 3681 kWh           |
| P <sub>dh</sub> T <sub>j</sub> = -15°C (if TOL                                                                              | 4.60            | 3.48               |
| COP T <sub>j</sub> = -15°C (if TOL                                                                                          | 2.53            | 1.86               |
| C <sub>dh</sub> T <sub>j</sub> = -15 °C                                                                                     | 0.90            | 0.90               |

#### EN 12102-1 | Warmer Climate



|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level indoor  | 42 dB(A)        | 42 dB(A)           |
| Sound power level outdoor | 58 dB(A)        | 58 dB(A)           |

#### EN 14825 | Warmer Climate

|                                                     | Low temperature | Medium temperature |
|-----------------------------------------------------|-----------------|--------------------|
| $\eta_s$                                            | 258 %           | 165 %              |
| Prated                                              | 6.12 kW         | 5.15 kW            |
| SCOP                                                | 6.63            | 4.19               |
| Tbiv                                                | 7 °C            | 7 °C               |
| TOL                                                 | 2 °C            | 2 °C               |
| Pdh Tj = +2°C                                       | 5.94 kW         | 5.03 kW            |
| COP Tj = +2°C                                       | 3.91            | 2.48               |
| Cdh Tj = +2 °C                                      | 0.90            | 0.90               |
| Pdh Tj = +7°C                                       | 3.93 kW         | 3.31 kW            |
| COP Tj = +7°C                                       | 5.89            | 3.67               |
| Cdh Tj = +7 °C                                      | 0.90            | 0.90               |
| Pdh Tj = 12°C                                       | 1.80 kW         | 1.60 kW            |
| COP Tj = 12°C                                       | 8.20            | 5.29               |
| Cdh Tj = +12 °C                                     | 0.90            | 0.90               |
| Pdh Tj = Tbiv                                       | 3.93 kW         | 3.31 kW            |
| COP Tj = Tbiv                                       | 5.89            | 3.67               |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 5.94 kW         | 5.03 kW            |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.91            | 2.48               |
| WTOL                                                | 65 °C           | 65 °C              |
| Poff                                                | 14 W            | 14 W               |
| PTO                                                 | 24 W            | 24 W               |
| PSB                                                 | 14 W            | 14 W               |
| PCK                                                 | 0 W             | 0 W                |
| Supplementary Heater: Type of energy input          | Electricity     | Electricity        |
| Supplementary Heater: PSUP                          | 0.18 kW         | 0.12 kW            |
| Annual energy consumption Qhe                       | 1251 kWh        | 1640 kWh           |