This information was generated by the HP KEYMARK database on 13 Oct 2022

| Summary of | HA 7-6 O 230V | Reg. No. | 40051133 |
| :---: | :---: | :---: | :---: |
| Certificate Holder |  |  |  |
| Name | Saunier Duval Brand Group |  |  |
| Address |  | Zip |  |
| City |  | Country | Germany |
| Certification Body | VDE Prüf- und Zertifizierungsinstitut GmbH |  |  |
| Subtype title | HA 7-6 O 230V |  |  |
| Heat Pump Type | Outdoor Air/Water |  |  |
| Refrigerant | R290 |  |  |
| Mass of Refrigerant | 0.9 kg |  |  |
| Certification Date | 06.04.2022 |  |  |
| 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 |  |  |

CEN heat pump

This information was generated by the HP KEYMARK database on 13 Oct 2022

## Model: HA 7-6 0 230V

| Configure model |  |
| :--- | :--- |
| Model name | HA 7-6 O 230V |
| Application | Heating (medium temp) |
| Units | Outdoor |
| Climate Zone | Colder Climate + Warmer Climate |
| Reversibility | Yes |
| Cooling mode application (optional) | n/a |


| General Data |  |
| :--- | :--- |
| Power supply | $1 \times 230 \mathrm{~V} 50 \mathrm{~Hz}$ |

Heating

| EN 14511-2 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| Heat output | 4.57 kW | 4.95 kW |
| El input | 0.95 kW | 1.68 kW |
| COP | 4.79 | 2.93 |


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

## Warmer Climate

This information was generated by the HP KEYMARK database on 13 Oct 2022

| EN 12102-1 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| Sound power level outdoor | $53 \mathrm{~dB}(\mathrm{~A})$ | $55 \mathrm{~dB}(\mathrm{~A})$ |


| EN 14825 |  |  |
| :---: | :---: | :---: |
|  | Low temperature | Medium temperature |
| $\eta_{\text {s }}$ | 237 \% | 163 \% |
| Prated | 6.77 kW | 6.60 kW |
| SCOP | 5.99 | 4.14 |
| Tbiv | $2^{\circ} \mathrm{C}$ | $2{ }^{\circ} \mathrm{C}$ |
| TOL | $2^{\circ} \mathrm{C}$ | $2{ }^{\circ} \mathrm{C}$ |
| Pdh $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 6.77 kW | 6.60 kW |
| $\operatorname{COP~Tj}=+2^{\circ} \mathrm{C}$ | 3.23 | 2.23 |
| Cdh $\mathrm{Tj}=+{ }^{\circ} \mathrm{C}$ | 0.99 | 0.99 |
| Pdh $\mathrm{Tj}=+7^{\circ} \mathrm{C}$ | 4.14 kW | 4.52 kW |
| $\operatorname{COP~} \mathrm{Tj}=+7^{\circ} \mathrm{C}$ | 5.52 | 3.47 |
| Cdh Tj $=+{ }^{\circ}{ }^{\circ} \mathrm{C}$ | 0.96 | 0.97 |
| Pdh $\mathrm{Tj}=12^{\circ} \mathrm{C}$ | 3.75 kW | 3.56 kW |
| $\operatorname{COP} \mathrm{Tj}=12^{\circ} \mathrm{C}$ | 7.65 | 5.68 |
| $\mathrm{Cdh} \mathrm{Tj}=+12{ }^{\circ} \mathrm{C}$ | 0.95 | 0.96 |
| Pdh $\mathrm{Tj}=\mathrm{Tbiv}$ | 6.77 kW | 6.60 kW |

This information was generated by the HP KEYMARK database on 13 Oct 2022

| COP Tj = Tbiv | 3.23 | 2.23 |
| :--- | :--- | :--- |
| Pdh $\mathrm{Tj}=$ TOL or Pdh $\mathrm{Tj}=$ Tdesignh if TOL < Tdesignh | 6.77 kW | 6.60 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.23 | 2.23 |
| WTOL | $70^{\circ} \mathrm{C}$ | $70^{\circ} \mathrm{C}$ |
| Poff | 8 W | 8 W |
| PTO | 29 W | 29 W |
| PSB | 29 W | 29 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 | 1510 kWh | 2128 kWh |

## Colder Climate

| EN 12102-1 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| Sound power level outdoor | $53 \mathrm{~dB}(\mathrm{~A})$ | $55 \mathrm{~dB}(\mathrm{~A})$ |


| EN 14825 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| $\eta_{s}$ | $160 \%$ | $118 \%$ |
| Prated | 5.85 kW | 5.39 kW |

This information was generated by the HP KEYMARK database on 13 Oct 2022

| SCOP | 4.07 | 3.03 |
| :---: | :---: | :---: |
| Tbiv | $-15{ }^{\circ} \mathrm{C}$ | $-15{ }^{\circ} \mathrm{C}$ |
| TOL | $-20^{\circ} \mathrm{C}$ | $-20{ }^{\circ} \mathrm{C}$ |
| Pdh $\mathrm{Tj}=-7^{\circ} \mathrm{C}$ | 3.51 kW | 3.69 kW |
| $\operatorname{COP~Tj}=-7^{\circ} \mathrm{C}$ | 3.31 | 2.53 |
| $\mathrm{Cdh} \mathrm{Tj}=-7{ }^{\circ} \mathrm{C}$ | 0.970 | 0.980 |
| Pdh $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 2.73 kW | 2.55 kW |
| COP Tj $=+2^{\circ} \mathrm{C}$ | 5.01 | 3.62 |
| Cah $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 0.950 | 0.960 |
| Pdh $\mathrm{Tj}=+7^{\circ} \mathrm{C}$ | 3.19 kW | 3.08 kW |
| COP $\mathrm{Tj}=+7^{\circ} \mathrm{C}$ | 6.82 | 5.05 |
| Cdh $\mathrm{Tj}=+{ }^{\circ} \mathrm{C}$ | 0.940 | 0.950 |
| Pdh $\mathrm{Tj}=12^{\circ} \mathrm{C}$ | 3.78 kW | 3.64 kW |
| $\operatorname{COP} \mathrm{Tj}=12^{\circ} \mathrm{C}$ | 8.52 | 6.54 |
| Cdh $\mathrm{Tj}=+12{ }^{\circ} \mathrm{C}$ | 0.940 | 0.950 |
| Pdh $\mathrm{Tj}=\mathrm{Tbiv}$ | 4.77 kW | 4.40 kW |
| COP Tj $=$ Tbiv | 2.60 | 1.90 |
| Pdh $\mathrm{Tj}=\mathrm{TOL}$ or Pdh $\mathrm{Tj}=$ Tdesignh if TOL < Tdesignh | 4.94 kW | 4.57 kW |
| COP $\mathrm{Tj}=$ TOL or COP $\mathrm{Tj}=$ Tdesignh if TOL < Tdesignh | 2.08 | 1.53 |
| Cdh $\mathrm{Tj}=\mathrm{TOL}$ or Pdh $\mathrm{Tj}=$ Tdesignh if $\mathrm{TOL}<$ Tdesignh |  |  |
| WTOL | $70^{\circ} \mathrm{C}$ | $70^{\circ} \mathrm{C}$ |

This information was generated by the HP KEYMARK database on 13 Oct 2022

| Poff | 8 W | 8 W |
| :--- | :--- | :--- |
| PTO | 29 W | 29 W |
| PSB | 29 W | 29 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 5.85 kW | 5.39 kW |
| Annual energy consumption Qhe | 4.77 | 4380 kWh |
| Pdh $\mathrm{Tj}=-15^{\circ} \mathrm{C}$ (if TOL<-20 ${ }^{\circ} \mathrm{C}$ ) | 2.60 | 4.40 |
| COP Tj $=-15^{\circ} \mathrm{C}$ (if TOL<-20 ${ }^{\circ} \mathrm{C}$ ) | 0.980 | 0.990 |
| Cdh Tj $=-15^{\circ} \mathrm{C}$ |  |  |

## Average Climate

| EN 12102-1 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| Sound power level outdoor | $53 \mathrm{~dB}(\mathrm{~A})$ | $55 \mathrm{~dB}(\mathrm{~A})$ |


| EN 14825 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| $n_{s}$ | $185 \%$ | $134 \%$ |
| Prated | 6.60 kW | 6.13 kW |
| SCOP | 4.69 | 3.43 |

This information was generated by the HP KEYMARK database on 13 Oct 2022

| Tbiv | $-10{ }^{\circ} \mathrm{C}$ | $-7{ }^{\circ} \mathrm{C}$ |
| :---: | :---: | :---: |
| TOL | $-10{ }^{\circ} \mathrm{C}$ | $-10{ }^{\circ} \mathrm{C}$ |
| Pdh $\mathrm{Tj}=-7^{\circ} \mathrm{C}$ | 5.84 kW | 5.42 kW |
| $\operatorname{COP~Tj}=-7^{\circ} \mathrm{C}$ | 2.72 | 2.13 |
| $\mathrm{Cdh} \mathrm{Tj}=-7{ }^{\circ} \mathrm{C}$ | 0.990 | 0.990 |
| Pdh $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 3.72 kW | 3.46 kW |
| $\operatorname{COPTj}=+2^{\circ} \mathrm{C}$ | 4.68 | 3.36 |
| Cdh $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 0.960 | 0.970 |
| Pdh $\mathrm{Tj}=+7^{\circ} \mathrm{C}$ | 3.18 kW | 3.00 kW |
| $\operatorname{COPTj}=+7^{\circ} \mathrm{C}$ | 6.38 | 4.60 |
| Cdh $\mathrm{Tj}=+{ }^{\circ} \mathrm{C}$ | 0.950 | 0.960 |
| Pdh $\mathrm{Tj}=12^{\circ} \mathrm{C}$ | 3.74 kW | 3.59 kW |
| $\operatorname{COP~} \mathrm{Tj}=12^{\circ} \mathrm{C}$ | 7.88 | 6.18 |
| Cdh $\mathrm{Tj}=+12^{\circ} \mathrm{C}$ | 0.940 | 0.950 |
| Pdh $\mathrm{Tj}=\mathrm{Tbiv}$ | 6.27 kW | 5.42 kW |
| COP $\mathrm{Tj}=$ Tbiv | 2.64 | 2.13 |
| Pdh $\mathrm{Tj}=\mathrm{TOL}$ or Pdh $\mathrm{Tj}=$ Tdesignh if $\mathrm{TOL}<$ Tdesignh | 6.27 kW | 4.88 kW |
| COP $\mathrm{Tj}=$ TOL or COP $\mathrm{Tj}=$ Tdesignh if TOL $<$ Tdesignh | 2.64 | 1.88 |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |  |  |
| WTOL | $70^{\circ} \mathrm{C}$ | $70^{\circ} \mathrm{C}$ |
| Poff | 8 W | 8 W |

This information was generated by the HP KEYMARK database on 13 Oct 2022

| PTO | 29 W | 29 W |
| :--- | :--- | :--- |
| PSB | 29 W | 29 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | kW | 1.25 kW |
| Annual energy consumption Qhe | 2907 kWh | 3688 kWh |

CEN heat pump

This information was generated by the HP KEYMARK database on 13 Oct 2022

## Model: HA 7-6 0 230V B2

| Configure model |  |
| :--- | :--- |
| Model name | HA 7-6 O 230V B2 |
| Application | Heating (medium temp) |
| Units | Outdoor |
| Climate Zone | Colder Climate + Warmer Climate |
| Reversibility | No |
| Cooling mode application (optional) | $\mathrm{n} / \mathrm{a}$ |


|  | General Data |
| :--- | :--- |
| Power supply | $1 \times 230 \mathrm{~V} 50 \mathrm{~Hz}$ |

Heating

| EN 14511-2 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| Heat output | 4.57 kW | 4.95 kW |
| El input | 0.95 kW | 1.68 kW |
| COP | 4.79 | 2.93 |


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

## Warmer Climate

This information was generated by the HP KEYMARK database on 13 Oct 2022

| EN 12102-1 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| Sound power level outdoor | $53 \mathrm{~dB}(\mathrm{~A})$ | $55 \mathrm{~dB}(\mathrm{~A})$ |


| EN 14825 |  |  |
| :---: | :---: | :---: |
|  | Low temperature | Medium temperature |
| $\eta_{\text {s }}$ | 231 \% | 160 \% |
| Prated | 6.77 kW | 6.60 kW |
| SCOP | 5.85 | 4.07 |
| Tbiv | $2^{\circ} \mathrm{C}$ | $2{ }^{\circ} \mathrm{C}$ |
| TOL | $2^{\circ} \mathrm{C}$ | $2{ }^{\circ} \mathrm{C}$ |
| Pdh $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 6.77 kW | 6.60 kW |
| $\operatorname{COP~Tj}=+2^{\circ} \mathrm{C}$ | 3.23 | 2.23 |
| Cdh $\mathrm{Tj}=+{ }^{\circ} \mathrm{C}$ | 0.99 | 0.99 |
| Pdh $\mathrm{Tj}=+7^{\circ} \mathrm{C}$ | 4.14 kW | 4.52 kW |
| $\operatorname{COP~} \mathrm{Tj}=+7^{\circ} \mathrm{C}$ | 5.52 | 3.47 |
| Cdh Tj $=+{ }^{\circ}{ }^{\circ} \mathrm{C}$ | 0.96 | 0.97 |
| Pdh $\mathrm{Tj}=12^{\circ} \mathrm{C}$ | 3.75 kW | 3.56 kW |
| $\operatorname{COP} \mathrm{Tj}=12^{\circ} \mathrm{C}$ | 7.65 | 5.68 |
| $\mathrm{Cdh} \mathrm{Tj}=+12{ }^{\circ} \mathrm{C}$ | 0.95 | 0.96 |
| Pdh $\mathrm{Tj}=\mathrm{Tbiv}$ | 6.77 kW | 6.60 kW |

This information was generated by the HP KEYMARK database on 13 Oct 2022

| COP Tj = Tbiv | 3.23 | 2.23 |
| :--- | :--- | :--- |
| Pdh $\mathrm{Tj}=$ TOL or Pdh $\mathrm{Tj}=$ Tdesignh if TOL < Tdesignh | 6.77 kW | 6.60 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.23 | 2.23 |
| WTOL | $70^{\circ} \mathrm{C}$ | $70^{\circ} \mathrm{C}$ |
| Poff | 8 W | 8 W |
| PTO | 29 W | 29 W |
| PSB | 29 W | 29 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 | 1546 kWh | 2164 kWh |

## Colder Climate

| EN 12102-1 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| Sound power level outdoor | $53 \mathrm{~dB}(\mathrm{~A})$ | $55 \mathrm{~dB}(\mathrm{~A})$ |


| EN 14825 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| $\eta_{s}$ | $159 \%$ | $118 \%$ |
| Prated | 5.85 kW | 5.39 kW |

This information was generated by the HP KEYMARK database on 13 Oct 2022

| SCOP | 4.05 | 3.02 |
| :---: | :---: | :---: |
| Tbiv | $-15{ }^{\circ} \mathrm{C}$ | $-15{ }^{\circ} \mathrm{C}$ |
| TOL | $-20^{\circ} \mathrm{C}$ | $-20{ }^{\circ} \mathrm{C}$ |
| Pdh $\mathrm{Tj}=-7^{\circ} \mathrm{C}$ | 3.51 kW | 3.69 kW |
| $\operatorname{COP~Tj}=-7^{\circ} \mathrm{C}$ | 3.31 | 2.53 |
| $\mathrm{Cdh} \mathrm{Tj}=-7{ }^{\circ} \mathrm{C}$ | 0.970 | 0.980 |
| Pdh $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 2.73 kW | 2.55 kW |
| COP Tj $=+2^{\circ} \mathrm{C}$ | 5.01 | 3.62 |
| Cdh $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 0.950 | 0.960 |
| Pdh $\mathrm{Tj}=+7^{\circ} \mathrm{C}$ | 3.19 kW | 3.08 kW |
| COP $\mathrm{Tj}=+7^{\circ} \mathrm{C}$ | 6.82 | 5.05 |
| Cdh $\mathrm{Tj}=+{ }^{\circ} \mathrm{C}$ | 0.940 | 0.950 |
| Pdh $\mathrm{Tj}=12^{\circ} \mathrm{C}$ | 3.78 kW | 3.64 kW |
| $\operatorname{COP} \mathrm{Tj}=12^{\circ} \mathrm{C}$ | 8.52 | 6.54 |
| Cdh $\mathrm{Tj}=+12{ }^{\circ} \mathrm{C}$ | 0.940 | 0.950 |
| Pdh $\mathrm{Tj}=\mathrm{Tbiv}$ | 4.77 kW | 4.40 kW |
| COP Tj $=$ Tbiv | 2.60 | 1.90 |
| Pdh $\mathrm{Tj}=\mathrm{TOL}$ or Pdh $\mathrm{Tj}=$ Tdesignh if TOL < Tdesignh | 4.94 kW | 4.57 kW |
| COP $\mathrm{Tj}=$ TOL or COP $\mathrm{Tj}=$ Tdesignh if TOL < Tdesignh | 2.08 | 1.53 |
| Cdh $\mathrm{Tj}=\mathrm{TOL}$ or Pdh $\mathrm{Tj}=$ Tdesignh if $\mathrm{TOL}<$ Tdesignh |  |  |
| WTOL | $70^{\circ} \mathrm{C}$ | $70^{\circ} \mathrm{C}$ |

This information was generated by the HP KEYMARK database on 13 Oct 2022

| Poff | 8 W | 8 W |
| :--- | :--- | :--- |
| PTO | 29 W | 29 W |
| PSB | 29 W | 29 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 5.85 kW | 5.39 kW |
| Annual energy consumption Qhe | 4.77 | 4398 kWh |
| Pdh $\mathrm{Tj}=-15^{\circ} \mathrm{C}$ (if TOL<-20 ${ }^{\circ} \mathrm{C}$ ) | 2.60 | 4.40 |
| COP Tj $=-15^{\circ} \mathrm{C}$ (if TOL<-20 ${ }^{\circ} \mathrm{C}$ ) | 0.980 | 0.990 |
| Cdh Tj $=-15^{\circ} \mathrm{C}$ |  |  |

## Average Climate

| EN 12102-1 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| Sound power level outdoor | $53 \mathrm{~dB}(\mathrm{~A})$ | $55 \mathrm{~dB}(\mathrm{~A})$ |


| EN 14825 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| $n_{s}$ | $183 \%$ | $133 \%$ |
| Prated | 6.60 kW | 6.13 kW |
| SCOP | 4.64 | 3.41 |

This information was generated by the HP KEYMARK database on 13 Oct 2022

| Tbiv | $-10{ }^{\circ} \mathrm{C}$ | $-7{ }^{\circ} \mathrm{C}$ |
| :---: | :---: | :---: |
| TOL | $-10{ }^{\circ} \mathrm{C}$ | $-10{ }^{\circ} \mathrm{C}$ |
| Pdh $\mathrm{Tj}=-7^{\circ} \mathrm{C}$ | 5.84 kW | 5.42 kW |
| $\operatorname{COP~Tj}=-7^{\circ} \mathrm{C}$ | 2.72 | 2.13 |
| $\mathrm{Cdh} \mathrm{Tj}=-7{ }^{\circ} \mathrm{C}$ | 0.990 | 0.990 |
| Pdh $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 3.72 kW | 3.46 kW |
| $\operatorname{COPTj}=+2^{\circ} \mathrm{C}$ | 4.68 | 3.36 |
| Cdh $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 0.960 | 0.970 |
| Pdh $\mathrm{Tj}=+7^{\circ} \mathrm{C}$ | 3.18 kW | 3.00 kW |
| $\operatorname{COPTj}=+7^{\circ} \mathrm{C}$ | 6.38 | 4.60 |
| Cdh $\mathrm{Tj}=+{ }^{\circ} \mathrm{C}$ | 0.950 | 0.960 |
| Pdh $\mathrm{Tj}=12^{\circ} \mathrm{C}$ | 3.74 kW | 3.59 kW |
| $\operatorname{COP~} \mathrm{Tj}=12^{\circ} \mathrm{C}$ | 7.88 | 6.18 |
| Cdh $\mathrm{Tj}=+12^{\circ} \mathrm{C}$ | 0.940 | 0.950 |
| Pdh $\mathrm{Tj}=\mathrm{Tbiv}$ | 6.27 kW | 5.42 kW |
| COP $\mathrm{Tj}=$ Tbiv | 2.64 | 2.13 |
| Pdh $\mathrm{Tj}=\mathrm{TOL}$ or Pdh $\mathrm{Tj}=$ Tdesignh if $\mathrm{TOL}<$ Tdesignh | 6.27 kW | 4.88 kW |
| COP $\mathrm{Tj}=$ TOL or COP $\mathrm{Tj}=$ Tdesignh if TOL $<$ Tdesignh | 2.64 | 1.88 |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |  |  |
| WTOL | $70^{\circ} \mathrm{C}$ | $70^{\circ} \mathrm{C}$ |
| Poff | 8 W | 8 W |

This information was generated by the HP KEYMARK database on 13 Oct 2022

| PTO | 29 W | 29 W |
| :--- | :--- | :--- |
| PSB | 29 W | 29 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | kW | 1.25 kW |
| Annual energy consumption Qhe | 2937 kWh | 3718 kWh |

CEN heat pump

This information was generated by the HP KEYMARK database on 13 Oct 2022

## Model: HA 8-6 O 230V B3

| Configure model |  |
| :--- | :--- |
| Model name | HA 8-6 O 230V B3 |
| Application | Heating (medium temp) |
| Units | Outdoor |
| Climate Zone | Colder Climate + Warmer Climate |
| Reversibility | Yes |
| Cooling mode application (optional) | n/a |


| General Data |  |
| :--- | :--- |
| Power supply | $1 \times 230 \mathrm{~V} 50 \mathrm{~Hz}$ |

Heating

| EN 14511-2 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| Heat output | 7.37 kW | 7.58 kW |
| El input | 1.66 kW | 2.65 kW |
| COP | 4.42 | 2.85 |


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

## Warmer Climate

This information was generated by the HP KEYMARK database on 13 Oct 2022

| EN 12102-1 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| Sound power level outdoor | $58 \mathrm{~dB}(\mathrm{~A})$ | $57 \mathrm{~dB}(\mathrm{~A})$ |


| EN 14825 |  |  |
| :---: | :---: | :---: |
|  | Low temperature | Medium temperature |
| $\eta_{\text {s }}$ | 228 \% | 162 \% |
| Prated | 6.87 kW | 7.06 kW |
| SCOP | 5.78 | 4.13 |
| Tbiv | $2^{\circ} \mathrm{C}$ | $2{ }^{\circ} \mathrm{C}$ |
| TOL | $2^{\circ} \mathrm{C}$ | $2{ }^{\circ} \mathrm{C}$ |
| Pdh $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 6.87 kW | 7.06 kW |
| $\operatorname{COP~Tj}=+2^{\circ} \mathrm{C}$ | 3.18 | 2.31 |
| Cdh $\mathrm{Tj}=+{ }^{\circ} \mathrm{C}$ | 0.99 | 0.99 |
| Pdh $\mathrm{Tj}=+7^{\circ} \mathrm{C}$ | 4.38 kW | 4.71 kW |
| COP $\mathrm{Tj}=+7^{\circ} \mathrm{C}$ | 5.29 | 3.44 |
| Cdh Tj $=+{ }^{\circ}{ }^{\circ} \mathrm{C}$ | 0.97 | 0.98 |
| Pdh $\mathrm{Tj}=12^{\circ} \mathrm{C}$ | 3.68 kW | 3.56 kW |
| $\operatorname{COP} \mathrm{Tj}=12^{\circ} \mathrm{C}$ | 7.37 | 5.62 |
| $\mathrm{Cdh} \mathrm{Tj}=+12{ }^{\circ} \mathrm{C}$ | 0.95 | 0.96 |
| Pdh $\mathrm{Tj}=\mathrm{Tbiv}$ | 6.87 kW | 7.06 kW |

This information was generated by the HP KEYMARK database on 13 Oct 2022

| COP Tj = Tbiv | 3.18 | 2.31 |
| :--- | :--- | :--- |
| Pdh $\mathrm{Tj}=$ TOL or Pdh $\mathrm{Tj}=$ Tdesignh if TOL < Tdesignh | 6.87 kW | 7.06 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.18 | 2.31 |
| WTOL | $55^{\circ} \mathrm{C}$ | $55^{\circ} \mathrm{C}$ |
| Poff | 8 W | 8 W |
| PTO | 29 W | 29 W |
| PSB | 29 W | 29 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 | 1586 kWh | 2284 kWh |

## Colder Climate

| EN 12102-1 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| Sound power level outdoor | $58 \mathrm{~dB}(\mathrm{~A})$ | $57 \mathrm{~dB}(\mathrm{~A})$ |


| EN 14825 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| $\eta_{s}$ | $159 \%$ | $119 \%$ |
| Prated | 6.03 kW | 5.59 kW |

This information was generated by the HP KEYMARK database on 13 Oct 2022

| SCOP | 4.05 | 3.06 |
| :---: | :---: | :---: |
| Tbiv | $-15{ }^{\circ} \mathrm{C}$ | $-15^{\circ} \mathrm{C}$ |
| TOL | $-20^{\circ} \mathrm{C}$ | $-20^{\circ} \mathrm{C}$ |
| Pdh $\mathrm{Tj}=-7^{\circ} \mathrm{C}$ | 3.71 kW | 3.77 kW |
| COP Tj $=-7^{\circ} \mathrm{C}$ | 3.42 | 2.54 |
| $\mathrm{Cdh} \mathrm{Tj}=-7{ }^{\circ} \mathrm{C}$ | 0.970 | 0.980 |
| Pdh $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 2.80 kW | 2.59 kW |
| COP $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 5.04 | 3.70 |
| $\operatorname{Cdh~} \mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 0.950 | 0.960 |
| Pdh $\mathrm{Tj}=+7^{\circ} \mathrm{C}$ | 3.25 kW | 3.12 kW |
| COP $\mathrm{Tj}=+7^{\circ} \mathrm{C}$ | 6.63 | 5.08 |
| $\mathrm{Cah} \mathrm{Tj}=+{ }^{\circ} \mathrm{C}$ | 0.950 | 0.960 |
| $\operatorname{Pdh} \mathrm{Tj}=12^{\circ} \mathrm{C}$ | 3.73 kW | 3.67 kW |
| $\operatorname{COP} \mathrm{Tj}=12^{\circ} \mathrm{C}$ | 7.71 | 6.80 |
| Cdh $\mathrm{Tj}=+12{ }^{\circ} \mathrm{C}$ | 0.940 | 0.950 |
| Pdh $\mathrm{Tj}=\mathrm{Tbiv}$ | 4.92 kW | 4.56 kW |
| COP $\mathrm{Tj}=\mathrm{Tbiv}$ | 2.57 | 1.92 |
| Pdh $\mathrm{Tj}=$ TOL or Pdh $\mathrm{Tj}=$ Tdesignh if TOL $<$ Tdesignh | 3.66 kW | 3.29 kW |
| COP $\mathrm{Tj}=$ TOL or COP $\mathrm{Tj}=$ Tdesignh if TOL $<$ Tdesignh | 2.19 | 1.56 |
| Cdh $\mathrm{Tj}=\mathrm{TOL}$ or Pdh $\mathrm{Tj}=$ Tdesignh if $\mathrm{TOL}<$ Tdesignh |  |  |
| WTOL | $55^{\circ} \mathrm{C}$ | $55^{\circ} \mathrm{C}$ |

This information was generated by the HP KEYMARK database on 13 Oct 2022

| Poff | 8 W | 8 W |
| :--- | :--- | :--- |
| PTO | 29 W | 29 W |
| PSB | 29 W | 29 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 6.03 kW | 5.59 kW |
| Annual energy consumption Qhe | 3665 kWh | 4506 kWh |
| Pdh Tj $=-15^{\circ} \mathrm{C}$ (if TOL<-20 ${ }^{\circ} \mathrm{C}$ ) | 4.92 | 4.56 |
| COP Tj $=-15^{\circ} \mathrm{C}$ (if TOL<-20 ${ }^{\circ} \mathrm{C}$ ) | 2.57 | 1.92 |
| Cdh Tj $=-15^{\circ} \mathrm{C}$ | 0.980 | 0.990 |

## Average Climate

| EN 12102-1 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| Sound power level outdoor | $58 \mathrm{~dB}(\mathrm{~A})$ | $57 \mathrm{~dB}(\mathrm{~A})$ |


| EN 14825 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| $\eta_{\text {s }}$ | $187 \%$ | $135 \%$ |
| Prated | 7.21 kW | 6.39 kW |
| SCOP | 4.75 | 3.44 |

This information was generated by the HP KEYMARK database on 13 Oct 2022

| Tbiv | $-7{ }^{\circ} \mathrm{C}$ | $-7{ }^{\circ} \mathrm{C}$ |
| :---: | :---: | :---: |
| TOL | $-10^{\circ} \mathrm{C}$ | $-10^{\circ} \mathrm{C}$ |
| Pdh $\mathrm{Tj}=-7{ }^{\circ} \mathrm{C}$ | 6.38 kW | 5.66 kW |
| $\operatorname{COP~Tj}=-7^{\circ} \mathrm{C}$ | 2.93 | 2.17 |
| $\mathrm{Cdh} \mathrm{Tj}=-7{ }^{\circ} \mathrm{C}$ | 0.990 | 0.990 |
| Pdh $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 3.83 kW | 3.49 kW |
| COP Tj $=+2^{\circ} \mathrm{C}$ | 4.73 | 3.32 |
| Cah $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 0.970 | 0.970 |
| Pdh $\mathrm{Tj}=+7^{\circ} \mathrm{C}$ | 3.21 kW | 3.06 kW |
| COP Tj $=+7^{\circ} \mathrm{C}$ | 6.33 | 4.67 |
| Cdh $\mathrm{Tj}=+{ }^{\circ} \mathrm{C}$ | 0.950 | 0.960 |
| $\operatorname{Pdh} \mathrm{Tj}=12^{\circ} \mathrm{C}$ | 3.72 kW | 3.62 kW |
| $\operatorname{COP} \mathrm{Tj}=12^{\circ} \mathrm{C}$ | 7.79 | 6.23 |
| Cdh $\mathrm{Tj}=+12{ }^{\circ} \mathrm{C}$ | 0.940 | 0.950 |
|  | 6.38 kW | 5.66 kW |
| COP $\mathrm{Tj}=$ Tbiv | 2.93 | 2.17 |
| Pdh $\mathrm{Tj}=\mathrm{TOL}$ or Pdh $\mathrm{Tj}=$ Tdesignh if TOL < Tdesignh | 6.00 kW | 5.09 kW |
| COP $\mathrm{Tj}=$ TOL or COP $\mathrm{Tj}=$ Tdesignh if TOL $<$ Tdesignh | 2.66 | 1.92 |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |  |  |
| WTOL | $55^{\circ} \mathrm{C}$ | $55^{\circ} \mathrm{C}$ |
| Poff | 8 W | 8 W |

This information was generated by the HP KEYMARK database on 13 Oct 2022

| PTO | 29 W | 29 W |
| :--- | :--- | :--- |
| PSB | 29 W | 29 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 1.21 kW | 1.30 kW |
| Annual energy consumption Qhe | 3139 kWh | 3837 kWh |

CEN heat pump

This information was generated by the HP KEYMARK database on 13 Oct 2022

## Model: HA 6-6 O 230V

| Configure model |  |
| :--- | :--- |
| Model name | HA 6-6 O 230V |
| Application | Heating (medium temp) |
| Units | Outdoor |
| Climate Zone | Colder Climate + Warmer Climate |
| Reversibility | Yes |
| Cooling mode application (optional) | $\mathrm{n} / \mathrm{a}$ |


| General Data |  |
| :--- | :--- |
| Power supply | $1 \times 230 \mathrm{~V} 50 \mathrm{~Hz}$ |

Heating

| EN 14511-2 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| Heat output | 4.48 kW | 4.94 kW |
| El input | 0.94 kW | 1.69 kW |
| COP | 4.78 | 2.93 |


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

## Warmer Climate

This information was generated by the HP KEYMARK database on 13 Oct 2022

| EN 12102-1 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| Sound power level outdoor | $53 \mathrm{~dB}(\mathrm{~A})$ | $55 \mathrm{~dB}(\mathrm{~A})$ |


| EN 14825 |  |  |
| :---: | :---: | :---: |
|  | Low temperature | Medium temperature |
| $\eta_{\text {s }}$ | 232 \% | 164 \% |
| Prated | 5.71 kW | 6.10 kW |
| SCOP | 5.87 | 4.16 |
| Tbiv | $2{ }^{\circ} \mathrm{C}$ | $2{ }^{\circ} \mathrm{C}$ |
| TOL | $2{ }^{\circ} \mathrm{C}$ | $2{ }^{\circ} \mathrm{C}$ |
| Pdh $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 5.71 kW | 6.10 kW |
| $\operatorname{COP~Tj}=+2^{\circ} \mathrm{C}$ | 3.29 | 2.29 |
| Cdh $\mathrm{Tj}=+{ }^{\circ} \mathrm{C}$ | 0.980 | 0.990 |
| Pdh $\mathrm{Tj}=+7^{\circ} \mathrm{C}$ | 3.73 kW | 4.28 kW |
| $\operatorname{COP~} \mathrm{Tj}=+7^{\circ} \mathrm{C}$ | 5.59 | 3.58 |
| Cdh Tj $=+{ }^{\circ}{ }^{\circ} \mathrm{C}$ | 0.960 | 0.980 |
| Pdh $\mathrm{Tj}=12^{\circ} \mathrm{C}$ | 3.64 kW | 3.51 kW |
| $\operatorname{COP} \mathrm{Tj}=12^{\circ} \mathrm{C}$ | 7.36 | 5.59 |
| Cdh $\mathrm{Tj}=+12{ }^{\circ} \mathrm{C}$ | 0.950 | 0.960 |
| Pdh $\mathrm{Tj}=\mathrm{Tbiv}$ | 5.71 kW | 6.10 kW |

This information was generated by the HP KEYMARK database on 13 Oct 2022

| COP Tj = Tbiv | 3.29 | 2.29 |
| :--- | :--- | :--- |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 5.71 kW | 6.10 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.29 | 2.29 |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |  |  |
| WTOL | $55^{\circ} \mathrm{C}$ | $55^{\circ} \mathrm{C}$ |
| Poff | 8 W | 8 W |
| PTO | 29 W | 29 W |
| PSB | 29 W | 29 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | 0.00 kW | Electricity |
| Supplementary Heater: PSUP | 1299 kWh | 1956 kWh |
| Annual energy consumption Qhe | 0.00 kW |  |

## Colder Climate

| EN 12102-1 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| Sound power level outdoor | $53 \mathrm{~dB}(\mathrm{~A})$ | $55 \mathrm{~dB}(\mathrm{~A})$ |


| EN 14825 |  |  |
| :--- | :--- | :--- |
|  |  | Low temperature |
|  | Medium temperature |  |
| $n_{s}$ | $162 \%$ | $117 \%$ |

This information was generated by the HP KEYMARK database on 13 Oct 2022

| Prated | 4.25 kW | 3.92 kW |
| :---: | :---: | :---: |
| SCOP | 4.11 | 3.00 |
| Tbiv | $-20{ }^{\circ} \mathrm{C}$ | $-20{ }^{\circ} \mathrm{C}$ |
| TOL | $-20{ }^{\circ} \mathrm{C}$ | $-20{ }^{\circ} \mathrm{C}$ |
| Pdh $\mathrm{Tj}=-7^{\circ} \mathrm{C}$ | 2.81 kW | 2.28 kW |
| $\operatorname{COP~Tj~}=-7{ }^{\circ} \mathrm{C}$ | 3.51 | 2.43 |
| $\mathrm{Cdh} \mathrm{Tj}=-7{ }^{\circ} \mathrm{C}$ | 0.970 | 0.970 |
| Pdh $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 2.71 kW | 2.53 kW |
| $\operatorname{COP} \mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 5.06 | 3.72 |
| Cdh Tj $=+2^{\circ} \mathrm{C}$ | 0.950 | 0.960 |
| Pdh $\mathrm{Tj}=+{ }^{\circ} \mathrm{C}$ | 3.10 kW | 3.01 kW |
| $\operatorname{COP} \mathrm{Tj}=+7^{\circ} \mathrm{C}$ | 6.39 | 4.89 |
| Cdh $\mathrm{Tj}=+{ }^{\circ} \mathrm{C}$ | 0.950 | 0.960 |
| Pdh $\mathrm{Tj}=12^{\circ} \mathrm{C}$ | 3.69 kW | 3.58 kW |
| $\operatorname{COP} \mathrm{Tj}=12^{\circ} \mathrm{C}$ | 7.84 | 6.44 |
| $\mathrm{Cdh} \mathrm{Tj}=+12{ }^{\circ} \mathrm{C}$ | 0.940 | 0.950 |
| Pdh $\mathrm{Tj}=\mathrm{Tbiv}$ | 4.03 kW | 3.71 kW |
| COP $\mathrm{Tj}=$ Tbiv | 2.20 | 1.59 |
| Pdh $\mathrm{Tj}=\mathrm{TOL}$ or Pdh $\mathrm{Tj}=$ Tdesignh if TOL < Tdesignh | 4.03 kW | 3.71 kW |
| COP $\mathrm{Tj}=$ TOL or COP $\mathrm{Tj}=$ Tdesignh if TOL $<$ Tdesignh | 2.20 | 1.59 |
| Cdh $\mathrm{Tj}=\mathrm{TOL}$ or Pdh $\mathrm{Tj}=$ Tdesignh if TOL < Tdesignh |  |  |

[^0]This information was generated by the HP KEYMARK database on 13 Oct 2022

| WTOL | $55^{\circ} \mathrm{C}$ | $55^{\circ} \mathrm{C}$ |
| :--- | :--- | :--- |
| Poff | 8 W | 8 W |
| PTO | 29 W | 29 W |
| PSB | 29 W | 29 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 4.25 kW | 3.92 kW |
| Annual energy consumption Qhe | 2549 kWh | 3219 kWh |
| Pdh $\mathrm{Tj}=-15^{\circ} \mathrm{C}$ (if TOL<-20 ${ }^{\circ} \mathrm{C}$ ) |  |  |
| COP $\mathrm{Tj}=-15^{\circ} \mathrm{C}$ (if TOL<-20 ${ }^{\circ} \mathrm{C}$ ) |  |  |
| Cdh $\mathrm{Tj}=-15^{\circ} \mathrm{C}$ |  |  |

## Average Climate

| EN 12102-1 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| Sound power level outdoor | $53 \mathrm{~dB}(\mathrm{~A})$ | $55 \mathrm{~dB}(\mathrm{~A})$ |


| EN 14825 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| $\eta_{s}$ | $188 \%$ | $131 \%$ |
| Prated | 5.75 kW | 4.49 kW |

This information was generated by the HP KEYMARK database on 13 Oct 2022

| SCOP | 4.76 | 3.35 |
| :---: | :---: | :---: |
| Tbiv | $-10{ }^{\circ} \mathrm{C}$ | $-10{ }^{\circ} \mathrm{C}$ |
| TOL | $-10^{\circ} \mathrm{C}$ | $-10{ }^{\circ} \mathrm{C}$ |
| Pdh $\mathrm{Tj}=-7^{\circ} \mathrm{C}$ | 5.19 kW | 3.89 kW |
| COP $\mathrm{Tj}=-7^{\circ} \mathrm{C}$ | 3.10 | 2.19 |
| $\mathrm{Cdh} \mathrm{Tj}=-7^{\circ} \mathrm{C}$ | 0.980 | 0.980 |
| Pdh $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 3.01 kW | 2.57 kW |
| COP $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 4.73 | 3.25 |
| Cdh $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 0.960 | 0.960 |
| Pdh $\mathrm{Tj}=+7^{\circ} \mathrm{C}$ | 3.09 kW | 2.95 kW |
| COP Tj $=+7^{\circ} \mathrm{C}$ | 6.17 | 4.48 |
| $\mathrm{Cdh} \mathrm{Tj}=+{ }^{\circ} \mathrm{C}$ | 0.950 | 0.960 |
| Pdh $\mathrm{Tj}=12^{\circ} \mathrm{C}$ | 3.66 kW | 3.56 kW |
| $\operatorname{COP~} \mathrm{Tj}=12^{\circ} \mathrm{C}$ | 7.60 | 6.06 |
| Cdh $\mathrm{Tj}=+12{ }^{\circ} \mathrm{C}$ | 0.940 | 0.950 |
| Pdh $\mathrm{Tj}=\mathrm{Tbiv}$ | 5.37 kW | 4.84 kW |
| COP $\mathrm{Tj}=$ Tbiv | 2.78 | 1.89 |
| Pdh $\mathrm{Tj}=\mathrm{TOL}$ or Pdh $\mathrm{Tj}=$ Tdesignh if TOL < Tdesignh | 5.37 kW | 4.84 kW |
| COP $\mathrm{Tj}=$ TOL or COP $\mathrm{Tj}=$ Tdesignh if TOL $<$ Tdesignh | 2.78 | 1.89 |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |  |  |
| WTOL | $55^{\circ} \mathrm{C}$ | $55^{\circ} \mathrm{C}$ |

This information was generated by the HP KEYMARK database on 13 Oct 2022

| Poff | 8 W | 8 W |
| :--- | :--- | :--- |
| PTO | 29 W | 29 W |
| PSB | 29 W | 29 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 2494 kWh | 2766 kWh |
| Annual energy consumption Qhe |  |  |

CEN heat pump

This information was generated by the HP KEYMARK database on 13 Oct 2022

## Model: HA 6-6 0 230V B2

| Configure model |  |
| :--- | :--- |
| Model name | HA 6-6 O 230V B2 |
| Application | Heating (medium temp) |
| Units | Outdoor |
| Climate Zone | Colder Climate + Warmer Climate |
| Reversibility | No |
| Cooling mode application (optional) | n/a |


| General Data |  |
| :--- | :--- |
| Power supply | $1 \times 230 \mathrm{~V} 50 \mathrm{~Hz}$ |

Heating

| EN 14511-2 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| Heat output | 4.48 kW | 4.94 kW |
| El input | 0.94 kW | 1.69 kW |
| COP | 4.78 | 2.93 |


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

## Warmer Climate

| EN 12102-1 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| Sound power level outdoor | $53 \mathrm{~dB}(\mathrm{~A})$ | $55 \mathrm{~dB}(\mathrm{~A})$ |


| EN 14825 |  |  |
| :---: | :---: | :---: |
|  | Low temperature | Medium temperature |
| $\eta_{\text {s }}$ | 226 \% | 161 \% |
| Prated | 5.71 kW | 6.10 kW |
| SCOP | 5.71 | 4.09 |
| Tbiv | $2^{\circ} \mathrm{C}$ | $2{ }^{\circ} \mathrm{C}$ |
| TOL | $2^{\circ} \mathrm{C}$ | $2{ }^{\circ} \mathrm{C}$ |
| Pdh $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 5.71 kW | 6.10 kW |
| $\operatorname{COP~Tj}=+2^{\circ} \mathrm{C}$ | 3.29 | 2.29 |
| Cdh Tj $=+2{ }^{\circ} \mathrm{C}$ | 0.980 | 0.990 |
| Pdh $\mathrm{Tj}=+7^{\circ} \mathrm{C}$ | 3.73 kW | 4.28 kW |
| $\operatorname{COP~} \mathrm{Tj}=+7^{\circ} \mathrm{C}$ | 5.59 | 3.58 |
| Cdh Tj $=+{ }^{\circ}{ }^{\circ} \mathrm{C}$ | 0.960 | 0.980 |
| Pdh $\mathrm{Tj}=12^{\circ} \mathrm{C}$ | 3.64 kW | 3.51 kW |
| $\operatorname{COP~Tj}=12^{\circ} \mathrm{C}$ | 7.36 | 5.59 |
| Cdh $\mathrm{Tj}=+12{ }^{\circ} \mathrm{C}$ | 0.950 | 0.960 |
| Pdh $\mathrm{Tj}=\mathrm{Tbiv}$ | 5.71 kW | 6.10 kW |

This information was generated by the HP KEYMARK database on 13 Oct 2022

| COP Tj = Tbiv | 3.29 | 2.29 |
| :--- | :--- | :--- |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 5.71 kW | 6.10 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.29 | 2.29 |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |  |  |
| WTOL | $55^{\circ} \mathrm{C}$ | $55^{\circ} \mathrm{C}$ |
| Poff | 8 W | 8 W |
| PTO | 29 W | 29 W |
| PSB | 29 W | 29 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | 0.00 kW | Electricity |
| Supplementary Heater: PSUP | 1335 kWh | 1993 kWh |
| Annual energy consumption Qhe | 0.00 kW |  |

## Colder Climate

| EN 12102-1 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| Sound power level outdoor | $53 \mathrm{~dB}(\mathrm{~A})$ | $55 \mathrm{~dB}(\mathrm{~A})$ |


| EN 14825 |  |  |
| :--- | :--- | :--- |
|  |  | Low temperature |
|  | Medium temperature |  |
| $n_{s}$ | $160 \%$ | $116 \%$ |

This information was generated by the HP KEYMARK database on 13 Oct 2022

| Prated | 4.25 kW | 3.92 kW |
| :---: | :---: | :---: |
| SCOP | 4.08 | 2.98 |
| Tbiv | $-20^{\circ} \mathrm{C}$ | $-20{ }^{\circ} \mathrm{C}$ |
| TOL | $-20{ }^{\circ} \mathrm{C}$ | $-20{ }^{\circ} \mathrm{C}$ |
| Pdh $\mathrm{Tj}=-7^{\circ} \mathrm{C}$ | 2.81 kW | 2.28 kW |
| $\operatorname{COP~Tj~}=-7{ }^{\circ} \mathrm{C}$ | 3.51 | 2.43 |
| $\mathrm{Cdh} \mathrm{Tj}=-7{ }^{\circ} \mathrm{C}$ | 0.970 | 0.970 |
| Pdh $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 2.71 kW | 2.53 kW |
| $\operatorname{COP} \mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 5.06 | 3.72 |
| Cdh Tj $=+2^{\circ} \mathrm{C}$ | 0.950 | 0.960 |
| Pdh $\mathrm{Tj}=+{ }^{\circ} \mathrm{C}$ | 3.10 kW | 3.01 kW |
| $\operatorname{COP} \mathrm{Tj}=+7^{\circ} \mathrm{C}$ | 6.39 | 4.89 |
| Cdh $\mathrm{Tj}=+{ }^{\circ} \mathrm{C}$ | 0.950 | 0.960 |
| Pdh $\mathrm{Tj}=12^{\circ} \mathrm{C}$ | 3.69 kW | 3.58 kW |
| $\operatorname{COP} \mathrm{Tj}=12^{\circ} \mathrm{C}$ | 7.84 | 6.44 |
| $\mathrm{Cdh} \mathrm{Tj}=+12{ }^{\circ} \mathrm{C}$ | 0.940 | 0.950 |
| Pdh $\mathrm{Tj}=\mathrm{Tbiv}$ | 4.03 kW | 3.71 kW |
| COP $\mathrm{Tj}=$ Tbiv | 2.20 | 1.59 |
| Pdh $\mathrm{Tj}=\mathrm{TOL}$ or Pdh $\mathrm{Tj}=$ Tdesignh if TOL < Tdesignh | 4.03 kW | 3.71 kW |
| COP $\mathrm{Tj}=$ TOL or COP $\mathrm{Tj}=$ Tdesignh if TOL $<$ Tdesignh | 2.20 | 1.59 |
| Cdh $\mathrm{Tj}=\mathrm{TOL}$ or Pdh $\mathrm{Tj}=$ Tdesignh if TOL < Tdesignh |  |  |

[^1]This information was generated by the HP KEYMARK database on 13 Oct 2022

| WTOL | $55^{\circ} \mathrm{C}$ | $55^{\circ} \mathrm{C}$ |
| :--- | :--- | :--- |
| Poff | 8 W | 8 W |
| PTO | 29 W | 29 W |
| PSB | 29 W | 29 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 4.25 kW | 3.92 kW |
| Annual energy consumption Qhe | 2567 kWh | 3237 kWh |
| Pdh $\mathrm{Tj}=-15^{\circ} \mathrm{C}$ (if TOL<-20 ${ }^{\circ} \mathrm{C}$ ) |  |  |
| COP $\mathrm{Tj}=-15^{\circ} \mathrm{C}$ (if TOL<-20 ${ }^{\circ} \mathrm{C}$ ) |  |  |
| Cdh $\mathrm{Tj}=-15^{\circ} \mathrm{C}$ |  |  |

## Average Climate

| EN 12102-1 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| Sound power level outdoor | $53 \mathrm{~dB}(\mathrm{~A})$ | $55 \mathrm{~dB}(\mathrm{~A})$ |


| EN 14825 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| $\eta_{s}$ | $185 \%$ | $130 \%$ |
| Prated | 5.75 kW | 4.49 kW |

This information was generated by the HP KEYMARK database on 13 Oct 2022

| SCOP | 4.71 | 3.32 |
| :---: | :---: | :---: |
| Tbiv | $-10{ }^{\circ} \mathrm{C}$ | $-10{ }^{\circ} \mathrm{C}$ |
| TOL | $-10^{\circ} \mathrm{C}$ | $-10{ }^{\circ} \mathrm{C}$ |
| Pdh $\mathrm{Tj}=-7^{\circ} \mathrm{C}$ | 5.19 kW | 3.89 kW |
| COP $\mathrm{Tj}=-7^{\circ} \mathrm{C}$ | 3.10 | 2.19 |
| $\mathrm{Cdh} \mathrm{Tj}=-7^{\circ} \mathrm{C}$ | 0.980 | 0.980 |
| Pdh $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 3.01 kW | 2.57 kW |
| COP $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 4.73 | 3.25 |
| Cdh $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 0.960 | 0.960 |
| Pdh $\mathrm{Tj}=+7^{\circ} \mathrm{C}$ | 3.09 kW | 2.95 kW |
| COP Tj $=+7^{\circ} \mathrm{C}$ | 6.17 | 4.48 |
| $\mathrm{Cdh} \mathrm{Tj}=+{ }^{\circ} \mathrm{C}$ | 0.950 | 0.960 |
| Pdh $\mathrm{Tj}=12^{\circ} \mathrm{C}$ | 3.66 kW | 3.56 kW |
| $\operatorname{COP~} \mathrm{Tj}=12^{\circ} \mathrm{C}$ | 7.60 | 6.06 |
| Cdh $\mathrm{Tj}=+12{ }^{\circ} \mathrm{C}$ | 0.940 | 0.950 |
| Pdh $\mathrm{Tj}=\mathrm{Tbiv}$ | 5.37 kW | 4.84 kW |
| COP $\mathrm{Tj}=$ Tbiv | 2.78 | 1.89 |
| Pdh $\mathrm{Tj}=\mathrm{TOL}$ or Pdh $\mathrm{Tj}=$ Tdesignh if TOL < Tdesignh | 5.37 kW | 4.84 kW |
| COP $\mathrm{Tj}=$ TOL or COP $\mathrm{Tj}=$ Tdesignh if TOL $<$ Tdesignh | 2.78 | 1.89 |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |  |  |
| WTOL | $55^{\circ} \mathrm{C}$ | $55^{\circ} \mathrm{C}$ |

This information was generated by the HP KEYMARK database on 13 Oct 2022

| Poff | 8 W | 8 W |
| :--- | :--- | :--- |
| PTO | 29 W | 29 W |
| PSB | 29 W | 29 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 0.00 kW | 2796 kWh |
| Annual energy consumption Qhe | 2524 kWh | 2 |

CEN heat pump

This information was generated by the HP KEYMARK database on 13 Oct 2022

## Model: HA 6-6 O 230V B3

| Configure model |  |
| :--- | :--- |
| Model name | HA 6-6 O 230V B3 |
| Application | Heating (medium temp) |
| Units | Outdoor |
| Climate Zone | Colder Climate + Warmer Climate |
| Reversibility | Yes |
| Cooling mode application (optional) | n/a |


| General Data |  |
| :--- | :--- |
| Power supply | $1 \times 230 \mathrm{~V} 50 \mathrm{~Hz}$ |

Heating

| EN 14511-2 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| Heat output | 5.12 kW | 5.80 kW |
| El input | 1.10 kW | 2.00 kW |
| COP | 4.66 | 2.89 |


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

## Warmer Climate

| EN 12102-1 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| Sound power level outdoor | $50 \mathrm{~dB}(\mathrm{~A})$ | $57 \mathrm{~dB}(\mathrm{~A})$ |


| EN 14825 |  |  |
| :---: | :---: | :---: |
|  | Low temperature | Medium temperature |
| $\mathrm{n}_{\mathrm{s}}$ | 229 \% | 162 \% |
| Prated | 5.31 kW | 5.98 kW |
| SCOP | 5.81 | 4.12 |
| Tbiv | $2^{\circ} \mathrm{C}$ | $2{ }^{\circ} \mathrm{C}$ |
| TOL | $2{ }^{\circ} \mathrm{C}$ | $2{ }^{\circ} \mathrm{C}$ |
| Pdh $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 5.31 kW | 5.98 kW |
| COP $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 3.46 | 2.33 |
| Cdh $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 0.98 | 0.99 |
| Pdh $\mathrm{Tj}=+7^{\circ} \mathrm{C}$ | 4.12 kW | 3.72 kW |
| COP $\mathrm{Tj}=+7^{\circ} \mathrm{C}$ | 5.49 | 3.50 |
| Cdh $\mathrm{Tj}=+{ }^{\circ} \mathrm{C}$ | 0.96 | 0.97 |
| Pdh $\mathrm{Tj}=12^{\circ} \mathrm{C}$ | 3.67 kW | 3.52 kW |
| $\operatorname{COP} \mathrm{Tj}=12^{\circ} \mathrm{C}$ | 7.40 | 5.58 |
| $\mathrm{Cdh} \mathrm{Tj}=+12{ }^{\circ} \mathrm{C}$ | 0.95 | 0.96 |
| Pdh $\mathrm{Tj}=\mathrm{Tbiv}$ | 5.31 kW | 5.98 kW |

This information was generated by the HP KEYMARK database on 13 Oct 2022

| COP Tj = Tbiv | 3.46 | 2.33 |
| :--- | :--- | :--- |
| Pdh $\mathrm{Tj}=$ TOL or Pdh $\mathrm{Tj}=$ Tdesignh if TOL < Tdesignh | 5.31 kW | 5.98 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.46 | 2.33 |
| WTOL | $55^{\circ} \mathrm{C}$ | $55^{\circ} \mathrm{C}$ |
| Poff | 8 W | 8 W |
| PTO | 29 W | 29 W |
| PSB | 29 W | 29 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 | 1222 kWh | 1938 kWh |

## Colder Climate

| EN 12102-1 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| Sound power level outdoor | $50 \mathrm{~dB}(\mathrm{~A})$ | $57 \mathrm{~dB}(\mathrm{~A})$ |


| EN 14825 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| $\eta_{s}$ | $162 \%$ | $121 \%$ |
| Prated | 5.97 kW | 5.51 kW |

This information was generated by the HP KEYMARK database on 13 Oct 2022

| SCOP | 4.13 | 3.10 |
| :---: | :---: | :---: |
| Tbiv | $-15^{\circ} \mathrm{C}$ | $-15^{\circ} \mathrm{C}$ |
| TOL | $-20^{\circ} \mathrm{C}$ | $-20{ }^{\circ} \mathrm{C}$ |
| Pdh $\mathrm{Tj}=-7^{\circ} \mathrm{C}$ | 3.58 kW | 3.27 kW |
| COP $\mathrm{Tj}=-7^{\circ} \mathrm{C}$ | 3.45 | 2.55 |
| $\mathrm{Cdh} \mathrm{Tj}=-7{ }^{\circ} \mathrm{C}$ | 0.970 | 0.980 |
| Pdh $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 2.75 kW | 2.58 kW |
| $\operatorname{COPTj}=+2^{\circ} \mathrm{C}$ | 5.17 | 3.80 |
| $\mathrm{Cdh} \mathrm{Tj}=+2{ }^{\circ} \mathrm{C}$ | 0.950 | 0.960 |
| Pdh $\mathrm{Tj}=+{ }^{\circ} \mathrm{C}$ | 3.16 kW | 3.07 kW |
| $\operatorname{COPTj}=+{ }^{\circ} \mathrm{C}$ | 6.64 | 5.07 |
| $\mathrm{Cdh} \mathrm{Tj}=+7^{\circ} \mathrm{C}$ | 0.940 | 0.960 |
| Pdh $\mathrm{Tj}=12^{\circ} \mathrm{C}$ | 3.69 kW | 3.60 kW |
| $\operatorname{COP} \mathrm{Tj}=12^{\circ} \mathrm{C}$ | 7.77 | 6.57 |
| $\mathrm{Cdh} \mathrm{Tj}=+12^{\circ} \mathrm{C}$ | 0.940 | 0.950 |
| Pdh $\mathrm{Tj}=\mathrm{Tbiv}$ | 4.87 kW | 4.50 kW |
| COP $\mathrm{Tj}=\mathrm{Tbiv}$ | 2.57 | 1.91 |
| Pdh $\mathrm{Tj}=\mathrm{TOL}$ or Pdh $\mathrm{Tj}=$ Tdesignh if TOL $<$ Tdesignh | 4.10 kW | 3.76 kW |
| COP Tj $=$ TOL or COP Tj $=$ Tdesignh if TOL < Tdesignh | 2.23 | 1.58 |
| Cdh $\mathrm{Tj}=\mathrm{TOL}$ or Pdh $\mathrm{Tj}=$ Tdesignh if $\mathrm{TOL}<$ Tdesignh |  |  |
| WTOL | $55^{\circ} \mathrm{C}$ | $55^{\circ} \mathrm{C}$ |

This information was generated by the HP KEYMARK database on 13 Oct 2022

| Poff | 8 W | 8 W |
| :--- | :--- | :--- |
| PTO | 29 W | 29 W |
| PSB | 29 W | 29 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 5.97 kW | 5.51 kW |
| Annual energy consumption Qhe | 3560 kWh | 4385 kWh |
| Pdh Tj $=-15^{\circ} \mathrm{C}$ (if TOL<-20 |  |  |
| COP $\mathrm{Tj}=-15^{\circ} \mathrm{C}$ (if TOL<-20 |  |  |
| Cdh Tj $=-15^{\circ} \mathrm{C}$ |  |  |

## Average Climate

| EN 12102-1 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| Sound power level outdoor | $50 \mathrm{~dB}(\mathrm{~A})$ | $57 \mathrm{~dB}(\mathrm{~A})$ |


| EN 14825 |  |  |
| :--- | :--- | :--- |
|  | Low temperature | Medium temperature |
| $\eta_{s}$ | $186 \%$ | $136 \%$ |
| Prated | 6.73 kW | 6.26 kW |
| SCOP | 4.71 | 3.47 |

This information was generated by the HP KEYMARK database on 13 Oct 2022

| Tbiv | $-7{ }^{\circ} \mathrm{C}$ | $-7{ }^{\circ} \mathrm{C}$ |
| :---: | :---: | :---: |
| TOL | $-10{ }^{\circ} \mathrm{C}$ | $-10{ }^{\circ} \mathrm{C}$ |
| Pdh $\mathrm{Tj}=-7^{\circ} \mathrm{C}$ | 5.96 kW | 5.54 kW |
| $\operatorname{COP~Tj}=-7^{\circ} \mathrm{C}$ | 3.01 | 2.14 |
| $\mathrm{Cdh} \mathrm{Tj}=-7{ }^{\circ} \mathrm{C}$ | 0.990 | 0.990 |
| Pdh $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 3.67 kW | 3.63 kW |
| $\operatorname{COPTj}=+2^{\circ} \mathrm{C}$ | 4.62 | 3.39 |
| Cdh $\mathrm{Tj}=+2^{\circ} \mathrm{C}$ | 0.970 | 0.970 |
| Pdh $\mathrm{Tj}=+7^{\circ} \mathrm{C}$ | 3.12 kW | 3.01 kW |
| $\operatorname{COPTj}=+7^{\circ} \mathrm{C}$ | 6.36 | 4.67 |
| Cdh $\mathrm{Tj}=+{ }^{\circ} \mathrm{C}$ | 0.950 | 0.960 |
| Pdh $\mathrm{Tj}=12^{\circ} \mathrm{C}$ | 3.69 kW | 3.57 kW |
| $\operatorname{COP~Tj~}=12^{\circ} \mathrm{C}$ | 7.82 | 6.19 |
| Cdh $\mathrm{Tj}=+12^{\circ} \mathrm{C}$ | 0.940 | 0.950 |
| Pdh $\mathrm{Tj}=\mathrm{Tbiv}$ | 5.96 kW | 5.54 kW |
| COP $\mathrm{Tj}=$ Tbiv | 3.01 | 2.14 |
| Pdh $\mathrm{Tj}=\mathrm{TOL}$ or Pdh $\mathrm{Tj}=$ Tdesignh if $\mathrm{TOL}<$ Tdesignh | 5.52 kW | 5.05 kW |
| COP $\mathrm{Tj}=$ TOL or COP $\mathrm{Tj}=$ Tdesignh if TOL $<$ Tdesignh | 2.77 | 1.90 |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh |  |  |
| WTOL | $55^{\circ} \mathrm{C}$ | $55^{\circ} \mathrm{C}$ |
| Poff | 8 W | 8 W |

This information was generated by the HP KEYMARK database on 13 Oct 2022

| PTO | 29 W | 29 W |
| :--- | :--- | :--- |
| PSB | 29 W | 29 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 1.21 kW | 1.21 kW |
| Annual energy consumption Qhe | 2951 kWh | 3731 kWh |


[^0]:    EHPA Secretariat | Rue dArlon 63-67 | Phone: +32 24001017 | Email: secretariat@heatpumpkeymark.com | www.heatpumpkeymark.com

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