

## Subtype HA 12-6 O 230V, HA 12-6 O

|                     |  |
|---------------------|--|
| Certificate Holder  | Saunier Duval Brand Group  |
| Address             |  |
| ZIP                 |  |
| City                |  |
| Country             | DE   |
| Certification Body  | VDE Prüf- und Zertifizierungsinstitut GmbH   |
| Subtype title       | HA 12-6 O 230V, HA 12-6 O  |
| Registration number | 40051134   |
| Heat Pump Type      | Outdoor Air/Water  |
| Refrigerant         | R290   |
| Mass of Refrigerant | 1.3 kg   |
| Certification Date  | 01.08.2022   |
| Testing basis       | DIN EN 14511-1:2019-07; EN 14511-1:2018, DIN EN 14511-2:2019-07; EN 14511-2:2018, DIN EN 14511-3:2019-07; EN 14511-3:2018, DIN EN 14511-4:2019-07; EN 14511-4:2018, DIN EN 14825:2019-07; EN 14825:2018, DIN EN 12102-1:2018-02; EN 12102-1:2017 |

## Model HA 12-6 O 230V

|                                     |  |
|-------------------------------------|--|
| Model name                          | HA 12-6 O 230V                                 |
| Application                         | Heating (medium temp)                          |
| Units                               | Outdoor  |
| Climate zone (for heating)          | Colder, Warmer, 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 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 12102-1 | Average Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 58 dB(A)        | 60 dB(A)           |

### EN 14825 | Average Climate

|                 | Low temperature | Medium temperature |
|-----------------|-----------------|--------------------|
| $\eta_s$        | 195 %           | 147 %              |
| Prated          | 12.73 kW        | 11.81 kW           |
| SCOP            | 4.96            | 3.75               |
| Tbiv            | -7 °C           | -7 °C              |
| TOL             | -10 °C          | -10 °C             |
| Pdh Tj = -7°C   | 11.27 kW        | 10.45 kW           |
| COP Tj = -7°C   | 2.58            | 2.10               |
| Cdh Tj = -7 °C  | 0.990           | 0.990              |
| Pdh Tj = +2°C   | 6.99 kW         | 6.43 kW            |
| COP Tj = +2°C   | 5.17            | 3.73               |
| Cdh Tj = +2 °C  | 0.970           | 0.970              |
| Pdh Tj = +7°C   | 5.81 kW         | 5.65 kW            |
| COP Tj = +7°C   | 6.87            | 5.27               |
| Cdh Tj = +7 °C  | 0.950           | 0.960              |
| Pdh Tj = 12°C   | 6.77 kW         | 6.58 kW            |
| COP Tj = 12°C   | 8.66            | 6.64               |
| Cdh Tj = +12 °C | 0.950           | 0.960              |
| Pdh Tj = Tbiv   | 11.27 kW        | 10.45 kW           |
| COP Tj = Tbiv   | 2.58            | 2.10               |

|   |             |             |
|---|-------------|-------------|
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 9.85 kW     | 9.83 kW     |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.29        | 1.87        |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |             |             |
| WTOL  | 70 °C       | 70 °C       |
| Poff  | 8 W         | 8 W         |
| PTO   | 45 W        | 45 W        |
| PSB   | 45 W        | 45 W        |
| PCK   | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input          | Electricity | Electricity |
| Supplementary Heater: PSUP                          | 2.89 kW     | 1.98 kW     |
| Annual energy consumption Qhe                       | 5305 kWh    | 6501 kWh    |

#### EN 12102-1 | Colder Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 58 dB(A)        | 60 dB(A)           |

#### EN 14825 | Colder Climate

|   | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| ηs  | 170 %           | 128 %              |
| Prated  | 12.16 kW        | 11.09 kW           |
| SCOP  | 4.32            | 3.28               |
| Tbiv  | -15 °C          | -15 °C             |
| TOL   | -20 °C          | -20 °C             |
| Pdh Tj = -7°C                                       | 6.93 kW         | 7.06 kW            |
| COP Tj = -7°C                                       | 3.72            | 2.65               |
| Cdh Tj = -7 °C                                      | 0.980           | 0.960              |
| Pdh Tj = +2°C                                       | 5.11 kW         | 4.83 kW            |
| COP Tj = +2°C                                       | 5.51            | 4.20               |
| Cdh Tj = +2 °C                                      | 0.960           | 0.960              |
| Pdh Tj = +7°C                                       | 5.82 kW         | 5.62 kW            |
| COP Tj = +7°C                                       | 7.14            | 5.61               |
| Cdh Tj = +7 °C                                      | 0.950           | 0.960              |
| Pdh Tj = 12°C                                       | 6.69 kW         | 6.55 kW            |
| COP Tj = 12°C                                       | 8.51            | 6.95               |
| Cdh Tj = +12 °C                                     | 0.950           | 0.960              |
| Pdh Tj = Tbiv                                       | 9.92 kW         | 9.04 kW            |
| COP Tj = Tbiv                                       | 2.26            | 1.81               |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 8.71 kW         | 7.73 kW            |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.03            | 1.50               |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |                 |                    |

|  |             |             |
|--|-------------|-------------|
| WTOL                                       | 70 °C       | 70 °C       |
| Poff                                       | 8 W         | 8 W         |
| PTO  | 45 W        | 45 W        |
| PSB  | 45 W        | 45 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP                 | 12.16 kW    | 11.09 kW    |
| Annual energy consumption Qhe              | 6936 kWh    | 8321 kWh    |
| Pdh Tj = -15°C (if TOL                     | 9.92        | 9.04        |
| COP Tj = -15°C (if TOL                     | 2.26        | 1.81        |
| Cdh Tj = -15 °C                            | 0.990       | 0.990       |

#### EN 12102-1 | Warmer Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 58 dB(A)        | 60 dB(A)           |

#### EN 14825 | Warmer Climate

|   | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| $\eta_s$  | 254 %           | 174 %              |
| Prated  | 11.35 kW        | 11.06 kW           |
| SCOP  | 6.41            | 4.42               |
| Tbiv  | 2 °C            | 2 °C               |
| TOL   | 2 °C            | 2 °C               |
| Pdh Tj = +2°C                                       | 11.35 kW        | 11.06 kW           |
| COP Tj = +2°C                                       | 3.23            | 2.21               |
| Cdh Tj = +2 °C                                      | 0.99            | 0.99               |
| Pdh Tj = +7°C                                       | 7.41 kW         | 7.19 kW            |
| COP Tj = +7°C                                       | 5.97            | 3.82               |
| Cdh Tj = +7 °C                                      | 0.97            | 0.98               |
| Pdh Tj = 12°C                                       | 6.63 kW         | 6.33 kW            |
| COP Tj = 12°C                                       | 8.20            | 5.97               |
| Cdh Tj = +12 °C                                     | 0.95            | 0.96               |
| Pdh Tj = Tbiv                                       | 11.35 kW        | 11.06 kW           |
| COP Tj = Tbiv                                       | 3.23            | 2.21               |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 11.35 kW        | 11.06 kW           |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.23            | 2.21               |
| WTOL  | 70 °C           | 70 °C              |
| Poff  | 8 W             | 8 W                |
| PTO   | 45 W            | 45 W               |
| PSB   | 45 W            | 45 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  $Q_{he}$ 

2363 kWh

3342 kWh

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## Model HA 12-6 O 230V B2

|                                     |                                |
|-------------------------------------|--------------------------------|
| Model name                          | HA 12-6 O 230V B2              |
| Application                         | Heating (medium temp)          |
| Units                               | Outdoor                        |
| Climate zone (for heating)          | Warmer Climate, Colder Climate |
| 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 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 12102-1 | Average Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 58 dB(A)        | 60 dB(A)           |

### EN 14825 | Average Climate

|                 | Low temperature | Medium temperature |
|-----------------|-----------------|--------------------|
| $\eta_s$        | 194 %           | 146 %              |
| Prated          | 12.73 kW        | 11.81 kW           |
| SCOP            | 4.93            | 3.74               |
| Tbiv            | -7 °C           | -7 °C              |
| TOL             | -10 °C          | -10 °C             |
| Pdh Tj = -7°C   | 11.27 kW        | 10.45 kW           |
| COP Tj = -7°C   | 2.58            | 2.10               |
| Cdh Tj = -7 °C  | 0.990           | 0.990              |
| Pdh Tj = +2°C   | 6.99 kW         | 6.43 kW            |
| COP Tj = +2°C   | 5.17            | 3.73               |
| Cdh Tj = +2 °C  | 0.970           | 0.970              |
| Pdh Tj = +7°C   | 5.81 kW         | 5.65 kW            |
| COP Tj = +7°C   | 6.87            | 5.27               |
| Cdh Tj = +7 °C  | 0.950           | 0.960              |
| Pdh Tj = 12°C   | 6.77 kW         | 6.58 kW            |
| COP Tj = 12°C   | 8.66            | 6.64               |
| Cdh Tj = +12 °C | 0.950           | 0.960              |
| Pdh Tj = Tbiv   | 11.27 kW        | 10.45 kW           |
| COP Tj = Tbiv   | 2.58            | 2.10               |

|   |             |             |
|---|-------------|-------------|
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 9.85 kW     | 9.83 kW     |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.29        | 1.87        |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |             |             |
| WTOL  | 70 °C       | 70 °C       |
| Poff  | 8 W         | 8 W         |
| PTO   | 45 W        | 45 W        |
| PSB   | 45 W        | 45 W        |
| PCK   | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input          | Electricity | Electricity |
| Supplementary Heater: PSUP                          | 2.89 kW     | 1.98 kW     |
| Annual energy consumption Qhe                       | 5335 kWh    | 6532 kWh    |

#### EN 12102-1 | Colder Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 58 dB(A)        | 60 dB(A)           |

#### EN 14825 | Colder Climate

|   | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| ηs  | 169 %           | 128 %              |
| Prated  | 12.16 kW        | 11.09 kW           |
| SCOP  | 4.31            | 3.28               |
| Tbiv  | -15 °C          | -15 °C             |
| TOL   | -20 °C          | -20 °C             |
| Pdh Tj = -7°C                                       | 6.93 kW         | 7.06 kW            |
| COP Tj = -7°C                                       | 3.72            | 2.65               |
| Cdh Tj = -7 °C                                      | 0.980           | 0.960              |
| Pdh Tj = +2°C                                       | 5.11 kW         | 4.83 kW            |
| COP Tj = +2°C                                       | 5.51            | 4.20               |
| Cdh Tj = +2 °C                                      | 0.960           | 0.960              |
| Pdh Tj = +7°C                                       | 5.82 kW         | 5.62 kW            |
| COP Tj = +7°C                                       | 7.14            | 5.61               |
| Cdh Tj = +7 °C                                      | 0.950           | 0.960              |
| Pdh Tj = 12°C                                       | 6.69 kW         | 6.55 kW            |
| COP Tj = 12°C                                       | 8.51            | 6.95               |
| Cdh Tj = +12 °C                                     | 0.950           | 0.960              |
| Pdh Tj = Tbiv                                       | 9.92 kW         | 9.04 kW            |
| COP Tj = Tbiv                                       | 2.26            | 1.81               |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 8.71 kW         | 7.73 kW            |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.03            | 1.50               |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |                 |                    |

|  |             |             |
|--|-------------|-------------|
| WTOL   | 70 °C       | 70 °C       |
| Poff   | 8 W         | 8 W         |
| PTO  | 45 W        | 45 W        |
| PSB  | 45 W        | 45 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input     | Electricity | Electricity |
| Supplementary Heater: PSUP                     | 12.16 kW    | 11.09 kW    |
| Annual energy consumption Q <sub>he</sub>      | 6954 kWh    | 8339 kWh    |
| P <sub>dh</sub> T <sub>j</sub> = -15°C (if TOL | 9.92        | 9.04        |
| COP T <sub>j</sub> = -15°C (if TOL             | 2.26        | 1.81        |
| C <sub>dh</sub> T <sub>j</sub> = -15 °C        | 0.990       | 0.990       |

#### EN 12102-1 | Warmer Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 58 dB(A)        | 60 dB(A)           |

#### EN 14825 | Warmer Climate

|   | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| η <sub>s</sub>  | 250 %           | 172 %              |
| Prated  | 11.35 kW        | 11.06 kW           |
| SCOP  | 6.32            | 4.38               |
| T <sub>biv</sub>  | 2 °C            | 2 °C               |
| TOL   | 2 °C            | 2 °C               |
| P <sub>dh</sub> T <sub>j</sub> = +2°C   | 11.35 kW        | 11.06 kW           |
| COP T <sub>j</sub> = +2°C   | 3.23            | 2.21               |
| C <sub>dh</sub> T <sub>j</sub> = +2 °C  | 0.99            | 0.99               |
| P <sub>dh</sub> T <sub>j</sub> = +7°C   | 7.41 kW         | 7.19 kW            |
| COP T <sub>j</sub> = +7°C   | 5.97            | 3.82               |
| C <sub>dh</sub> T <sub>j</sub> = +7 °C  | 0.97            | 0.98               |
| P <sub>dh</sub> T <sub>j</sub> = 12°C   | 6.63 kW         | 6.33 kW            |
| COP T <sub>j</sub> = 12°C   | 8.20            | 5.97               |
| C <sub>dh</sub> T <sub>j</sub> = +12 °C   | 0.95            | 0.96               |
| P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>   | 11.35 kW        | 11.06 kW           |
| COP T <sub>j</sub> = T <sub>biv</sub>   | 3.23            | 2.21               |
| 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> | 11.35 kW        | 11.06 kW           |
| COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>                         | 3.23            | 2.21               |
| WTOL  | 70 °C           | 70 °C              |
| Poff  | 8 W             | 8 W                |
| PTO   | 45 W            | 45 W               |
| PSB   | 45 W            | 45 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  $Q_{he}$ 

2399 kWh

3378 kWh

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## Model HA 12-6 O

|                                     |                                |
|-------------------------------------|--------------------------------|
| Model name                          | HA 12-6 O                      |
| Application                         | Heating (medium temp)          |
| Units                               | 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     | 3x400V 50Hz |
| Off-peak product | n/a         |

## Outdoor Air/Water

### 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 12102-1 | Average Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 58 dB(A)        | 60 dB(A)           |

### EN 14825 | Average Climate

|                 | Low temperature | Medium temperature |
|-----------------|-----------------|--------------------|
| $\eta_s$        | 195 %           | 147 %              |
| Prated          | 12.73 kW        | 11.81 kW           |
| SCOP            | 4.96            | 3.75               |
| Tbiv            | -7 °C           | -7 °C              |
| TOL             | -10 °C          | -10 °C             |
| Pdh Tj = -7°C   | 11.27 kW        | 10.45 kW           |
| COP Tj = -7°C   | 2.58            | 2.10               |
| Cdh Tj = -7 °C  | 0.990           | 0.990              |
| Pdh Tj = +2°C   | 6.99 kW         | 6.43 kW            |
| COP Tj = +2°C   | 5.17            | 3.73               |
| Cdh Tj = +2 °C  | 0.960           | 0.970              |
| Pdh Tj = +7°C   | 5.81 kW         | 5.65 kW            |
| COP Tj = +7°C   | 6.87            | 5.27               |
| Cdh Tj = +7 °C  | 0.950           | 0.960              |
| Pdh Tj = 12°C   | 6.77 kW         | 6.58 kW            |
| COP Tj = 12°C   | 8.66            | 6.64               |
| Cdh Tj = +12 °C | 0.940           | 0.950              |
| Pdh Tj = Tbiv   | 11.27 kW        | 10.45 kW           |
| COP Tj = Tbiv   | 2.58            | 2.10               |

|   |             |             |
|---|-------------|-------------|
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 9.85 kW     | 9.83 kW     |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.29        | 1.87        |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |             |             |
| WTOL  | 70 °C       | 70 °C       |
| Poff  | 14 W        | 14 W        |
| PTO   | 51 W        | 51 W        |
| PSB   | 51 W        | 51 W        |
| PCK   | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input          | Electricity | Electricity |
| Supplementary Heater: PSUP                          | 2.89 kW     | 1.98 kW     |
| Annual energy consumption Qhe                       | 5313 kWh    | 6511 kWh    |

#### EN 12102-1 | Colder Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 58 dB(A)        | 60 dB(A)           |

#### EN 14825 | Colder Climate

|   | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| $\eta_s$  | 170 %           | 128 %              |
| Prated  | 12.16 kW        | 11.09 kW           |
| SCOP  | 4.32            | 3.28               |
| Tbiv  | -15 °C          | -15 °C             |
| TOL   | -20 °C          | -20 °C             |
| Pdh Tj = -7°C                                       | 6.93 kW         | 7.06 kW            |
| COP Tj = -7°C                                       | 3.72            | 2.65               |
| Cdh Tj = -7 °C                                      | 0.970           | 0.980              |
| Pdh Tj = +2°C                                       | 5.11 kW         | 4.83 kW            |
| COP Tj = +2°C                                       | 5.51            | 4.20               |
| Cdh Tj = +2 °C                                      | 0.950           | 0.960              |
| Pdh Tj = +7°C                                       | 5.82 kW         | 5.62 kW            |
| COP Tj = +7°C                                       | 7.14            | 5.61               |
| Cdh Tj = +7 °C                                      | 0.940           | 0.950              |
| Pdh Tj = 12°C                                       | 6.69 kW         | 6.55 kW            |
| COP Tj = 12°C                                       | 8.51            | 6.95               |
| Cdh Tj = +12 °C                                     | 0.940           | 0.950              |
| Pdh Tj = Tbiv                                       | 9.92 kW         | 9.04 kW            |
| COP Tj = Tbiv                                       | 2.26            | 1.81               |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 8.71 kW         | 7.73 kW            |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.03            | 1.50               |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |                 |                    |

|  |             |             |
|--|-------------|-------------|
| WTOL                                       | 70 °C       | 70 °C       |
| Poff                                       | 14 W        | 14 W        |
| PTO  | 51 W        | 51 W        |
| PSB  | 51 W        | 51 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP                 | 12.16 kW    | 11.09 kW    |
| Annual energy consumption Qhe              | 6936 kWh    | 8334 kWh    |
| Pdh Tj = -15°C (if TOL                     | 9.92        | 9.04        |
| COP Tj = -15°C (if TOL                     | 2.26        | 1.81        |
| Cdh Tj = -15 °C                            | 0.990       | 0.990       |

#### EN 12102-1 | Warmer Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 58 dB(A)        | 60 dB(A)           |

#### EN 14825 | Warmer Climate

|   | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| $\eta_s$  | 254 %           | 173 %              |
| Prated  | 11.35 kW        | 11.06 kW           |
| SCOP  | 6.41            | 4.42               |
| Tbiv  | 2 °C            | 2 °C               |
| TOL   | 2 °C            | 2 °C               |
| Pdh Tj = +2°C                                       | 11.35 kW        | 11.06 kW           |
| COP Tj = +2°C                                       | 3.23            | 2.21               |
| Cdh Tj = +2 °C                                      | 0.99            | 0.99               |
| Pdh Tj = +7°C                                       | 7.41 kW         | 7.19 kW            |
| COP Tj = +7°C                                       | 5.97            | 3.82               |
| Cdh Tj = +7 °C                                      | 0.96            | 0.97               |
| Pdh Tj = 12°C                                       | 6.63 kW         | 6.33 kW            |
| COP Tj = 12°C                                       | 8.20            | 5.97               |
| Cdh Tj = +12 °C                                     | 0.94            | 0.95               |
| Pdh Tj = Tbiv                                       | 11.35 kW        | 11.06 kW           |
| COP Tj = Tbiv                                       | 3.23            | 2.21               |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 11.35 kW        | 11.06 kW           |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.23            | 2.21               |
| WTOL  | 70 °C           | 70 °C              |
| Poff  | 14 W            | 14 W               |
| PTO   | 51 W            | 51 W               |
| PSB   | 51 W            | 51 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  $Q_{he}$ 

2363 kWh

3354 kWh

---

## Model HA 12-6 O B2

|                                     |                                |
|-------------------------------------|--------------------------------|
| Model name                          | HA 12-6 O B2                   |
| Application                         | Heating (medium temp)          |
| Units                               | Outdoor                        |
| Climate zone (for heating)          | Warmer Climate, Colder Climate |
| Cooling mode application (optional) | n/a                            |
| Any additional heat sources         | n/a                            |

## General data

|                  |             |
|------------------|-------------|
| Power supply     | 3x400V 50Hz |
| Off-peak product | n/a         |

## Outdoor Air/Water

### 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 12102-1 | Average Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 59 dB(A)        | 59 dB(A)           |

### EN 14825 | Average Climate

|                 | Low temperature | Medium temperature |
|-----------------|-----------------|--------------------|
| $\eta_s$        | 193 %           | 146 %              |
| Prated          | 12.73 kW        | 11.81 kW           |
| SCOP            | 4.90            | 3.72               |
| Tbiv            | -7 °C           | -7 °C              |
| TOL             | -10 °C          | -10 °C             |
| Pdh Tj = -7°C   | 11.27 kW        | 10.45 kW           |
| COP Tj = -7°C   | 2.58            | 2.10               |
| Cdh Tj = -7 °C  | 0.990           | 0.990              |
| Pdh Tj = +2°C   | 6.99 kW         | 6.43 kW            |
| COP Tj = +2°C   | 5.17            | 3.73               |
| Cdh Tj = +2 °C  | 0.960           | 0.970              |
| Pdh Tj = +7°C   | 5.81 kW         | 5.65 kW            |
| COP Tj = +7°C   | 6.87            | 5.27               |
| Cdh Tj = +7 °C  | 0.950           | 0.960              |
| Pdh Tj = 12°C   | 6.77 kW         | 6.58 kW            |
| COP Tj = 12°C   | 8.66            | 6.64               |
| Cdh Tj = +12 °C | 0.940           | 0.950              |
| Pdh Tj = Tbiv   | 11.27 kW        | 10.45 kW           |
| COP Tj = Tbiv   | 2.58            | 2.10               |

|   |             |             |
|---|-------------|-------------|
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 9.85 kW     | 9.83 kW     |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.29        | 1.87        |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |             |             |
| WTOL  | 70 °C       | 70 °C       |
| Poff  | 14 W        | 14 W        |
| PTO   | 51 W        | 51 W        |
| PSB   | 51 W        | 51 W        |
| PCK   | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input          | Electricity | Electricity |
| Supplementary Heater: PSUP                          | 2.89 kW     | 1.98 kW     |
| Annual energy consumption Qhe                       | 5366 kWh    | 6563 kWh    |

#### EN 12102-1 | Colder Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 59 dB(A)        | 59 dB(A)           |

#### EN 14825 | Colder Climate

|   | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| $\eta_s$  | 169 %           | 128 %              |
| Prated  | 12.16 kW        | 11.09 kW           |
| SCOP  | 4.31            | 3.27               |
| Tbiv  | -15 °C          | -15 °C             |
| TOL   | -20 °C          | -20 °C             |
| Pdh Tj = -7°C                                       | 6.93 kW         | 7.06 kW            |
| COP Tj = -7°C                                       | 3.72            | 2.65               |
| Cdh Tj = -7 °C                                      | 0.970           | 0.980              |
| Pdh Tj = +2°C                                       | 5.11 kW         | 4.83 kW            |
| COP Tj = +2°C                                       | 5.51            | 4.20               |
| Cdh Tj = +2 °C                                      | 0.950           | 0.960              |
| Pdh Tj = +7°C                                       | 5.82 kW         | 5.62 kW            |
| COP Tj = +7°C                                       | 7.14            | 5.61               |
| Cdh Tj = +7 °C                                      | 0.940           | 0.950              |
| Pdh Tj = 12°C                                       | 6.69 kW         | 6.55 kW            |
| COP Tj = 12°C                                       | 8.51            | 6.95               |
| Cdh Tj = +12 °C                                     | 0.950           | 0.960              |
| Pdh Tj = Tbiv                                       | 9.92 kW         | 9.04 kW            |
| COP Tj = Tbiv                                       | 2.26            | 1.81               |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 8.71 kW         | 7.73 kW            |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.03            | 1.50               |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |                 |                    |

|  |             |             |
|--|-------------|-------------|
| WTOL   | 70 °C       | 70 °C       |
| Poff   | 14 W        | 14 W        |
| PTO  | 51 W        | 51 W        |
| PSB  | 51 W        | 51 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input     | Electricity | Electricity |
| Supplementary Heater: PSUP                     | 12.16 kW    | 11.09 kW    |
| Annual energy consumption Q <sub>he</sub>      | 6954 kWh    | 8365 kWh    |
| P <sub>dh</sub> T <sub>j</sub> = -15°C (if TOL | 9.92        | 9.04        |
| COP T <sub>j</sub> = -15°C (if TOL             | 2.26        | 1.81        |
| C <sub>dh</sub> T <sub>j</sub> = -15 °C        | 0.990       | 0.990       |

#### EN 12102-1 | Warmer Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 59 dB(A)        | 59 dB(A)           |

#### EN 14825 | Warmer Climate

|   | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| η <sub>s</sub>  | 250 %           | 170 %              |
| Prated  | 11.35 kW        | 11.06 kW           |
| SCOP  | 6.32            | 4.33               |
| T <sub>biv</sub>  | 2 °C            | 2 °C               |
| TOL   | 2 °C            | 2 °C               |
| P <sub>dh</sub> T <sub>j</sub> = +2°C   | 11.35 kW        | 11.06 kW           |
| COP T <sub>j</sub> = +2°C   | 3.23            | 2.21               |
| C <sub>dh</sub> T <sub>j</sub> = +2 °C  | 0.99            | 0.99               |
| P <sub>dh</sub> T <sub>j</sub> = +7°C   | 7.41 kW         | 7.19 kW            |
| COP T <sub>j</sub> = +7°C   | 5.97            | 3.82               |
| C <sub>dh</sub> T <sub>j</sub> = +7 °C  | 0.96            | 0.97               |
| P <sub>dh</sub> T <sub>j</sub> = 12°C   | 6.63 kW         | 6.33 kW            |
| COP T <sub>j</sub> = 12°C   | 8.20            | 5.97               |
| C <sub>dh</sub> T <sub>j</sub> = +12 °C   | 0.94            | 0.95               |
| P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>   | 11.35 kW        | 11.06 kW           |
| COP T <sub>j</sub> = T <sub>biv</sub>   | 3.23            | 2.21               |
| 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> | 11.35 kW        | 11.06 kW           |
| COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>                         | 3.23            | 2.21               |
| WTOL  | 70 °C           | 70 °C              |
| Poff  | 14 W            | 14 W               |
| PTO   | 51 W            | 51 W               |
| PSB   | 51 W            | 51 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  $Q_{he}$ 

2399 kWh

3417 kWh

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## Model HA 15-6 O 230V B3

|                                     |                                |
|-------------------------------------|--------------------------------|
| Model name                          | HA 15-6 O 230V B3              |
| Application                         | Heating (medium temp)          |
| Units                               | 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 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 12102-1 | Average Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 61 dB(A)        | 61 dB(A)           |

### EN 14825 | Average Climate

|                 | Low temperature | Medium temperature |
|-----------------|-----------------|--------------------|
| $\eta_s$        | 187 %           | 144 %              |
| Prated          | 12.69 kW        | 12.00 kW           |
| SCOP            | 4.74            | 3.66               |
| Tbiv            | -7 °C           | -10 °C             |
| TOL             | -10 °C          | -10 °C             |
| Pdh Tj = -7°C   | 11.23 kW        | 10.62 kW           |
| COP Tj = -7°C   | 2.46            | 2.08               |
| Cdh Tj = -7 °C  | 0.990           | 0.990              |
| Pdh Tj = +2°C   | 6.98 kW         | 6.54 kW            |
| COP Tj = +2°C   | 4.88            | 3.68               |
| Cdh Tj = +2 °C  | 0.970           | 0.980              |
| Pdh Tj = +7°C   | 5.79 kW         | 5.43 kW            |
| COP Tj = +7°C   | 6.54            | 4.91               |
| Cdh Tj = +7 °C  | 0.950           | 0.960              |
| Pdh Tj = 12°C   | 6.65 kW         | 6.31 kW            |
| COP Tj = 12°C   | 9.06            | 6.32               |
| Cdh Tj = +12 °C | 0.940           | 0.960              |
| Pdh Tj = Tbiv   | 11.23 kW        | 11.05 kW           |
| COP Tj = Tbiv   | 2.46            | 1.75               |

|   |             |             |
|---|-------------|-------------|
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 9.82 kW     | 11.05 kW    |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.23        | 1.75        |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |             |             |
| WTOL  | 55 °C       | 55 °C       |
| Poff  | 8 W         | 8 W         |
| PTO   | 45 W        | 45 W        |
| PSB   | 45 W        | 45 W        |
| PCK   | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input          | Electricity | Electricity |
| Supplementary Heater: PSUP                          | 2.87 kW     | 0.00 kW     |
| Annual energy consumption Qhe                       | 5532 kWh    | 6767 kWh    |

#### EN 12102-1 | Colder Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 61 dB(A)        | 61 dB(A)           |

#### EN 14825 | Colder Climate

|   | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| $\eta_s$  | 168 %           | 125 %              |
| Prated  | 12.73 kW        | 12.17 kW           |
| SCOP  | 4.28            | 3.20               |
| Tbiv  | -15 °C          | -15 °C             |
| TOL   | -20 °C          | -20 °C             |
| Pdh Tj = -7°C                                       | 7.04 kW         | 7.02 kW            |
| COP Tj = -7°C                                       | 3.64            | 2.56               |
| Cdh Tj = -7 °C                                      | 0.980           | 0.980              |
| Pdh Tj = +2°C                                       | 5.16 kW         | 4.80 kW            |
| COP Tj = +2°C                                       | 5.33            | 4.08               |
| Cdh Tj = +2 °C                                      | 0.960           | 0.960              |
| Pdh Tj = +7°C                                       | 5.81 kW         | 5.55 kW            |
| COP Tj = +7°C                                       | 7.45            | 5.43               |
| Cdh Tj = +7 °C                                      | 0.950           | 0.960              |
| Pdh Tj = 12°C                                       | 6.66 kW         | 6.42 kW            |
| COP Tj = 12°C                                       | 9.04            | 6.82               |
| Cdh Tj = +12 °C                                     | 0.940           | 0.960              |
| Pdh Tj = Tbiv                                       | 10.38 kW        | 9.93 kW            |
| COP Tj = Tbiv                                       | 2.37            | 1.76               |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 8.93 kW         | 8.65 kW            |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.00            | 1.46               |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |                 |                    |

|  |             |             |
|--|-------------|-------------|
| WTOL                                       | 55 °C       | 55 °C       |
| Poff                                       | 8 W         | 8 W         |
| PTO  | 45 W        | 45 W        |
| PSB  | 45 W        | 45 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP                 | 12.73 kW    | 12.17 kW    |
| Annual energy consumption Qhe              | 7330 kWh    | 9377 kWh    |
| Pdh Tj = -15°C (if TOL                     | 10.38       | 9.93        |
| COP Tj = -15°C (if TOL                     | 2.37        | 1.76        |
| Cdh Tj = -15 °C                            | 0.990       | 0.990       |

#### EN 12102-1 | Warmer Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 61 dB(A)        | 61 dB(A)           |

#### EN 14825 | Warmer Climate

|   | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| $\eta_s$  | 245 %           | 172 %              |
| Prated  | 12.02 kW        | 12.69 kW           |
| SCOP  | 6.19            | 4.38               |
| Tbiv  | 2 °C            | 2 °C               |
| TOL   | 2 °C            | 2 °C               |
| Pdh Tj = +2°C                                       | 12.02 kW        | 12.69 kW           |
| COP Tj = +2°C                                       | 3.19            | 2.05               |
| Cdh Tj = +2 °C                                      | 0.99            | 0.99               |
| Pdh Tj = +7°C                                       | 7.55 kW         | 7.46 kW            |
| COP Tj = +7°C                                       | 5.70            | 3.87               |
| Cdh Tj = +7 °C                                      | 0.97            | 0.98               |
| Pdh Tj = 12°C                                       | 6.64 kW         | 6.19 kW            |
| COP Tj = 12°C                                       | 7.90            | 5.77               |
| Cdh Tj = +12 °C                                     | 0.95            | 0.96               |
| Pdh Tj = Tbiv                                       | 12.02 kW        | 12.69 kW           |
| COP Tj = Tbiv                                       | 3.19            | 2.05               |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 12.02 kW        | 12.69 kW           |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.19            | 2.05               |
| WTOL  | 55 °C           | 55 °C              |
| Poff  | 8 W             | 8 W                |
| PTO   | 45 W            | 45 W               |
| PSB   | 45 W            | 45 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  $Q_{he}$ 

2595 kWh

3867 kWh

---

## Model HA 15-6 O B3

|                                     |                                |
|-------------------------------------|--------------------------------|
| Model name                          | HA 15-6 O B3                   |
| Application                         | Heating (medium temp)          |
| Units                               | 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     | 3x400V 50Hz |
| Off-peak product | n/a         |

## Outdoor Air/Water

### 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 12102-1 | Average Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 61 dB(A)        | 61 dB(A)           |

### EN 14825 | Average Climate

|                 | Low temperature | Medium temperature |
|-----------------|-----------------|--------------------|
| $\eta_s$        | 186 %           | 143 %              |
| Prated          | 12.69 kW        | 12.00 kW           |
| SCOP            | 4.73            | 3.66               |
| Tbiv            | -7 °C           | -10 °C             |
| TOL             | -10 °C          | -10 °C             |
| Pdh Tj = -7°C   | 11.23 kW        | 10.62 kW           |
| COP Tj = -7°C   | 2.46            | 2.08               |
| Cdh Tj = -7 °C  | 0.990           | 0.990              |
| Pdh Tj = +2°C   | 6.98 kW         | 6.54 kW            |
| COP Tj = +2°C   | 4.88            | 3.68               |
| Cdh Tj = +2 °C  | 0.970           | 0.970              |
| Pdh Tj = +7°C   | 5.79 kW         | 5.43 kW            |
| COP Tj = +7°C   | 6.54            | 4.91               |
| Cdh Tj = +7 °C  | 0.950           | 0.960              |
| Pdh Tj = 12°C   | 6.65 kW         | 6.31 kW            |
| COP Tj = 12°C   | 9.06            | 6.32               |
| Cdh Tj = +12 °C | 0.940           | 0.950              |
| Pdh Tj = Tbiv   | 11.23 kW        | 11.05 kW           |
| COP Tj = Tbiv   | 2.46            | 1.75               |

|   |             |             |
|---|-------------|-------------|
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 9.82 kW     | 11.05 kW    |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.23        | 1.75        |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |             |             |
| WTOL  | 55 °C       | 55 °C       |
| Poff  | 14 W        | 14 W        |
| PTO   | 51 W        | 51 W        |
| PSB   | 51 W        | 51 W        |
| PCK   | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input          | Electricity | Electricity |
| Supplementary Heater: PSUP                          | 2.87 kW     | 0.00 kW     |
| Annual energy consumption Qhe                       | 5542 kWh    | 6776 kWh    |

#### EN 12102-1 | Colder Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 61 dB(A)        | 61 dB(A)           |

#### EN 14825 | Colder Climate

|   | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| $\eta_s$  | 168 %           | 125 %              |
| Prated  | 12.73 kW        | 12.17 kW           |
| SCOP  | 4.27            | 3.20               |
| Tbiv  | -15 °C          | -15 °C             |
| TOL   | -20 °C          | -20 °C             |
| Pdh Tj = -7°C                                       | 7.04 kW         | 7.02 kW            |
| COP Tj = -7°C                                       | 3.64            | 2.56               |
| Cdh Tj = -7 °C                                      | 0.970           | 0.980              |
| Pdh Tj = +2°C                                       | 5.16 kW         | 4.80 kW            |
| COP Tj = +2°C                                       | 5.33            | 4.08               |
| Cdh Tj = +2 °C                                      | 0.950           | 0.960              |
| Pdh Tj = +7°C                                       | 5.81 kW         | 5.55 kW            |
| COP Tj = +7°C                                       | 7.45            | 5.43               |
| Cdh Tj = +7 °C                                      | 0.940           | 0.950              |
| Pdh Tj = 12°C                                       | 6.66 kW         | 6.42 kW            |
| COP Tj = 12°C                                       | 9.04            | 6.82               |
| Cdh Tj = +12 °C                                     | 0.940           | 0.950              |
| Pdh Tj = Tbiv                                       | 10.38 kW        | 9.93 kW            |
| COP Tj = Tbiv                                       | 2.37            | 1.76               |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 8.93 kW         | 8.65 kW            |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.00            | 1.46               |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |                 |                    |

|  |             |             |
|--|-------------|-------------|
| WTOL   | 55 °C       | 55 °C       |
| Poff   | 14 W        | 14 W        |
| PTO  | 51 W        | 51 W        |
| PSB  | 51 W        | 51 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input     | Electricity | Electricity |
| Supplementary Heater: PSUP                     | 12.73 kW    | 12.17 kW    |
| Annual energy consumption Q <sub>he</sub>      | 7341 kWh    | 9386 kWh    |
| P <sub>dh</sub> T <sub>j</sub> = -15°C (if TOL | 10.38       | 9.93        |
| COP T <sub>j</sub> = -15°C (if TOL             | 2.37        | 1.76        |
| C <sub>dh</sub> T <sub>j</sub> = -15 °C        | 0.990       | 0.990       |

#### EN 12102-1 | Warmer Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 61 dB(A)        | 61 dB(A)           |

#### EN 14825 | Warmer Climate

|   | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| η <sub>s</sub>  | 244 %           | 172 %              |
| Prated  | 12.02 kW        | 12.69 kW           |
| SCOP  | 6.16            | 4.37               |
| T <sub>biv</sub>  | 2 °C            | 2 °C               |
| TOL   | 2 °C            | 2 °C               |
| P <sub>dh</sub> T <sub>j</sub> = +2°C   | 12.02 kW        | 12.69 kW           |
| COP T <sub>j</sub> = +2°C   | 3.19            | 2.05               |
| C <sub>dh</sub> T <sub>j</sub> = +2 °C  | 0.99            | 0.99               |
| P <sub>dh</sub> T <sub>j</sub> = +7°C   | 7.55 kW         | 7.46 kW            |
| COP T <sub>j</sub> = +7°C   | 5.70            | 3.87               |
| C <sub>dh</sub> T <sub>j</sub> = +7 °C  | 0.96            | 0.97               |
| P <sub>dh</sub> T <sub>j</sub> = 12°C   | 6.64 kW         | 6.19 kW            |
| COP T <sub>j</sub> = 12°C   | 7.90            | 5.77               |
| C <sub>dh</sub> T <sub>j</sub> = +12 °C   | 0.94            | 0.96               |
| P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>   | 12.02 kW        | 12.69 kW           |
| COP T <sub>j</sub> = T <sub>biv</sub>   | 3.19            | 2.05               |
| 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> | 12.02 kW        | 12.69 kW           |
| COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>                         | 3.19            | 2.05               |
| WTOL  | 55 °C           | 55 °C              |
| Poff  | 14 W            | 14 W               |
| PTO   | 51 W            | 51 W               |
| PSB   | 51 W            | 51 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  $Q_{he}$ 

2606 kWh

3878 kWh

---

## Model HA 10-6 O 230V

|                                     |                                |
|-------------------------------------|--------------------------------|
| Model name                          | HA 10-6 O 230V                 |
| Application                         | Heating (medium temp)          |
| Units                               | 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 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 12102-1 | Average Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 58 dB(A)        | 60 dB(A)           |

### EN 14825 | Average Climate

|                 | Low temperature | Medium temperature |
|-----------------|-----------------|--------------------|
| $\eta_s$        | 199 %           | 143 %              |
| Prated          | 8.86 kW         | 9.09 kW            |
| SCOP            | 5.05            | 3.66               |
| Tbiv            | -10 °C          | -10 °C             |
| TOL             | -10 °C          | -10 °C             |
| Pdh Tj = -7°C   | 7.84 kW         | 8.04 kW            |
| COP Tj = -7°C   | 3.21            | 2.20               |
| Cdh Tj = -7 °C  | 0.980           | 0.990              |
| Pdh Tj = +2°C   | 4.92 kW         | 4.77 kW            |
| COP Tj = +2°C   | 5.06            | 3.63               |
| Cdh Tj = +2 °C  | 0.960           | 0.970              |
| Pdh Tj = +7°C   | 5.65 kW         | 5.37 kW            |
| COP Tj = +7°C   | 6.65            | 4.92               |
| Cdh Tj = +7 °C  | 0.950           | 0.960              |
| Pdh Tj = 12°C   | 6.62 kW         | 6.30 kW            |
| COP Tj = 12°C   | 8.41            | 6.34               |
| Cdh Tj = +12 °C | 0.950           | 0.960              |
| Pdh Tj = Tbiv   | 8.93 kW         | 9.03 kW            |
| COP Tj = Tbiv   | 2.58            | 1.87               |

|   |             |             |
|---|-------------|-------------|
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 8.93 kW     | 9.03 kW     |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.58        | 1.87        |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 0.990       |             |
| WTOL  | 55 °C       | 55 °C       |
| Poff  | 8 W         | 8 W         |
| PTO   | 45 W        | 45 W        |
| PSB   | 45 W        | 45 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                       | 3623 kWh    | 5135 kWh    |

#### EN 12102-1 | Colder Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 58 dB(A)        | 60 dB(A)           |

#### EN 14825 | Colder Climate

|   | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| $\eta_s$  | 172 %           | 125 %              |
| Prated  | 7.61 kW         | 7.38 kW            |
| SCOP  | 4.37            | 3.21               |
| Tbiv  | -20 °C          | -20 °C             |
| TOL   | -20 °C          | -20 °C             |
| Pdh Tj = -7°C                                       | 4.50 kW         | 4.50 kW            |
| COP Tj = -7°C                                       | 3.79            | 2.65               |
| Cdh Tj = -7 °C                                      | 0.970           | 0.970              |
| Pdh Tj = +2°C                                       | 5.00 kW         | 4.62 kW            |
| COP Tj = +2°C                                       | 5.34            | 3.96               |
| Cdh Tj = +2 °C                                      | 0.960           | 0.960              |
| Pdh Tj = +7°C                                       | 5.67 kW         | 5.47 kW            |
| COP Tj = +7°C                                       | 6.89            | 5.34               |
| Cdh Tj = +7 °C                                      | 0.950           | 0.960              |
| Pdh Tj = 12°C                                       | 6.60 kW         | 6.38 kW            |
| COP Tj = 12°C                                       | 8.30            | 6.70               |
| Cdh Tj = +12 °C                                     | 0.950           | 0.960              |
| Pdh Tj = Tbiv                                       | 7.21 kW         | 6.99 kW            |
| COP Tj = Tbiv                                       | 2.14            | 1.53               |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 7.21 kW         | 6.99 kW            |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.14            | 1.53               |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |                 |                    |

|  |             |             |
|--|-------------|-------------|
| WTOL   | 55 °C       | 55 °C       |
| Poff   | 8 W         | 8 W         |
| PTO  | 45 W        | 45 W        |
| PSB  | 45 W        | 45 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input     | Electricity | Electricity |
| Supplementary Heater: PSUP                     | 7.61 kW     | 7.38 kW     |
| Annual energy consumption Q <sub>he</sub>      | 4296 kWh    | 5673 kWh    |
| P <sub>dh</sub> T <sub>j</sub> = -15°C (if TOL |             |             |
| COP T <sub>j</sub> = -15°C (if TOL             |             |             |
| C <sub>dh</sub> T <sub>j</sub> = -15 °C        |             |             |

#### EN 12102-1 | Warmer Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 58 dB(A)        | 60 dB(A)           |

#### EN 14825 | Warmer Climate

|   | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| η <sub>s</sub>  | 254 %           | 175 %              |
| Prated  | 10.42 kW        | 10.36 kW           |
| SCOP  | 6.42            | 4.46               |
| T <sub>biv</sub>  | 2 °C            | 2 °C               |
| TOL   | 2 °C            | 2 °C               |
| P <sub>dh</sub> T <sub>j</sub> = +2°C   | 10.42 kW        | 10.36 kW           |
| COP T <sub>j</sub> = +2°C   | 3.42            | 2.32               |
| C <sub>dh</sub> T <sub>j</sub> = +2 °C  | 0.99            | 0.99               |
| P <sub>dh</sub> T <sub>j</sub> = +7°C   | 6.71 kW         | 6.37 kW            |
| COP T <sub>j</sub> = +7°C   | 6.07            | 3.95               |
| C <sub>dh</sub> T <sub>j</sub> = +7 °C  | 0.96            | 0.97               |
| P <sub>dh</sub> T <sub>j</sub> = 12°C   | 6.58 kW         | 6.20 kW            |
| COP T <sub>j</sub> = 12°C   | 8.09            | 5.85               |
| C <sub>dh</sub> T <sub>j</sub> = +12 °C   | 0.95            | 0.96               |
| P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>   | 10.42 kW        | 10.36 kW           |
| COP T <sub>j</sub> = T <sub>biv</sub>   | 3.42            | 2.32               |
| 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> | 10.42 kW        | 10.36 kW           |
| COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>                         | 3.42            | 2.32               |
| WTOL  | 55 °C           | 55 °C              |
| Poff  | 8 W             | 8 W                |
| PTO   | 45 W            | 45 W               |
| PSB   | 45 W            | 45 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  $Q_{he}$ 

2167 kWh

3104 kWh

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## Model HA 10-6 O 230V B2

|                                     |                                |
|-------------------------------------|--------------------------------|
| Model name                          | HA 10-6 O 230V B2              |
| Application                         | Heating (medium temp)          |
| Units                               | Outdoor                        |
| Climate zone (for heating)          | Warmer Climate, Colder Climate |
| 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 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 12102-1 | Average Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 58 dB(A)        | 60 dB(A)           |

### EN 14825 | Average Climate

|                 | Low temperature | Medium temperature |
|-----------------|-----------------|--------------------|
| $\eta_s$        | 197 %           | 142 %              |
| Prated          | 8.86 kW         | 9.09 kW            |
| SCOP            | 5.01            | 3.64               |
| Tbiv            | -10 °C          | -10 °C             |
| TOL             | -10 °C          | -10 °C             |
| Pdh Tj = -7°C   | 7.84 kW         | 8.04 kW            |
| COP Tj = -7°C   | 3.21            | 2.20               |
| Cdh Tj = -7 °C  | 0.980           | 0.990              |
| Pdh Tj = +2°C   | 4.92 kW         | 4.77 kW            |
| COP Tj = +2°C   | 5.06            | 3.63               |
| Cdh Tj = +2 °C  | 0.960           | 0.970              |
| Pdh Tj = +7°C   | 5.65 kW         | 5.37 kW            |
| COP Tj = +7°C   | 6.65            | 4.92               |
| Cdh Tj = +7 °C  | 0.950           | 0.960              |
| Pdh Tj = 12°C   | 6.62 kW         | 6.30 kW            |
| COP Tj = 12°C   | 8.41            | 6.34               |
| Cdh Tj = +12 °C | 0.950           | 0.960              |
| Pdh Tj = Tbiv   | 8.93 kW         | 9.03 kW            |
| COP Tj = Tbiv   | 2.58            | 1.87               |

|   |             |             |
|---|-------------|-------------|
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 8.93 kW     | 9.03 kW     |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.58        | 1.87        |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |             |             |
| WTOL  | 55 °C       | 55 °C       |
| Poff  | 8 W         | 8 W         |
| PTO   | 45 W        | 45 W        |
| PSB   | 45 W        | 45 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                       | 3653 kWh    | 5165 kWh    |

#### EN 12102-1 | Colder Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 58 dB(A)        | 60 dB(A)           |

#### EN 14825 | Colder Climate

|   | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| $\eta_s$  | 171 %           | 125 %              |
| Prated  | 7.61 kW         | 7.38 kW            |
| SCOP  | 4.35            | 3.20               |
| Tbiv  | -20 °C          | -20 °C             |
| TOL   | -20 °C          | -20 °C             |
| Pdh Tj = -7°C                                       | 4.50 kW         | 4.50 kW            |
| COP Tj = -7°C                                       | 3.79            | 2.65               |
| Cdh Tj = -7 °C                                      | 0.970           | 0.970              |
| Pdh Tj = +2°C                                       | 5.00 kW         | 4.62 kW            |
| COP Tj = +2°C                                       | 5.34            | 3.96               |
| Cdh Tj = +2 °C                                      | 0.960           | 0.960              |
| Pdh Tj = +7°C                                       | 5.67 kW         | 5.47 kW            |
| COP Tj = +7°C                                       | 6.89            | 5.34               |
| Cdh Tj = +7 °C                                      | 0.950           | 0.960              |
| Pdh Tj = 12°C                                       | 6.60 kW         | 6.38 kW            |
| COP Tj = 12°C                                       | 8.30            | 6.70               |
| Cdh Tj = +12 °C                                     | 0.950           | 0.960              |
| Pdh Tj = Tbiv                                       | 7.21 kW         | 6.99 kW            |
| COP Tj = Tbiv                                       | 2.14            | 1.53               |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 7.21 kW         | 6.99 kW            |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.14            | 1.53               |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |                 |                    |

|  |             |             |
|--|-------------|-------------|
| WTOL   | 55 °C       | 55 °C       |
| Poff   | 8 W         | 8 W         |
| PTO  | 45 W        | 45 W        |
| PSB  | 45 W        | 45 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input     | Electricity | Electricity |
| Supplementary Heater: PSUP                     | 7.61 kW     | 7.38 kW     |
| Annual energy consumption Q <sub>he</sub>      | 4314 kWh    | 5691 kWh    |
| P <sub>dh</sub> T <sub>j</sub> = -15°C (if TOL |             |             |
| COP T <sub>j</sub> = -15°C (if TOL             |             |             |
| C <sub>dh</sub> T <sub>j</sub> = -15 °C        |             |             |

#### EN 12102-1 | Warmer Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 58 dB(A)        | 60 dB(A)           |

#### EN 14825 | Warmer Climate

|   | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| η <sub>s</sub>  | 250 %           | 173 %              |
| Prated  | 10.42 kW        | 10.36 kW           |
| SCOP  | 6.32            | 4.41               |
| T <sub>biv</sub>  | 2 °C            | 2 °C               |
| TOL   | 2 °C            | 2 °C               |
| P <sub>dh</sub> T <sub>j</sub> = +2°C   | 10.42 kW        | 10.36 kW           |
| COP T <sub>j</sub> = +2°C   | 3.42            | 2.32               |
| C <sub>dh</sub> T <sub>j</sub> = +2 °C  | 0.99            | 0.99               |
| P <sub>dh</sub> T <sub>j</sub> = +7°C   | 6.71 kW         | 6.37 kW            |
| COP T <sub>j</sub> = +7°C   | 6.07            | 3.95               |
| C <sub>dh</sub> T <sub>j</sub> = +7 °C  | 0.96            | 0.97               |
| P <sub>dh</sub> T <sub>j</sub> = 12°C   | 6.58 kW         | 6.20 kW            |
| COP T <sub>j</sub> = 12°C   | 8.09            | 5.85               |
| C <sub>dh</sub> T <sub>j</sub> = +12 °C   | 0.95            | 0.96               |
| P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>   | 10.42 kW        | 10.36 kW           |
| COP T <sub>j</sub> = T <sub>biv</sub>   | 3.42            | 2.32               |
| 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> | 10.42 kW        | 10.36 kW           |
| COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>                         | 3.42            | 2.32               |
| WTOL  | 55 °C           | 55 °C              |
| Poff  | 8 W             | 8 W                |
| PTO   | 45 W            | 45 W               |
| PSB   | 45 W            | 45 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  $Q_{he}$ 

2204 kWh

3141 kWh

---

## Model HA 10-6 O

|                                     |                                |
|-------------------------------------|--------------------------------|
| Model name                          | HA 10-6 O                      |
| Application                         | Heating (medium temp)          |
| Units                               | 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     | 3x400V 50Hz |
| Off-peak product | n/a         |

## Outdoor Air/Water

### 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 12102-1 | Average Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 59 dB(A)        | 59 dB(A)           |

### EN 14825 | Average Climate

|                 | Low temperature | Medium temperature |
|-----------------|-----------------|--------------------|
| $\eta_s$        | 198 %           | 143 %              |
| Prated          | 8.86 kW         | 9.09 kW            |
| SCOP            | 5.04            | 3.65               |
| Tbiv            | -10 °C          | -10 °C             |
| TOL             | -10 °C          | -10 °C             |
| Pdh Tj = -7°C   | 7.84 kW         | 8.04 kW            |
| COP Tj = -7°C   | 3.21            | 2.20               |
| Cdh Tj = -7 °C  | 0.980           | 0.990              |
| Pdh Tj = +2°C   | 4.92 kW         | 4.77 kW            |
| COP Tj = +2°C   | 5.06            | 3.63               |
| Cdh Tj = +2 °C  | 0.950           | 0.960              |
| Pdh Tj = +7°C   | 5.65 kW         | 5.37 kW            |
| COP Tj = +7°C   | 6.65            | 4.92               |
| Cdh Tj = +7 °C  | 0.950           | 0.960              |
| Pdh Tj = 12°C   | 6.62 kW         | 6.30 kW            |
| COP Tj = 12°C   | 8.41            | 6.34               |
| Cdh Tj = +12 °C | 0.940           | 0.950              |
| Pdh Tj = Tbiv   | 8.93 kW         | 9.03 kW            |
| COP Tj = Tbiv   | 2.58            | 1.87               |

|   |             |             |
|---|-------------|-------------|
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 8.93 kW     | 9.03 kW     |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.58        | 1.87        |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |             |             |
| WTOL  | 55 °C       | 55 °C       |
| Poff  | 14 W        | 14 W        |
| PTO   | 51 W        | 51 W        |
| PSB   | 51 W        | 51 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                       | 3634 kWh    | 5146 kWh    |

#### EN 12102-1 | Colder Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 59 dB(A)        | 59 dB(A)           |

#### EN 14825 | Colder Climate

|   | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| $\eta_s$  | 171 %           | 125 %              |
| Prated  | 7.61 kW         | 7.38 kW            |
| SCOP  | 4.35            | 3.20               |
| Tbiv  | -20 °C          | -20 °C             |
| TOL   | -20 °C          | -20 °C             |
| Pdh Tj = -7°C                                       | 4.50 kW         | 4.50 kW            |
| COP Tj = -7°C                                       | 3.79            | 2.65               |
| Cdh Tj = -7 °C                                      | 0.960           | 0.970              |
| Pdh Tj = +2°C                                       | 5.00 kW         | 4.62 kW            |
| COP Tj = +2°C                                       | 5.34            | 3.96               |
| Cdh Tj = +2 °C                                      | 0.950           | 0.960              |
| Pdh Tj = +7°C                                       | 5.67 kW         | 5.47 kW            |
| COP Tj = +7°C                                       | 6.89            | 5.34               |
| Cdh Tj = +7 °C                                      | 0.940           | 0.950              |
| Pdh Tj = 12°C                                       | 6.60 kW         | 6.38 kW            |
| COP Tj = 12°C                                       | 8.30            | 6.70               |
| Cdh Tj = +12 °C                                     | 0.940           | 0.950              |
| Pdh Tj = Tbiv                                       | 7.21 kW         | 6.99 kW            |
| COP Tj = Tbiv                                       | 2.14            | 1.53               |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 7.21 kW         | 6.99 kW            |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.14            | 1.53               |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |                 |                    |

|  |             |             |
|--|-------------|-------------|
| WTOL   | 55 °C       | 55 °C       |
| Poff   | 14 W        | 14 W        |
| PTO  | 51 W        | 51 W        |
| PSB  | 51 W        | 51 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input     | Electricity | Electricity |
| Supplementary Heater: PSUP                     | 7.61 kW     | 7.38 kW     |
| Annual energy consumption Q <sub>he</sub>      | 4314 kWh    | 5692 kWh    |
| P <sub>dh</sub> T <sub>j</sub> = -15°C (if TOL |             |             |
| COP T <sub>j</sub> = -15°C (if TOL             |             |             |
| C <sub>dh</sub> T <sub>j</sub> = -15 °C        |             |             |

#### EN 12102-1 | Warmer Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 59 dB(A)        | 59 dB(A)           |

#### EN 14825 | Warmer Climate

|   | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| η <sub>s</sub>  | 252 %           | 175 %              |
| Prated  | 10.42 kW        | 10.36 kW           |
| SCOP  | 6.39            | 4.44               |
| T <sub>biv</sub>  | 2 °C            | 2 °C               |
| TOL   | 2 °C            | 2 °C               |
| P <sub>dh</sub> T <sub>j</sub> = +2°C   | 10.42 kW        | 10.36 kW           |
| COP T <sub>j</sub> = +2°C   | 3.42            | 2.32               |
| C <sub>dh</sub> T <sub>j</sub> = +2 °C  | 0.98            | 0.99               |
| P <sub>dh</sub> T <sub>j</sub> = +7°C   | 6.71 kW         | 6.37 kW            |
| COP T <sub>j</sub> = +7°C   | 6.07            | 3.95               |
| C <sub>dh</sub> T <sub>j</sub> = +7 °C  | 0.96            | 0.97               |
| P <sub>dh</sub> T <sub>j</sub> = 12°C   | 6.58 kW         | 6.20 kW            |
| COP T <sub>j</sub> = 12°C   | 8.09            | 5.85               |
| C <sub>dh</sub> T <sub>j</sub> = +12 °C   | 0.94            | 0.96               |
| P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>   | 10.42 kW        | 10.36 kW           |
| COP T <sub>j</sub> = T <sub>biv</sub>   | 3.42            | 2.32               |
| 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> | 10.42 kW        | 10.36 kW           |
| COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>                         | 3.42            | 2.32               |
| WTOL  | 55 °C           | 55 °C              |
| Poff  | 14 W            | 14 W               |
| PTO   | 51 W            | 51 W               |
| PSB   | 51 W            | 51 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  $Q_{he}$ 

2180 kWh

3117 kWh

---

## Model HA 10-6 O B2

|                                     |                                |
|-------------------------------------|--------------------------------|
| Model name                          | HA 10-6 O B2                   |
| Application                         | Heating (medium temp)          |
| Units                               | Outdoor                        |
| Climate zone (for heating)          | Warmer Climate, Colder Climate |
| Cooling mode application (optional) | n/a                            |
| Any additional heat sources         | n/a                            |

## General data

|                  |             |
|------------------|-------------|
| Power supply     | 3x400V 50Hz |
| Off-peak product | n/a         |

## Outdoor Air/Water

### 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 12102-1 | Average Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 59 dB(A)        | 59 dB(A)           |

### EN 14825 | Average Climate

|                 | Low temperature | Medium temperature |
|-----------------|-----------------|--------------------|
| $\eta_s$        | 196 %           | 141 %              |
| Prated          | 8.86 kW         | 9.09 kW            |
| SCOP            | 4.97            | 3.61               |
| Tbiv            | -10 °C          | -10 °C             |
| TOL             | -10 °C          | -10 °C             |
| Pdh Tj = -7°C   | 7.84 kW         | 8.04 kW            |
| COP Tj = -7°C   | 3.21            | 2.20               |
| Cdh Tj = -7 °C  | 0.980           | 0.990              |
| Pdh Tj = +2°C   | 4.92 kW         | 4.77 kW            |
| COP Tj = +2°C   | 5.06            | 3.63               |
| Cdh Tj = +2 °C  | 0.950           | 0.960              |
| Pdh Tj = +7°C   | 5.65 kW         | 5.37 kW            |
| COP Tj = +7°C   | 6.65            | 4.92               |
| Cdh Tj = +7 °C  | 0.950           | 0.960              |
| Pdh Tj = 12°C   | 6.62 kW         | 6.30 kW            |
| COP Tj = 12°C   | 8.41            | 6.34               |
| Cdh Tj = +12 °C | 0.940           | 0.950              |
| Pdh Tj = Tbiv   | 8.93 kW         | 9.03 kW            |
| COP Tj = Tbiv   | 2.58            | 1.87               |

|   |             |             |
|---|-------------|-------------|
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 8.93 kW     | 9.03 kW     |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.58        | 1.87        |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |             |             |
| WTOL  | 55 °C       | 55 °C       |
| Poff  | 14 W        | 14 W        |
| PTO   | 51 W        | 51 W        |
| PSB   | 51 W        | 51 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                       | 3686 kWh    | 5199 kWh    |

#### EN 12102-1 | Colder Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 59 dB(A)        | 59 dB(A)           |

#### EN 14825 | Colder Climate

|   | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| $\eta_s$  | 170 %           | 124 %              |
| Prated  | 7.61 kW         | 7.38 kW            |
| SCOP  | 4.32            | 3.18               |
| Tbiv  | -20 °C          | -20 °C             |
| TOL   | -20 °C          | -20 °C             |
| Pdh Tj = -7°C                                       | 4.50 kW         | 4.50 kW            |
| COP Tj = -7°C                                       | 3.79            | 2.65               |
| Cdh Tj = -7 °C                                      | 0.960           | 0.970              |
| Pdh Tj = +2°C                                       | 5.00 kW         | 4.62 kW            |
| COP Tj = +2°C                                       | 5.34            | 3.96               |
| Cdh Tj = +2 °C                                      | 0.950           | 0.960              |
| Pdh Tj = +7°C                                       | 5.67 kW         | 5.47 kW            |
| COP Tj = +7°C                                       | 6.89            | 5.34               |
| Cdh Tj = +7 °C                                      | 0.940           | 0.950              |
| Pdh Tj = 12°C                                       | 6.60 kW         | 6.38 kW            |
| COP Tj = 12°C                                       | 8.30            | 6.70               |
| Cdh Tj = +12 °C                                     | 0.940           | 0.950              |
| Pdh Tj = Tbiv                                       | 7.21 kW         | 6.99 kW            |
| COP Tj = Tbiv                                       | 2.14            | 1.53               |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 7.21 kW         | 6.99 kW            |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.14            | 1.53               |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |                 |                    |

|  |             |             |
|--|-------------|-------------|
| WTOL                                       | 55 °C       | 55 °C       |
| Poff                                       | 14 W        | 14 W        |
| PTO  | 51 W        | 51 W        |
| PSB  | 51 W        | 51 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP                 | 7.61 kW     | 7.38 kW     |
| Annual energy consumption Qhe              | 4345 kWh    | 5723 kWh    |
| Pdh Tj = -15°C (if TOL                     |             |             |
| COP Tj = -15°C (if TOL                     |             |             |
| Cdh Tj = -15 °C                            |             |             |

#### EN 12102-1 | Warmer Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 59 dB(A)        | 59 dB(A)           |

#### EN 14825 | Warmer Climate

|   | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| $\eta_s$  | 245 %           | 171 %              |
| Prated  | 10.42 kW        | 10.41 kW           |
| SCOP  | 6.21            | 4.35               |
| Tbiv  | 2 °C            | 2 °C               |
| TOL   | 2 °C            | 2 °C               |
| Pdh Tj = +2°C                                       | 10.42 kW        | 10.36 kW           |
| COP Tj = +2°C                                       | 3.42            | 2.32               |
| Cdh Tj = +2 °C                                      | 0.980           | 0.990              |
| Pdh Tj = +7°C                                       | 6.71 kW         | 6.37 kW            |
| COP Tj = +7°C                                       | 6.07            | 3.95               |
| Cdh Tj = +7 °C                                      | 0.960           | 0.970              |
| Pdh Tj = 12°C                                       | 6.58 kW         | 6.20 kW            |
| COP Tj = 12°C                                       | 8.09            | 5.85               |
| Cdh Tj = +12 °C                                     | 0.940           | 0.960              |
| Pdh Tj = Tbiv                                       | 10.42 kW        | 10.36 kW           |
| COP Tj = Tbiv                                       | 3.42            | 2.32               |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 10.42 kW        | 10.36 kW           |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.42            | 2.32               |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |                 |                    |
| WTOL  | 55 °C           | 55 °C              |
| Poff  | 14 W            | 14 W               |
| PTO   | 51 W            | 51 W               |
| PSB   | 51 W            | 51 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 Q <sub>he</sub>  | 2243 kWh    | 3195 kWh    |

## Model HA 12-6 O 230V B3

|                                     |                                |
|-------------------------------------|--------------------------------|
| Model name                          | HA 12-6 O 230V B3              |
| Application                         | Heating (medium temp)          |
| Units                               | 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 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 12102-1 | Average Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 58 dB(A)        | 60 dB(A)           |

### EN 14825 | Average Climate

|                 | Low temperature | Medium temperature |
|-----------------|-----------------|--------------------|
| $\eta_s$        | 200 %           | 144 %              |
| Prated          | 9.35 kW         | 9.66 kW            |
| SCOP            | 5.07            | 3.67               |
| Tbiv            | -10 °C          | -10 °C             |
| TOL             | -10 °C          | -10 °C             |
| Pdh Tj = -7°C   | 8.09 kW         | 8.64 kW            |
| COP Tj = -7°C   | 3.11            | 2.12               |
| Cdh Tj = -7 °C  | 0.99            | 0.99               |
| Pdh Tj = +2°C   | 4.90 kW         | 5.30 kW            |
| COP Tj = +2°C   | 4.98            | 3.62               |
| Cdh Tj = +2 °C  | 0.98            | 0.99               |
| Pdh Tj = +7°C   | 5.75 kW         | 5.47 kW            |
| COP Tj = +7°C   | 6.73            | 4.94               |
| Cdh Tj = +7 °C  | 0.98            | 0.98               |
| Pdh Tj = 12°C   | 6.67 kW         | 6.35 kW            |
| COP Tj = 12°C   | 8.74            | 6.50               |
| Cdh Tj = +12 °C | 0.97            | 0.98               |
| Pdh Tj = Tbiv   | 9.35 kW         | 9.66 kW            |
| COP Tj = Tbiv   | 2.58            | 1.92               |

|   |             |             |
|---|-------------|-------------|
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 9.35 kW     | 9.66 kW     |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.58        | 1.92        |
| WTOL  | 75 °C       | 75 °C       |
| Poff  | 8 W         | 8 W         |
| PTO   | 45 W        | 45 W        |
| PSB   | 45 W        | 45 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                       | 3812 kWh    | 5437 kWh    |

#### EN 12102-1 | Colder Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 58 dB(A)        | 60 dB(A)           |

#### EN 14825 | Colder Climate

|   | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| $\eta_s$  | 168 %           | 126 %              |
| Prated  | 10.24 kW        | 10.65 kW           |
| SCOP  | 4.27            | 3.24               |
| Tbiv  | -15 °C          | -15 °C             |
| TOL   | -20 °C          | -20 °C             |
| Pdh Tj = -7°C                                       | 6.34 kW         | 6.45 kW            |
| COP Tj = -7°C                                       | 3.58            | 2.58               |
| Cdh Tj = -7 °C                                      | 0.990           | 0.990              |
| Pdh Tj = +2°C                                       | 5.00 kW         | 4.70 kW            |
| COP Tj = +2°C                                       | 5.39            | 4.06               |
| Cdh Tj = +2 °C                                      | 0.980           | 0.980              |
| Pdh Tj = +7°C                                       | 5.79 kW         | 5.60 kW            |
| COP Tj = +7°C                                       | 7.02            | 5.45               |
| Cdh Tj = +7 °C                                      | 0.970           | 0.980              |
| Pdh Tj = 12°C                                       | 6.67 kW         | 6.47 kW            |
| COP Tj = 12°C                                       | 8.74            | 7.14               |
| Cdh Tj = +12 °C                                     | 0.970           | 0.980              |
| Pdh Tj = Tbiv                                       | 8.35 kW         | 8.68 kW            |
| COP Tj = Tbiv                                       | 2.41            | 1.90               |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 7.20 kW         | 7.10 kW            |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.06            | 1.48               |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |                 |                    |
| WTOL  | 75 °C           | 75 °C              |
| Poff  | 8 W             | 8 W                |

|  |             |             |
|--|-------------|-------------|
| PTO  | 45 W        | 45 W        |
| PSB  | 45 W        | 45 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input     | Electricity | Electricity |
| Supplementary Heater: PSUP                     | 10.24 kW    | 10.65 kW    |
| Annual energy consumption Q <sub>he</sub>      | 5906 kWh    | 8111 kWh    |
| P <sub>dh</sub> T <sub>j</sub> = -15°C (if TOL |             |             |
| COP T <sub>j</sub> = -15°C (if TOL             |             |             |
| C <sub>dh</sub> T <sub>j</sub> = -15 °C        |             |             |

#### EN 12102-1 | Warmer Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 58 dB(A)        | 60 dB(A)           |

#### EN 14825 | Warmer Climate

|   | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| η <sub>s</sub>  | 256 %           | 176 %              |
| Prated  | 11.16 kW        | 11.02 kW           |
| SCOP  | 6.48            | 4.47               |
| T <sub>biv</sub>  | 2 °C            | 2 °C               |
| TOL   | 2 °C            | 2 °C               |
| P <sub>dh</sub> T <sub>j</sub> = +2°C   | 11.16 kW        | 11.02 kW           |
| COP T <sub>j</sub> = +2°C   | 3.26            | 2.23               |
| C <sub>dh</sub> T <sub>j</sub> = +2 °C  | 0.99            | 1.00               |
| P <sub>dh</sub> T <sub>j</sub> = +7°C   | 7.36 kW         | 7.20 kW            |
| COP T <sub>j</sub> = +7°C   | 5.90            | 3.84               |
| C <sub>dh</sub> T <sub>j</sub> = +7 °C  | 0.98            | 0.99               |
| P <sub>dh</sub> T <sub>j</sub> = 12°C   | 6.53 kW         | 6.25 kW            |
| COP T <sub>j</sub> = 12°C   | 8.26            | 5.95               |
| C <sub>dh</sub> T <sub>j</sub> = +12 °C   | 0.97            | 0.98               |
| P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>   | 11.16 kW        | 11.02 kW           |
| COP T <sub>j</sub> = T <sub>biv</sub>   | 3.26            | 2.23               |
| 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> | 11.16 kW        | 11.02 kW           |
| COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>                         | 3.26            | 2.23               |
| WTOL  | 75 °C           | 75 °C              |
| P <sub>off</sub>  | 8 W             | 8 W                |
| PTO   | 45 W            | 45 W               |
| PSB   | 45 W            | 45 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 Q <sub>he</sub>   | 2303 kWh        | 3295 kWh           |

## Model HA 12-6 O B3

|                                     |                                |
|-------------------------------------|--------------------------------|
| Model name                          | HA 12-6 O B3                   |
| Application                         | Heating (medium temp)          |
| Units                               | 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     | 3x400V 50Hz |
| Off-peak product | n/a         |

## Outdoor Air/Water

### 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 12102-1 | Average Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 58 dB(A)        | 60 dB(A)           |

### EN 14825 | Average Climate

|                 | Low temperature | Medium temperature |
|-----------------|-----------------|--------------------|
| $\eta_s$        | 200 %           | 144 %              |
| Prated          | 9.35 kW         | 9.66 kW            |
| SCOP            | 5.06            | 3.67               |
| Tbiv            | -10 °C          | -10 °C             |
| TOL             | -10 °C          | -10 °C             |
| Pdh Tj = -7°C   | 8.09 kW         | 8.64 kW            |
| COP Tj = -7°C   | 3.11            | 2.12               |
| Cdh Tj = -7 °C  | 0.99            | 0.99               |
| Pdh Tj = +2°C   | 4.90 kW         | 5.30 kW            |
| COP Tj = +2°C   | 4.98            | 3.62               |
| Cdh Tj = +2 °C  | 0.98            | 0.99               |
| Pdh Tj = +7°C   | 5.75 kW         | 5.47 kW            |
| COP Tj = +7°C   | 6.73            | 4.94               |
| Cdh Tj = +7 °C  | 0.98            | 0.98               |
| Pdh Tj = 12°C   | 6.67 kW         | 6.35 kW            |
| COP Tj = 12°C   | 8.74            | 6.50               |
| Cdh Tj = +12 °C | 0.97            | 0.98               |
| Pdh Tj = Tbiv   | 9.35 kW         | 9.66 kW            |
| COP Tj = Tbiv   | 2.58            | 1.92               |

|   |             |             |
|---|-------------|-------------|
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 9.35 kW     | 9.66 kW     |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.58        | 1.92        |
| WTOL  | 75 °C       | 75 °C       |
| Poff  | 14 W        | 14 W        |
| PTO   | 51 W        | 51 W        |
| PSB   | 51 W        | 51 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                       | 3813 kWh    | 5438 kWh    |

#### EN 12102-1 | Colder Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 58 dB(A)        | 60 dB(A)           |

#### EN 14825 | Colder Climate

|   | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| ηs  | 168 %           | 126 %              |
| Prated  | 10.24 kW        | 10.65 kW           |
| SCOP  | 4.27            | 3.24               |
| Tbiv  | -15 °C          | -15 °C             |
| TOL   | -20 °C          | -20 °C             |
| Pdh Tj = -7°C                                       | 6.34 kW         | 6.45 kW            |
| COP Tj = -7°C                                       | 3.58            | 2.58               |
| Cdh Tj = -7 °C                                      | 0.990           | 0.990              |
| Pdh Tj = +2°C                                       | 5.00 kW         | 4.70 kW            |
| COP Tj = +2°C                                       | 5.39            | 4.06               |
| Cdh Tj = +2 °C                                      | 0.980           | 0.980              |
| Pdh Tj = +7°C                                       | 5.79 kW         | 5.60 kW            |
| COP Tj = +7°C                                       | 7.02            | 5.45               |
| Cdh Tj = +7 °C                                      | 0.970           | 0.980              |
| Pdh Tj = 12°C                                       | 6.67 kW         | 6.47 kW            |
| COP Tj = 12°C                                       | 8.74            | 7.14               |
| Cdh Tj = +12 °C                                     | 0.970           | 0.980              |
| Pdh Tj = Tbiv                                       | 8.35 kW         | 8.68 kW            |
| COP Tj = Tbiv                                       | 2.41            | 1.90               |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 7.20 kW         | 7.10 kW            |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.06            | 1.48               |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |                 |                    |
| WTOL  | 75 °C           | 75 °C              |
| Poff  | 14 W            | 14 W               |

|  |             |             |
|--|-------------|-------------|
| PTO  | 51 W        | 51 W        |
| PSB  | 51 W        | 51 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input     | Electricity | Electricity |
| Supplementary Heater: PSUP                     | 10.24 kW    | 10.65 kW    |
| Annual energy consumption Q <sub>he</sub>      | 5907 kWh    | 8112 kWh    |
| P <sub>dh</sub> T <sub>j</sub> = -15°C (if TOL |             |             |
| COP T <sub>j</sub> = -15°C (if TOL             |             |             |
| C <sub>dh</sub> T <sub>j</sub> = -15 °C        |             |             |

#### EN 12102-1 | Warmer Climate

|                           | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 58 dB(A)        | 60 dB(A)           |

#### EN 14825 | Warmer Climate

|   | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| η <sub>s</sub>  | 255 %           | 175 %              |
| Prated  | 11.16 kW        | 11.02 kW           |
| SCOP  | 6.46            | 4.46               |
| T <sub>biv</sub>  | 2 °C            | 2 °C               |
| TOL   | 2 °C            | 2 °C               |
| P <sub>dh</sub> T <sub>j</sub> = +2°C   | 11.16 kW        | 11.02 kW           |
| COP T <sub>j</sub> = +2°C   | 3.26            | 2.23               |
| C <sub>dh</sub> T <sub>j</sub> = +2 °C  | 0.99            | 1.00               |
| P <sub>dh</sub> T <sub>j</sub> = +7°C   | 7.36 kW         | 7.20 kW            |
| COP T <sub>j</sub> = +7°C   | 5.90            | 3.84               |
| C <sub>dh</sub> T <sub>j</sub> = +7 °C  | 0.98            | 0.99               |
| P <sub>dh</sub> T <sub>j</sub> = 12°C   | 6.53 kW         | 6.25 kW            |
| COP T <sub>j</sub> = 12°C   | 8.26            | 5.95               |
| C <sub>dh</sub> T <sub>j</sub> = +12 °C   | 0.97            | 0.98               |
| P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>   | 11.16 kW        | 11.02 kW           |
| COP T <sub>j</sub> = T <sub>biv</sub>   | 3.26            | 2.23               |
| 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> | 11.16 kW        | 11.02 kW           |
| COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>                         | 3.26            | 2.23               |
| WTOL  | 75 °C           | 75 °C              |
| P <sub>off</sub>  | 14 W            | 14 W               |
| PTO   | 51 W            | 51 W               |
| PSB   | 51 W            | 51 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 Q <sub>he</sub>   | 2307 kWh        | 3299 kWh           |