

| Heat pump model                |                        | Master Therm      |                  | AQ60I-1                 |  |
|--------------------------------|------------------------|-------------------|------------------|-------------------------|--|
| Heat pump type                 |                        | Water/Water       |                  |                         |  |
| Supplementary heater           |                        | No                |                  |                         |  |
| Heat pump combination heater   |                        | No                |                  |                         |  |
| Reference heating season       |                        | Average           |                  |                         |  |
| Reference water temperature    |                        | LOW, 35°C         |                  |                         |  |
| Full load heating              |                        | Prated [kW]       | 33               |                         |  |
| Seasonal efficiency            |                        | $\eta_s$ [%]      | 195              | A+++                    |  |
| Annual electricity consumption |                        | $Q_{HE}$ [kWh]    | 13348            |                         |  |
| Average 35°C                   | Outdoor heat exchanger | Declared capacity | COP at part load | Degradation Coefficient |  |
|                                | Outdoor air            |                   |                  |                         |  |
|                                | Tj [°C]                | Pdh [kW]          | COPd (-)         | Cdh (-)                 |  |
| A                              | -7                     | 29.51             | 3.77             | 0.900                   |  |
| B                              | 2                      | 18.63             | 5.10             | 0.900                   |  |
| C                              | 7                      | 12.14             | 5.79             | 0.900                   |  |
| D                              | 12                     | 6.97              | 5.96             | 0.978                   |  |
| TOL (E)                        | -10                    | 32.71             | 3.70             | 0.900                   |  |
| Tbivalent (F)                  | -10                    | 32.71             | 3.70             | 0.900                   |  |
| Reference heating season       |                        | Average           |                  |                         |  |
| Reference water temperature    |                        | High, 55°C        |                  |                         |  |
| Full load heating              |                        | Prated [kW]       | 32.90            |                         |  |
| Seasonal efficiency            |                        | $\eta_s$ [%]      | 151              | A+++                    |  |
| Annual electricity consumption |                        | $Q_{HE}$ [kWh]    | 17049            |                         |  |
| Average 55°C                   | Outdoor heat exchanger | Declared capacity | COP at part load | Degradation Coefficient |  |
|                                | Outdoor air            |                   |                  |                         |  |
|                                | Tj [°C]                | Pdh [kW]          | COPd (-)         | Cdh (-)                 |  |
| A                              | -7                     | 29.91             | 2.90             | 0.900                   |  |
| B                              | 2                      | 17.01             | 4.01             | 0.900                   |  |
| C                              | 7                      | 11.21             | 4.64             | 0.900                   |  |
| D                              | 12                     | 6.80              | 4.77             | 0.982                   |  |
| TOL (E)                        | -10                    | 32.90             | 2.73             | 0.900                   |  |
| Tbivalent (F)                  | -10                    | 32.90             | 2.73             | 0.900                   |  |
| Reference heating season       |                        | Warmer            |                  |                         |  |
| Reference water temperature    |                        | Low, 35°C         |                  |                         |  |
| Full load heating              |                        | Prated [kW]       | 32.71            |                         |  |
| Seasonal efficiency            |                        | $\eta_s$ [%]      | 204              |                         |  |
| Annual electricity consumption |                        | $Q_{HE}$ [kWh]    | 8234             |                         |  |
| Warmer 35°C                    | Outdoor heat exchanger | Declared capacity | COP at part load | Degradation Coefficient |  |
|                                | Outdoor air            |                   |                  |                         |  |
|                                | Tj [°C]                | Pdh [kW]          | COPd (-)         | Cdh (-)                 |  |
| B                              | 2                      | 32.71             | 3.70             | 0.900                   |  |
| C                              | 7                      | 21.15             | 4.79             | 0.900                   |  |
| D                              | 12                     | 9.44              | 6.13             | 0.900                   |  |
| TOL (E)                        | 2                      | 32.71             | 3.70             | 0.900                   |  |
| Tbivalent (F)                  | 2                      | 32.71             | 3.70             | 0.900                   |  |

| Heat pump model                |                        | Master Therm      |                  | AQ60I-1                 |  |
|--------------------------------|------------------------|-------------------|------------------|-------------------------|--|
| Reference heating season       |                        |                   | Warmer           |                         |  |
| Reference water temperature    |                        |                   | High, 55°C       |                         |  |
| Full load heating              |                        | Prated [kW]       | 32.90            |                         |  |
| Seasonal efficiency            |                        | ηs [%]            | 149              |                         |  |
| Annual electricity consumption |                        | QHE [kWh]         | 11183            |                         |  |
| Warmer 55°C                    | Outdoor heat exchanger | Declared capacity | COP at part load | Degradation Coefficient |  |
|                                | Outdoor air            |                   |                  |                         |  |
|                                | Tj [°C]                | Pdh [kW]          | COPd (-)         | Cdh (-)                 |  |
| B                              | 2                      | 32.90             | 2.73             | 0.900                   |  |
| C                              | 7                      | 21.27             | 3.46             | 0.900                   |  |
| D                              | 12                     | 9.49              | 4.65             | 0.900                   |  |
| TOL (E)                        | 2                      | 32.90             | 2.73             | 0.900                   |  |
| Tbivalent (F)                  | 2                      | 32.90             | 2.73             | 0.900                   |  |

|                                |                        |                   |                  |                         |  |
|--------------------------------|------------------------|-------------------|------------------|-------------------------|--|
| Reference heating season       |                        |                   | Colder           |                         |  |
| Reference water temperature    |                        |                   | Low, 35°C        |                         |  |
| Full load heating              |                        | Prated [kW]       | 32.71            |                         |  |
| Seasonal efficiency            |                        | ηs [%]            | 206              |                         |  |
| Annual electricity consumption |                        | QHE [kWh]         | 15061            |                         |  |
| Colder 35°C                    | Outdoor heat exchanger | Declared capacity | COP at part load | Degradation Coefficient |  |
|                                | Outdoor air            |                   |                  |                         |  |
|                                | Tj [°C]                | Pdh [kW]          | COPd (-)         | Cdh (-)                 |  |
| A                              | -7                     | 20.28             | 5.06             | 0.900                   |  |
| B                              | 2                      | 12.14             | 5.79             | 0.900                   |  |
| C                              | 7                      | 8.04              | 6.13             | 0.900                   |  |
| D                              | 12                     | 6.97              | 5.96             | 0.978                   |  |
| TOL (E)                        | -22                    | 32.71             | 3.70             | 0.900                   |  |
| Tbivalent (F)                  | -22                    | 32.71             | 3.70             | 0.900                   |  |
| G                              | -15                    | 27.11             | 4.06             | 0.900                   |  |

|                                |                        |                   |                  |                         |  |
|--------------------------------|------------------------|-------------------|------------------|-------------------------|--|
| Reference heating season       |                        |                   | Colder           |                         |  |
| Reference water temperature    |                        |                   | High, 55°C       |                         |  |
| Full load heating              |                        | Prated [kW]       | 32.90            |                         |  |
| Seasonal efficiency            |                        | ηs [%]            | 158              |                         |  |
| Annual electricity consumption |                        | QHE [kWh]         | 19553            |                         |  |
| Colder 55°C                    | Outdoor heat exchanger | Declared capacity | COP at part load | Degradation Coefficient |  |
|                                | Outdoor air            |                   |                  |                         |  |
|                                | Tj [°C]                | Pdh [kW]          | COPd (-)         | Cdh (-)                 |  |
| A                              | -7                     | 20.21             | 3.81             | 0.900                   |  |
| B                              | 2                      | 12.55             | 4.51             | 0.900                   |  |
| C                              | 7                      | 7.87              | 5.05             | 0.900                   |  |
| D                              | 12                     | 6.85              | 5.05             | 0.981                   |  |
| TOL (E)                        | -22                    | 32.90             | 2.73             | 0.900                   |  |
| Tbivalent (F)                  | -22                    | 32.90             | 2.73             | 0.900                   |  |
| G                              | -15                    | 27.26             | 3.09             | 0.900                   |  |

| Heat pump model                                     |                                                    | Master Therm | AQ60I-1 |
|-----------------------------------------------------|----------------------------------------------------|--------------|---------|
| Power consumption in modes other than "active mode" |                                                    |              |         |
| Off mode                                            | P <sub>OFF</sub> [kW]                              | 0.000        |         |
| Thermostat off mode                                 | P <sub>TO</sub> [kW]                               | 0.026        |         |
| Standby mode                                        | P <sub>SB</sub> [kW]                               | 0.026        |         |
| Crankcaseheater mode                                | P <sub>CK</sub> [kW]                               | -            |         |
|                                                     |                                                    |              |         |
| Supplementary heater capacity                       | P <sub>sup</sub> [kW]                              | -            |         |
| Supplementary heater type                           | [-]                                                | electricity  |         |
|                                                     |                                                    |              |         |
| Capacity control                                    |                                                    | Variable     |         |
| Sound power level Indoor                            | L <sub>WA</sub> [dBA]                              | 48           |         |
| Sound power level Outdoor                           | L <sub>WA</sub> [dBA]                              | -            |         |
| Rated water flow                                    | [m <sup>3</sup> /h]                                | 8.02         |         |
|                                                     |                                                    |              |         |
| Temperature controller                              |                                                    |              |         |
| Type                                                | Carel pCO5/pCO5+/uPC, Master Therm custom SW       |              |         |
| Class                                               | II                                                 |              |         |
| Contribution                                        | %                                                  | 2.0          |         |
|                                                     |                                                    |              |         |
| Temperature controller + Room Terminal              |                                                    |              |         |
| Type                                                | Carel pCO5/pCO5+/uPC + pAD, Master Therm custom SW |              |         |
| Class                                               | VI                                                 |              |         |
| Contribution                                        | %                                                  | 4.0          |         |

|                        |                     |                |
|------------------------|---------------------|----------------|
| <b>Heat pump model</b> | <b>Master Therm</b> | <b>AQ60I-1</b> |
|------------------------|---------------------|----------------|

| <b>Information sheet</b>                                  |       |                  |                   |
|-----------------------------------------------------------|-------|------------------|-------------------|
| Temperature application                                   |       | <b>Low, 35°C</b> | <b>High, 55°C</b> |
| Space heating energy efficiency class, Average climate    | -     | A+++             | A+++              |
| Nominal heating capacity Pdesign, Average climate         | kW    | 33               | 33                |
| Space heating seasonal efficiency, Average climate        | %     | 195              | 151               |
| Space heating annual electricity consumption, Average cl. | kWh   | 13348            | 17049             |
|                                                           |       |                  |                   |
| Nominal heating capacity Pdesign, Colder climate          | kW    | 33               | 33                |
| Space heating seasonal efficiency, Colder climate         | %     | 206              | 158               |
| Space heating annual electricity consumption, Colder cl.  | kWh   | 15061            | 19553             |
|                                                           |       |                  |                   |
| Nominal heating capacity Pdesign, Warmer climate          | kW    | 33               | 33                |
| Space heating seasonal efficiency, Warmer climate         | %     | 204              | 149               |
| Space heating annual electricity consumption, Warmer cl.  | kWh   | 8234             | 11183             |
|                                                           |       |                  |                   |
| Sound power level Lwa                                     | dB(A) | 48               |                   |

| <b>Information sheet for energy efficiency Set with Temperature controller</b> |   |                  |                   |
|--------------------------------------------------------------------------------|---|------------------|-------------------|
| Temperature application                                                        |   | <b>Low, 35°C</b> | <b>High, 55°C</b> |
| Controller Carel pCO5/pCO5+/uPC, Class                                         | - | II               | II                |
| Controller Carel pCO5/pCO5+/uPC, Contribution                                  | % | 2.0              | 2.0               |
| Set Space heating seasonal efficiency, Average climate                         | % | 197              | 153               |
| Set Space heating energy efficiency class, Average climate                     | - | A+++             | A+++              |
| Set Space heating seasonal efficiency, Colder climate                          | % | 208              | 160               |
| Set Space heating seasonal efficiency, Warmer climate                          | % | 206              | 151               |

| <b>Information sheet for energy efficiency Set with Temperature controller + Room Terminal</b> |   |                  |                   |
|------------------------------------------------------------------------------------------------|---|------------------|-------------------|
| Temperature application                                                                        |   | <b>Low, 35°C</b> | <b>High, 55°C</b> |
| Controller Carel pCO5/pCO5+/uPC + pAD, Class                                                   | - | VI               | VI                |
| Controller Carel pCO5/pCO5+/uPC, +pAD, Contribution                                            | % | 4.0              | 4.0               |
| Set Space heating seasonal efficiency, Average climate                                         | % | 199              | 155               |
| Set Space heating energy efficiency class, Average climate                                     | - | A+++             | A+++              |
| Set Space heating seasonal efficiency, Colder climate                                          | % | 210              | 162               |
| Set Space heating seasonal efficiency, Warmer climate                                          | % | 208              | 153               |