

This information was generated by the HP KEYMARK database on 18 Mar 2022

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| | | | |
|---------------------|---------------------------------------|----------|-------------|
| Summary of | KHA KHC 08 / 10 | Reg. No. | 041-K016-02 |
| Certificate Holder | | | |
| Name | Klima-Therm Sp. z o.o | | |
| Address | Ostrobramska 101a | Zip | 04-041 |
| City | Warszawa | Country | Poland |
| Certification Body | BRE Global Limited | | |
| Subtype title | KHA KHC 08 / 10 | | |
| Heat Pump Type | Outdoor Air/Water | | |
| Refrigerant | R32 | | |
| Mass of Refrigerant | 1.65 kg | | |
| Certification Date | 22.06.2021 | | |
| Testing basis | Heat Pump Keymark Scheme Rules Rev 08 | | |

Model: KHA-08RY1

| Configure model | |
|-------------------------------------|---------------------------------|
| Model name | KHA-08RY1 |
| Application | Heating (medium temp) |
| Units | Indoor + Outdoor |
| Climate Zone | Colder Climate + Warmer Climate |
| Reversibility | Yes |
| Cooling mode application (optional) | n/a |

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

Heating

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

| EN 14511-2 | | |
|-------------|-----------------|--------------------|
| | Low temperature | Medium temperature |
| Heat output | 8.30 kW | 7.50 kW |
| El input | 1.60 kW | 2.36 kW |
| COP | 5.20 | 3.18 |

Average Climate

This information was generated by the HP KEYMARK database on 18 Mar 2022

EN 12102-1

| | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level indoor | 42 dB(A) | 42 dB(A) |
| Sound power level outdoor | 59 dB(A) | 59 dB(A) |

EN 14825

| | Low temperature | Medium temperature |
|----------------|-----------------|--------------------|
| η_s | 205 % | 132 % |
| Prated | 8.12 kW | 6.60 kW |
| SCOP | 5.21 | 3.36 |
| Tbiv | -7 °C | -7 °C |
| TOL | -10 °C | -10 °C |
| Pdh Tj = -7°C | 7.19 kW | 5.84 kW |
| COP Tj = -7°C | 3.35 | 2.16 |
| Cdh Tj = -7 °C | 0.90 | 0.90 |
| Pdh Tj = +2°C | 4.65 kW | 3.76 kW |
| COP Tj = +2°C | 5.09 | 3.30 |
| Cdh Tj = +2 °C | 0.90 | 0.90 |
| Pdh Tj = +7°C | 2.90 kW | 2.43 kW |
| COP Tj = +7°C | 6.82 | 4.34 |
| Cdh Tj = +7 °C | 0.90 | 0.90 |

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| | | |
|---|-------------|-------------|
| Pdh Tj = 12°C | 1.63 kW | 1.40 kW |
| COP Tj = 12°C | 8.35 | 5.33 |
| Cdh Tj = +12 °C | 0.90 | 0.90 |
| Pdh Tj = Tbiv | 7.19 kW | 5.84 kW |
| COP Tj = Tbiv | 3.35 | 2.16 |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 6.45 kW | 4.91 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.04 | 1.84 |
| WTOL | 65 °C | 65 °C |
| Poff | 14 W | 14 W |
| PTO | 24 W | 24 W |
| PSB | 14 W | 14 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 1.68 kW | 1.69 kW |
| Annual energy consumption Qhe | 3223 kWh | 4056 kWh |

Warmer Climate

| EN 12102-1 | | |
|---------------------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| Sound power level indoor | 42 dB(A) | 42 dB(A) |
| Sound power level outdoor | 59 dB(A) | 59 dB(A) |

This information was generated by the HP KEYMARK database on 18 Mar 2022

EN 14825

| | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| η_s | 273 % | 176 % |
| Prated | 8.12 kW | 7.56 kW |
| SCOP | 6.99 | 4.47 |
| Tbiv | 7.00 °C | 7.00 °C |
| TOL | 2.00 °C | 2.00 °C |
| Pdh Tj = +2°C | 7.57 kW | 7.55 kW |
| COP Tj = +2°C | 3.98 | 2.59 |
| Cdh Tj = +2 °C | 0.90 | 0.90 |
| Pdh Tj = +7°C | 5.22 kW | 4.86 kW |
| COP Tj = +7°C | 6.26 | 3.92 |
| Cdh Tj = +7 °C | 0.90 | 0.90 |
| Pdh Tj = 12°C | 2.45 kW | 2.32 kW |
| COP Tj = 12°C | 9.02 | 5.55 |
| Cdh Tj = +12 °C | 0.90 | 0.90 |
| Pdh Tj = Tbiv | 5.22 kW | 4.86 kW |
| COP Tj = Tbiv | 6.26 | 3.92 |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 7.57 kW | 7.55 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.98 | 2.59 |
| WTOL | 65 °C | 65 °C |

This information was generated by the HP KEYMARK database on 18 Mar 2022

| | | |
|--|-------------|-------------|
| Poff | 14 W | 14 W |
| PTO | 24 W | 24 W |
| PSB | 14 W | 14 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 0.55 kW | 0.02 kW |
| Annual energy consumption Qhe | 1569 kWh | 2259 kWh |

Colder Climate

| EN 12102-1 | | |
|---------------------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| Sound power level indoor | 42 dB(A) | 42 dB(A) |
| Sound power level outdoor | 59 dB(A) | 59 dB(A) |

| EN 14825 | | |
|-----------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| η_s | 170 % | 112 % |
| Prated | 6.98 kW | 5.78 kW |
| SCOP | 4.32 | 2.88 |
| Tbiv | -15 °C | -15 °C |
| TOL | -22 °C | -22 °C |

This information was generated by the HP KEYMARK database on 18 Mar 2022

| | | |
|---|---------|---------|
| Pdh Tj = -7°C | 4.46 kW | 3.86 kW |
| COP Tj = -7°C | 3.66 | 2.48 |
| Cdh Tj = -7 °C | 0.90 | 0.90 |
| Pdh Tj = +2°C | 2.70 kW | 2.21 kW |
| COP Tj = +2°C | 5.20 | 3.35 |
| Cdh Tj = +2 °C | 0.90 | 0.90 |
| Pdh Tj = +7°C | 1.66 kW | 1.44 kW |
| COP Tj = +7°C | 6.53 | 4.11 |
| Cdh Tj = +7 °C | 0.90 | 0.90 |
| Pdh Tj = 12°C | 1.66 kW | 1.47 kW |
| COP Tj = 12°C | 7.96 | 5.92 |
| Cdh Tj = +12 °C | 0.90 | 0.90 |
| Pdh Tj = Tbiv | 5.69 kW | 4.71 kW |
| COP Tj = Tbiv | 2.83 | 1.90 |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 4.06 kW | 2.80 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 1.95 | 1.22 |
| WTOL | 65 °C | 65 °C |
| Poff | 14 W | 14 W |
| PTO | 24 W | 24 W |
| PSB | 14 W | 14 W |
| PCK | 0 W | 0 W |

This information was generated by the HP KEYMARK database on 18 Mar 2022

| | | |
|---|-------------|-------------|
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 2.91 kW | 2.99 kW |
| Annual energy consumption Q _{he} | 3978 kWh | 4950 kWh |
| P _{dh} T _j = -15°C (if TOL<-20°C) | 5.69 | 4.71 |
| COP T _j = -15°C (if TOL<-20°C) | 2.83 | 1.90 |
| C _{dh} T _j = -15 °C | 0.90 | 0.90 |

Model: KHA-10RY1

| Configure model | |
|-------------------------------------|---------------------------------|
| Model name | KHA-10RY1 |
| Application | Heating (medium temp) |
| Units | Indoor + Outdoor |
| Climate Zone | Colder Climate + Warmer Climate |
| Reversibility | Yes |
| Cooling mode application (optional) | n/a |

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

Heating

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

| EN 14511-2 | | |
|-------------|-----------------|--------------------|
| | Low temperature | Medium temperature |
| Heat output | 10.00 kW | 9.50 kW |
| El input | 2.00 kW | 3.06 kW |
| COP | 5.00 | 3.10 |

Average Climate

EN 12102-1

| | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level indoor | 42 dB(A) | 42 dB(A) |
| Sound power level outdoor | 60 dB(A) | 60 dB(A) |

EN 14825

| | Low temperature | Medium temperature |
|----------------|-----------------|--------------------|
| η_s | 205 % | 137 % |
| Prated | 9.17 kW | 7.67 kW |
| SCOP | 5.19 | 3.49 |
| Tbiv | -7 °C | -7 °C |
| TOL | -10 °C | -10 °C |
| Pdh Tj = -7°C | 8.11 kW | 6.78 kW |
| COP Tj = -7°C | 3.23 | 2.24 |
| Cdh Tj = -7 °C | 0.90 | 0.90 |
| Pdh Tj = +2°C | 5.18 kW | 4.29 kW |
| COP Tj = +2°C | 5.01 | 3.42 |
| Cdh Tj = +2 °C | 0.90 | 0.90 |
| Pdh Tj = +7°C | 3.32 kW | 2.77 kW |
| COP Tj = +7°C | 7.08 | 4.52 |
| Cdh Tj = +7 °C | 0.90 | 0.90 |

This information was generated by the HP KEYMARK database on 18 Mar 2022

| | | |
|---|-------------|-------------|
| Pdh Tj = 12°C | 1.65 kW | 1.58 kW |
| COP Tj = 12°C | 8.58 | 5.68 |
| Cdh Tj = +12 °C | 0.90 | 0.90 |
| Pdh Tj = Tbiv | 8.11 kW | 6.78 kW |
| COP Tj = Tbiv | 3.23 | 2.24 |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 7.40 kW | 5.39 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.96 | 1.83 |
| WTOL | 65 °C | 65 °C |
| Poff | 14 W | 14 W |
| PTO | 24 W | 24 W |
| PSB | 14 W | 14 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 1.76 kW | 2.28 kW |
| Annual energy consumption Qhe | 3647 kWh | 4539 kWh |

Warmer Climate

| EN 12102-1 | | |
|---------------------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| Sound power level indoor | 42 dB(A) | 42 dB(A) |
| Sound power level outdoor | 60 dB(A) | 60 dB(A) |

This information was generated by the HP KEYMARK database on 18 Mar 2022

EN 14825

| | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| η_s | 279 % | 180 % |
| Prated | 8.58 kW | 8.63 kW |
| SCOP | 7.12 | 4.58 |
| Tbiv | 7 °C | 7 °C |
| TOL | 2 °C | 2 °C |
| Pdh Tj = +2°C | 8.44 kW | 8.06 kW |
| COP Tj = +2°C | 3.84 | 2.59 |
| Cdh Tj = +2 °C | 0.90 | 0.90 |
| Pdh Tj = +7°C | 5.52 kW | 5.55 kW |
| COP Tj = +7°C | 6.18 | 4.10 |
| Cdh Tj = +7 °C | 0.90 | 0.90 |
| Pdh Tj = 12°C | 2.62 kW | 2.53 kW |
| COP Tj = 12°C | 9.04 | 5.82 |
| Cdh Tj = +12 °C | 0.90 | 0.90 |
| Pdh Tj = Tbiv | 5.52 kW | 5.55 kW |
| COP Tj = Tbiv | 6.18 | 4.10 |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 8.44 kW | 8.16 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.84 | 2.61 |
| WTOL | 65 °C | 65 °C |

This information was generated by the HP KEYMARK database on 18 Mar 2022

| | | |
|--|-------------|-------------|
| Poff | 14 W | 14 W |
| PTO | 24 W | 24 W |
| PSB | 14 W | 14 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 0.14 kW | 0.48 kW |
| Annual energy consumption Qhe | 1628 kWh | 2516 kWh |

Colder Climate

| EN 12102-1 | | |
|---------------------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| Sound power level indoor | 42 dB(A) | 42 dB(A) |
| Sound power level outdoor | 60 dB(A) | 60 dB(A) |

| EN 14825 | | |
|-----------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| η_s | 170 % | 116 % |
| Prated | 7.75 kW | 6.71 kW |
| SCOP | 4.32 | 2.99 |
| Tbiv | -15 °C | -15 °C |
| TOL | -22 °C | -22 °C |

This information was generated by the HP KEYMARK database on 18 Mar 2022

| | | |
|---|---------|---------|
| Pdh Tj = -7°C | 4.83 kW | 4.27 kW |
| COP Tj = -7°C | 3.60 | 2.54 |
| Cdh Tj = -7 °C | 0.90 | 0.90 |
| Pdh Tj = +2°C | 2.94 kW | 2.57 kW |
| COP Tj = +2°C | 5.26 | 3.51 |
| Cdh Tj = +2 °C | 0.90 | 0.90 |
| Pdh Tj = +7°C | 1.92 kW | 1.66 kW |
| COP Tj = +7°C | 7.08 | 4.37 |
| Cdh Tj = +7 °C | 0.90 | 0.90 |
| Pdh Tj = 12°C | 1.66 kW | 1.48 kW |
| COP Tj = 12°C | 7.96 | 5.96 |
| Cdh Tj = +12 °C | 0.90 | 0.90 |
| Pdh Tj = Tbiv | 6.32 kW | 5.48 kW |
| COP Tj = Tbiv | 2.64 | 2.00 |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 4.63 kW | 2.80 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 1.97 | 1.22 |
| WTOL | 65 °C | 65 °C |
| Poff | 14 W | 14 W |
| PTO | 24 W | 24 W |
| PSB | 14 W | 14 W |
| PCK | 0 W | 0 W |

This information was generated by the HP KEYMARK database on 18 Mar 2022

| | | |
|---|-------------|-------------|
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 3.13 kW | 3.91 kW |
| Annual energy consumption Q _{he} | 4424 kWh | 5540 kWh |
| P _{dh} T _j = -15°C (if TOL<-20°C) | 6.32 | 5.48 |
| COP T _j = -15°C (if TOL<-20°C) | 2.64 | 2.00 |
| C _{dh} T _j = -15 °C | 0.90 | 0.90 |

Model: KHC-08RY1

Configure model

| | |
|-------------------------------------|---------------------------------|
| Model name | KHC-08RY1 |
| Application | Heating (medium temp) |
| Units | Outdoor |
| Climate Zone | Colder Climate + Warmer Climate |
| Reversibility | Yes |
| Cooling mode application (optional) | n/a |

General Data

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

Heating

EN 14511-4

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

EN 14511-2

| | Low temperature | Medium temperature |
|-------------|-----------------|--------------------|
| Heat output | 8.40 kW | 7.50 kW |
| El input | 1.63 kW | 2.36 kW |
| COP | 5.15 | 3.18 |

Average Climate

This information was generated by the HP KEYMARK database on 18 Mar 2022

EN 12102-1

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

EN 14825

| | Low temperature | Medium temperature |
|----------------|-----------------|--------------------|
| η_s | 205 % | 132 % |
| Prated | 8.12 kW | 6.60 kW |
| SCOP | 5.21 | 3.36 |
| Tbiv | -7 °C | -7 °C |
| TOL | -10 °C | -10 °C |
| Pdh Tj = -7°C | 7.19 kW | 5.84 kW |
| COP Tj = -7°C | 3.35 | 2.16 |
| Cdh Tj = -7 °C | 0.90 | 0.90 |
| Pdh Tj = +2°C | 4.65 kW | 3.76 kW |
| COP Tj = +2°C | 5.09 | 3.30 |
| Cdh Tj = +2 °C | 0.90 | 0.90 |
| Pdh Tj = +7°C | 2.90 kW | 2.43 kW |
| COP Tj = +7°C | 6.82 | 4.34 |
| Cdh Tj = +7 °C | 0.90 | 0.90 |
| Pdh Tj = 12°C | 1.63 kW | 1.40 kW |

This information was generated by the HP KEYMARK database on 18 Mar 2022

| | | |
|---|-------------|-------------|
| COP Tj = 12°C | 8.35 | 5.33 |
| Cdh Tj = +12 °C | 0.90 | 0.90 |
| Pdh Tj = Tbiv | 7.19 kW | 5.84 kW |
| COP Tj = Tbiv | 3.35 | 2.16 |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 6.45 kW | 4.91 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.04 | 1.84 |
| WTOL | 65 °C | 65 °C |
| Poff | 14 W | 14 W |
| PTO | 24 W | 24 W |
| PSB | 14 W | 14 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 1.68 kW | 1.69 kW |
| Annual energy consumption Qhe | 3223 kWh | 4056 kWh |

Warmer Climate

| EN 12102-1 | | |
|---------------------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| Sound power level outdoor | 59 dB(A) | 59 dB(A) |

| EN 14825 | | |
|-----------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |

This information was generated by the HP KEYMARK database on 18 Mar 2022

| | | |
|---|---------|---------|
| η_s | 273 % | 176 % |
| Prated | 8.12 kW | 7.56 kW |
| SCOP | 6.99 | 4.47 |
| Tbiv | 7.00 °C | 7.00 °C |
| TOL | 2.00 °C | 2.00 °C |
| Pdh Tj = +2°C | 7.57 kW | 7.55 kW |
| COP Tj = +2°C | 3.98 | 2.59 |
| Cdh Tj = +2 °C | 0.90 | 0.90 |
| Pdh Tj = +7°C | 5.22 kW | 4.86 kW |
| COP Tj = +7°C | 6.26 | 3.92 |
| Cdh Tj = +7 °C | 0.90 | 0.90 |
| Pdh Tj = 12°C | 2.45 kW | 2.32 kW |
| COP Tj = 12°C | 9.02 | 5.55 |
| Cdh Tj = +12 °C | 0.90 | 0.90 |
| Pdh Tj = Tbiv | 5.22 kW | 4.86 kW |
| COP Tj = Tbiv | 6.26 | 3.92 |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 7.57 kW | 7.55 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.98 | 2.59 |
| WTOL | 65 °C | 65 °C |
| Poff | 14 W | 14 W |

This information was generated by the HP KEYMARK database on 18 Mar 2022

| | | |
|--|-------------|-------------|
| PTO | 24 W | 24 W |
| PSB | 14 W | 14 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 0.55 kW | 0.02 kW |
| Annual energy consumption Q _{he} | 1569 kWh | 2259 kWh |

Colder Climate

| EN 12102-1 | | |
|---------------------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| Sound power level outdoor | 59 dB(A) | 59 dB(A) |

| EN 14825 | | |
|---------------------------------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| η_s | 170 % | 112 % |
| Prated | 6.98 kW | 5.78 kW |
| SCOP | 4.32 | 2.88 |
| T _{biv} | -15 °C | -15 °C |
| TOL | -22 °C | -22 °C |
| P _{dh} T _j = -7°C | 4.46 kW | 3.86 kW |
| COP T _j = -7°C | 3.66 | 2.48 |

This information was generated by the HP KEYMARK database on 18 Mar 2022

| | | |
|---|-------------|-------------|
| Cdh Tj = -7 °C | 0.90 | 0.90 |
| Pdh Tj = +2°C | 2.70 kW | 2.21 kW |
| COP Tj = +2°C | 5.20 | 3.35 |
| Cdh Tj = +2 °C | 0.90 | 0.90 |
| Pdh Tj = +7°C | 1.66 kW | 1.44 kW |
| COP Tj = +7°C | 6.53 | 4.11 |
| Cdh Tj = +7 °C | 0.90 | 0.90 |
| Pdh Tj = 12°C | 1.66 kW | 1.47 kW |
| COP Tj = 12°C | 7.96 | 5.92 |
| Cdh Tj = +12 °C | 0.90 | 0.90 |
| Pdh Tj = Tbiv | 5.69 kW | 4.71 kW |
| COP Tj = Tbiv | 2.83 | 1.90 |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 4.06 kW | 2.80 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 1.95 | 1.22 |
| WTOL | 65 °C | 65 °C |
| Poff | 14 W | 14 W |
| PTO | 24 W | 24 W |
| PSB | 14 W | 14 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 2.91 kW | 2.99 kW |
| | | |

This information was generated by the HP KEYMARK database on 18 Mar 2022

| | | |
|--|----------|----------|
| Annual energy consumption Q_{he} | 3978 kWh | 4950 kWh |
| $P_{dh} T_j = -15^{\circ}\text{C}$ (if $TOL < -20^{\circ}\text{C}$) | 5.69 | 4.71 |
| $COP T_j = -15^{\circ}\text{C}$ (if $TOL < -20^{\circ}\text{C}$) | 2.83 | 1.90 |
| $C_{dh} T_j = -15^{\circ}\text{C}$ | 0.90 | 0.90 |

Model: KHC-10RY1

| Configure model | |
|-------------------------------------|---------------------------------|
| Model name | KHC-10RY1 |
| Application | Heating (medium temp) |
| Units | Outdoor |
| Climate Zone | Colder Climate + Warmer Climate |
| Reversibility | Yes |
| Cooling mode application (optional) | n/a |

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

Heating

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

| EN 14511-2 | | |
|-------------|-----------------|--------------------|
| | Low temperature | Medium temperature |
| Heat output | 10.00 kW | 9.50 kW |
| El input | 2.02 kW | 3.06 kW |
| COP | 4.95 | 3.10 |

Average Climate

This information was generated by the HP KEYMARK database on 18 Mar 2022

EN 12102-1

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

EN 14825

| | Low temperature | Medium temperature |
|----------------|-----------------|--------------------|
| η_s | 205 % | 137 % |
| Prated | 9.17 kW | 7.67 kW |
| SCOP | 5.19 | 3.49 |
| Tbiv | -7 °C | -7 °C |
| TOL | -10 °C | -10 °C |
| Pdh Tj = -7°C | 8.11 kW | 6.78 kW |
| COP Tj = -7°C | 3.23 | 2.24 |
| Cdh Tj = -7 °C | 0.90 | 0.90 |
| Pdh Tj = +2°C | 5.18 kW | 4.29 kW |
| COP Tj = +2°C | 5.01 | 3.42 |
| Cdh Tj = +2 °C | 0.90 | 0.90 |
| Pdh Tj = +7°C | 3.32 kW | 2.77 kW |
| COP Tj = +7°C | 7.08 | 4.52 |
| Cdh Tj = +7 °C | 0.90 | 0.90 |
| Pdh Tj = 12°C | 1.65 kW | 1.58 kW |

This information was generated by the HP KEYMARK database on 18 Mar 2022

| | | |
|---|-------------|-------------|
| COP Tj = 12°C | 8.58 | 5.68 |
| Cdh Tj = +12 °C | 0.90 | 0.90 |
| Pdh Tj = Tbiv | 8.11 kW | 6.78 kW |
| COP Tj = Tbiv | 3.23 | 2.24 |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 7.40 kW | 5.39 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.96 | 1.83 |
| WTOL | 65 °C | 65 °C |
| Poff | 14 W | 14 W |
| PTO | 24 W | 24 W |
| PSB | 14 W | 14 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 1.76 kW | 2.28 kW |
| Annual energy consumption Qhe | 3647 kWh | 4539 kWh |

Warmer Climate

| EN 12102-1 | | |
|---------------------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| Sound power level outdoor | 60 dB(A) | 60 dB(A) |

| EN 14825 | | |
|-----------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |

This information was generated by the HP KEYMARK database on 18 Mar 2022

| | | |
|---|---------|---------|
| η_s | 279 % | 180 % |
| Prated | 8.58 kW | 8.63 kW |
| SCOP | 7.12 | 4.58 |
| Tbiv | 7 °C | 7 °C |
| TOL | 2 °C | 2 °C |
| Pdh Tj = +2°C | 8.44 kW | 8.06 kW |
| COP Tj = +2°C | 3.84 | 2.59 |
| Cdh Tj = +2 °C | 0.90 | 0.90 |
| Pdh Tj = +7°C | 5.52 kW | 5.55 kW |
| COP Tj = +7°C | 6.18 | 4.10 |
| Cdh Tj = +7 °C | 0.90 | 0.90 |
| Pdh Tj = 12°C | 2.62 kW | 2.53 kW |
| COP Tj = 12°C | 9.04 | 5.82 |
| Cdh Tj = +12 °C | 0.90 | 0.90 |
| Pdh Tj = Tbiv | 5.52 kW | 5.55 kW |
| COP Tj = Tbiv | 6.18 | 4.10 |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 8.44 kW | 8.16 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.84 | 2.61 |
| WTOL | 65 °C | 65 °C |
| Poff | 14 W | 14 W |

This information was generated by the HP KEYMARK database on 18 Mar 2022

| | | |
|--|-------------|-------------|
| PTO | 24 W | 24 W |
| PSB | 14 W | 14 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 0.14 kW | 0.48 kW |
| Annual energy consumption Q _{he} | 1628 kWh | 2516 kWh |

Colder Climate

| EN 12102-1 | | |
|---------------------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| Sound power level outdoor | 60 dB(A) | 60 dB(A) |

| EN 14825 | | |
|---------------------------------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| η_s | 170 % | 116 % |
| Prated | 7.75 kW | 6.71 kW |
| SCOP | 4.32 | 2.99 |
| T _{biv} | -15 °C | -15 °C |
| TOL | -22 °C | -22 °C |
| P _{dh} T _j = -7°C | 4.83 kW | 4.27 kW |
| COP T _j = -7°C | 3.60 | 2.54 |

This information was generated by the HP KEYMARK database on 18 Mar 2022

| | | |
|---|-------------|-------------|
| Cdh Tj = -7 °C | 0.90 | 0.90 |
| Pdh Tj = +2°C | 2.94 kW | 2.57 kW |
| COP Tj = +2°C | 5.26 | 3.51 |
| Cdh Tj = +2 °C | 0.90 | 0.90 |
| Pdh Tj = +7°C | 1.92 kW | 1.66 kW |
| COP Tj = +7°C | 7.08 | 4.37 |
| Cdh Tj = +7 °C | 0.90 | 0.90 |
| Pdh Tj = 12°C | 1.66 kW | 1.48 kW |
| COP Tj = 12°C | 7.96 | 5.96 |
| Cdh Tj = +12 °C | 0.90 | 0.90 |
| Pdh Tj = Tbiv | 6.32 kW | 5.48 kW |
| COP Tj = Tbiv | 2.64 | 2.00 |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 4.63 kW | 2.80 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 1.97 | 1.22 |
| WTOL | 65 °C | 65 °C |
| Poff | 14 W | 14 W |
| PTO | 24 W | 24 W |
| PSB | 14 W | 14 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 3.13 kW | 3.91 kW |
| | | |

This information was generated by the HP KEYMARK database on 18 Mar 2022

| | | |
|--|----------|----------|
| Annual energy consumption Q_{he} | 4424 kWh | 5540 kWh |
| $P_{dh} T_j = -15^{\circ}\text{C}$ (if $TOL < -20^{\circ}\text{C}$) | 6.32 | 5.48 |
| $COP T_j = -15^{\circ}\text{C}$ (if $TOL < -20^{\circ}\text{C}$) | 2.64 | 2.00 |
| $C_{dh} T_j = -15^{\circ}\text{C}$ | 0.90 | 0.90 |