

This information was generated by the HP KEYMARK database on 21 Jun 2022

[Login](#)

| | | | |
|---------------------|--|----------|----------|
| Summary of | HA 12-6 O 230V, HA 12-6 O | Reg. No. | 40051134 |
| Certificate Holder | | | |
| Name | Saunier Duval Brand Group | | |
| Address | | Zip | |
| City | | Country | Germany |
| Certification Body | VDE Prüf- und Zertifizierungsinstitut GmbH | | |
| Subtype title | HA 12-6 O 230V, HA 12-6 O | | |
| Heat Pump Type | Outdoor Air/Water | | |
| Refrigerant | R290 | | |
| Mass of Refrigerant | 1.3 kg | | |
| Certification Date | 25.03.2022 | | |
| 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

| Configure model | |
|-------------------------------------|---------------------------------|
| Model name | HA 12-6 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 | 1x230V 50Hz |

Heating

| EN 14511-2 | | |
|-------------|-----------------|--------------------|
| | Low temperature | Medium temperature |
| Heat output | 8.54 kW | 9.13 kW |
| El input | 1.58 kW | 2.92 kW |
| COP | 5.38 | 3.11 |

| 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 21 Jun 2022

EN 12102-1

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

EN 14825

| | Low temperature | Medium temperature |
|-----------------|-----------------|--------------------|
| η_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 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|-------------|-------------|
| COP $T_j = T_{biv}$ | 3.23 | 2.21 |
| P _{dh} $T_j = TOL$ or P _{dh} $T_j = T_{designh}$ if $TOL < T_{designh}$ | 11.35 kW | 11.06 kW |
| COP $T_j = TOL$ or COP $T_j = T_{designh}$ if $TOL < T_{designh}$ | 3.23 | 2.21 |
| WTOL | 70 °C | 70 °C |
| P _{off} | 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 |

Colder Climate

| EN 12102-1 | | |
|---------------------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| Sound power level outdoor | 58 dB(A) | 60 dB(A) |

| EN 14825 | | |
|-----------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| η_s | 170 % | 128 % |
| Prated | 12.16 kW | 11.09 kW |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|---------|---------|
| 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 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|--|-------------|-------------|
| 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<-20°C) | 9.92 | 9.04 |
| COP Tj = -15°C (if TOL<-20°C) | 2.26 | 1.81 |
| Cdh Tj = -15 °C | 0.990 | 0.990 |

Average Climate

| EN 12102-1 | | |
|---------------------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| Sound power level outdoor | 58 dB(A) | 60 dB(A) |

| EN 14825 | | |
|-----------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| η_s | 195 % | 147 % |
| Prated | 12.73 kW | 11.81 kW |
| SCOP | 4.96 | 3.75 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|----------|----------|
| 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 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|--|-------------|-------------|
| 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 Q _{he} | 5305 kWh | 6501 kWh |

Model: HA 12-6 O 230V B2

| Configure model | |
|-------------------------------------|---------------------------------|
| Model name | HA 12-6 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 | 1x230V 50Hz |

Heating

| EN 14511-2 | | |
|-------------|-----------------|--------------------|
| | Low temperature | Medium temperature |
| Heat output | 8.54 kW | 9.13 kW |
| El input | 1.58 kW | 2.92 kW |
| COP | 5.38 | 3.11 |

| 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 | 58 dB(A) | 60 dB(A) |

EN 14825

| | Low temperature | Medium temperature |
|-----------------|-----------------|--------------------|
| η_s | 250 % | 172 % |
| Prated | 11.35 kW | 11.06 kW |
| SCOP | 6.32 | 4.38 |
| 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 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|-------------|-------------|
| COP $T_j = T_{biv}$ | 3.23 | 2.21 |
| $P_{dh} T_j = TOL$ or $P_{dh} T_j = T_{designh}$ if $TOL < T_{designh}$ | 11.35 kW | 11.06 kW |
| COP $T_j = TOL$ or COP $T_j = T_{designh}$ if $TOL < T_{designh}$ | 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 |

Colder Climate

| EN 12102-1 | | |
|---------------------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| Sound power level outdoor | 58 dB(A) | 60 dB(A) |

| EN 14825 | | |
|-----------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| η_s | 169 % | 128 % |
| Prated | 12.16 kW | 11.09 kW |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|---------|---------|
| 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 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|-------------|-------------|
| 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 _{he} | 6954 kWh | 8339 kWh |
| P _{dh} T _j = -15°C (if TOL<-20°C) | 9.92 | 9.04 |
| COP T _j = -15°C (if TOL<-20°C) | 2.26 | 1.81 |
| C _{dh} T _j = -15 °C | 0.990 | 0.990 |

Average Climate

| EN 12102-1 | | |
|---------------------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| Sound power level outdoor | 58 dB(A) | 60 dB(A) |

| EN 14825 | | |
|-----------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| η_s | 194 % | 146 % |
| Prated | 12.73 kW | 11.81 kW |
| SCOP | 4.93 | 3.74 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|----------|----------|
| 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 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|--|-------------|-------------|
| 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 Q _{he} | 5335 kWh | 6532 kWh |

Model: HA 12-6 O

| Configure model | |
|-------------------------------------|---------------------------------|
| Model name | HA 12-6 O |
| Application | Heating (medium temp) |
| Units | Outdoor |
| Climate Zone | Colder Climate + Warmer Climate |
| Reversibility | Yes |
| Cooling mode application (optional) | n/a |

| General Data | |
|--------------|-------------|
| Power supply | 3x400V 50Hz |

Heating

| EN 14511-2 | | |
|-------------|-----------------|--------------------|
| | Low temperature | Medium temperature |
| Heat output | 8.54 kW | 9.13 kW |
| El input | 1.58 kW | 2.92 kW |
| COP | 5.38 | 3.11 |

| 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 | 58 dB(A) | 60 dB(A) |

EN 14825

| | Low temperature | Medium temperature |
|-----------------|-----------------|--------------------|
| η_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 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|-------------|-------------|
| COP $T_j = T_{biv}$ | 3.23 | 2.21 |
| $P_{dh} T_j = TOL$ or $P_{dh} T_j = T_{designh}$ if $TOL < T_{designh}$ | 11.35 kW | 11.06 kW |
| COP $T_j = TOL$ or COP $T_j = T_{designh}$ if $TOL < T_{designh}$ | 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 |

Colder Climate

| EN 12102-1 | | |
|---------------------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| Sound power level outdoor | 58 dB(A) | 60 dB(A) |

| EN 14825 | | |
|-----------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| η_s | 170 % | 128 % |
| Prated | 12.16 kW | 11.09 kW |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|---------|---------|
| 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 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|-------------|-------------|
| 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 _{he} | 6936 kWh | 8334 kWh |
| P _{dh} T _j = -15°C (if TOL<-20°C) | 9.92 | 9.04 |
| COP T _j = -15°C (if TOL<-20°C) | 2.26 | 1.81 |
| C _{dh} T _j = -15 °C | 0.990 | 0.990 |

Average Climate

| EN 12102-1 | | |
|---------------------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| Sound power level outdoor | 58 dB(A) | 60 dB(A) |

| EN 14825 | | |
|-----------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| η_s | 195 % | 147 % |
| Prated | 12.73 kW | 11.81 kW |
| SCOP | 4.96 | 3.75 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|----------|----------|
| 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 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|--|-------------|-------------|
| 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 Q _{he} | 5313 kWh | 6511 kWh |

Model: HA 12-6 O B2

| Configure model | |
|-------------------------------------|---------------------------------|
| Model name | HA 12-6 O 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 | 3x400V 50Hz |

Heating

| EN 14511-2 | | |
|-------------|-----------------|--------------------|
| | Low temperature | Medium temperature |
| Heat output | 8.44 kW | 8.93 kW |
| El input | 1.60 kW | 2.93 kW |
| COP | 5.24 | 3.04 |

| 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 21 Jun 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 | 250 % | 170 % |
| Prated | 11.35 kW | 11.06 kW |
| SCOP | 6.32 | 4.33 |
| 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 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|-------------|-------------|
| COP $T_j = T_{biv}$ | 3.23 | 2.21 |
| P _{dh} $T_j = TOL$ or P _{dh} $T_j = T_{designh}$ if $TOL < T_{designh}$ | 11.35 kW | 11.06 kW |
| COP $T_j = TOL$ or COP $T_j = T_{designh}$ if $TOL < T_{designh}$ | 3.23 | 2.21 |
| WTOL | 70 °C | 70 °C |
| P _{off} | 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 |

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 | 169 % | 128 % |
| Prated | 12.16 kW | 11.09 kW |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|---------|---------|
| 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 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|--|-------------|-------------|
| 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 | 6954 kWh | 8365 kWh |
| Pdh Tj = -15°C (if TOL<-20°C) | 9.92 | 9.04 |
| COP Tj = -15°C (if TOL<-20°C) | 2.26 | 1.81 |
| Cdh Tj = -15 °C | 0.990 | 0.990 |

Average 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 | 193 % | 146 % |
| Prated | 12.73 kW | 11.81 kW |
| SCOP | 4.90 | 3.72 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|----------|----------|
| 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 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|--|-------------|-------------|
| 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 Q _{he} | 5366 kWh | 6563 kWh |

Model: HA 15-6 O 230V B3

| Configure model | |
|-------------------------------------|---------------------------------|
| Model name | HA 15-6 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 | 1x230V 50Hz |

Heating

| EN 14511-2 | | |
|-------------|-----------------|--------------------|
| | Low temperature | Medium temperature |
| Heat output | 14.29 kW | 14.16 kW |
| El input | 3.29 kW | 5.06 kW |
| COP | 4.33 | 2.79 |

| 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 | 61 dB(A) | 61 dB(A) |

EN 14825

| | Low temperature | Medium temperature |
|-----------------|-----------------|--------------------|
| η_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 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|-------------|-------------|
| COP $T_j = T_{biv}$ | 3.19 | 2.05 |
| P _{dh} $T_j = TOL$ or P _{dh} $T_j = T_{designh}$ if $TOL < T_{designh}$ | 12.02 kW | 12.69 kW |
| COP $T_j = TOL$ or COP $T_j = T_{designh}$ if $TOL < T_{designh}$ | 3.19 | 2.05 |
| WTOL | 55 °C | 55 °C |
| P _{off} | 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 |

Colder Climate

| EN 12102-1 | | |
|---------------------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| Sound power level outdoor | 61 dB(A) | 61 dB(A) |

| EN 14825 | | |
|-----------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| η_s | 168 % | 125 % |
| Prated | 12.73 kW | 12.17 kW |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|----------|---------|
| 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 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|-------------|-------------|
| 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 Q _{he} | 7330 kWh | 9377 kWh |
| P _{dh} T _j = -15°C (if TOL<-20°C) | 10.38 | 9.93 |
| COP T _j = -15°C (if TOL<-20°C) | 2.37 | 1.76 |
| C _{dh} T _j = -15 °C | 0.990 | 0.990 |

Average Climate

| EN 12102-1 | | |
|---------------------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| Sound power level outdoor | 61 dB(A) | 61 dB(A) |

| EN 14825 | | |
|-----------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| η_s | 187 % | 144 % |
| Prated | 12.69 kW | 12.00 kW |
| SCOP | 4.74 | 3.66 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|----------|----------|
| 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 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|--|-------------|-------------|
| 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 Q _{he} | 5532 kWh | 6767 kWh |

Model: HA 15-6 O B3

| Configure model | |
|-------------------------------------|---------------------------------|
| Model name | HA 15-6 O 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 | 3x400V 50Hz |

Heating

| EN 14511-2 | | |
|-------------|-----------------|--------------------|
| | Low temperature | Medium temperature |
| Heat output | 14.29 kW | 14.16 kW |
| El input | 3.29 kW | 5.06 kW |
| COP | 4.33 | 2.79 |

| 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 21 Jun 2022

EN 12102-1

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

EN 14825

| | Low temperature | Medium temperature |
|-----------------|-----------------|--------------------|
| η_s | 244 % | 172 % |
| Prated | 12.02 kW | 12.69 kW |
| SCOP | 6.16 | 4.37 |
| 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 | 0.96 | 0.97 |
| Pdh Tj = 12°C | 6.64 kW | 6.19 kW |
| COP Tj = 12°C | 7.90 | 5.77 |
| Cdh Tj = +12 °C | 0.94 | 0.96 |
| Pdh Tj = Tbiv | 12.02 kW | 12.69 kW |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|-------------|-------------|
| COP $T_j = T_{biv}$ | 3.19 | 2.05 |
| $P_{dh} T_j = TOL$ or $P_{dh} T_j = T_{designh}$ if $TOL < T_{designh}$ | 12.02 kW | 12.69 kW |
| COP $T_j = TOL$ or COP $T_j = T_{designh}$ if $TOL < T_{designh}$ | 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 |

Colder Climate

| EN 12102-1 | | |
|---------------------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| Sound power level outdoor | 61 dB(A) | 61 dB(A) |

| EN 14825 | | |
|-----------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| η_s | 168 % | 125 % |
| Prated | 12.73 kW | 12.17 kW |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|----------|---------|
| 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 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|-------------|-------------|
| 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 _{he} | 7341 kWh | 9386 kWh |
| P _{dh} T _j = -15°C (if TOL<-20°C) | 10.38 | 9.93 |
| COP T _j = -15°C (if TOL<-20°C) | 2.37 | 1.76 |
| C _{dh} T _j = -15 °C | 0.990 | 0.990 |

Average Climate

| EN 12102-1 | | |
|---------------------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| Sound power level outdoor | 61 dB(A) | 61 dB(A) |

| EN 14825 | | |
|-----------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| η_s | 186 % | 143 % |
| Prated | 12.69 kW | 12.00 kW |
| SCOP | 4.73 | 3.66 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|----------|----------|
| 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 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|--|-------------|-------------|
| 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 Q _{he} | 5542 kWh | 6776 kWh |

Model: HA 10-6 O 230V

| Configure model | |
|-------------------------------------|---------------------------------|
| Model name | HA 10-6 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 | 1x230V 50Hz |

Heating

| EN 14511-2 | | |
|-------------|-----------------|--------------------|
| | Low temperature | Medium temperature |
| Heat output | 8.13 kW | 9.08 kW |
| El input | 1.54 kW | 2.95 kW |
| COP | 5.27 | 3.08 |

| 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 | 58 dB(A) | 60 dB(A) |

EN 14825

| | Low temperature | Medium temperature |
|-----------------|-----------------|--------------------|
| η_s | 254 % | 175 % |
| Prated | 10.42 kW | 10.36 kW |
| SCOP | 6.42 | 4.46 |
| 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 | 0.99 | 0.99 |
| Pdh Tj = +7°C | 6.71 kW | 6.37 kW |
| COP Tj = +7°C | 6.07 | 3.95 |
| Cdh Tj = +7 °C | 0.96 | 0.97 |
| Pdh Tj = 12°C | 6.58 kW | 6.20 kW |
| COP Tj = 12°C | 8.09 | 5.85 |
| Cdh Tj = +12 °C | 0.95 | 0.96 |
| Pdh Tj = Tbiv | 10.42 kW | 10.36 kW |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|-------------|-------------|
| COP $T_j = T_{biv}$ | 3.42 | 2.32 |
| $P_{dh} T_j = TOL$ or $P_{dh} T_j = T_{designh}$ if $TOL < T_{designh}$ | 10.42 kW | 10.36 kW |
| COP $T_j = TOL$ or COP $T_j = T_{designh}$ if $TOL < T_{designh}$ | 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 |

Colder Climate

| EN 12102-1 | | |
|---------------------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| Sound power level outdoor | 58 dB(A) | 60 dB(A) |

| EN 14825 | | |
|-----------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| η_s | 172 % | 125 % |
| Prated | 7.61 kW | 7.38 kW |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|---------|---------|
| 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 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|-------------|-------------|
| 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 _{he} | 4296 kWh | 5673 kWh |
| P _{dh} T _j = -15°C (if TOL<-20°C) | | |
| COP T _j = -15°C (if TOL<-20°C) | | |
| C _{dh} T _j = -15 °C | | |

Average Climate

| EN 12102-1 | | |
|---------------------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| Sound power level outdoor | 58 dB(A) | 60 dB(A) |

| EN 14825 | | |
|-----------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| η_s | 199 % | 143 % |
| Prated | 8.86 kW | 9.09 kW |
| SCOP | 5.05 | 3.66 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|---------|---------|
| 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 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|--|-------------|-------------|
| 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} | 3623 kWh | 5135 kWh |

Model: HA 10-6 O 230V B2

| Configure model | |
|-------------------------------------|---------------------------------|
| Model name | HA 10-6 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 | 1x230V 50Hz |

Heating

| EN 14511-2 | | |
|-------------|-----------------|--------------------|
| | Low temperature | Medium temperature |
| Heat output | 8.13 kW | 9.08 kW |
| El input | 1.54 kW | 2.95 kW |
| COP | 5.27 | 3.08 |

| 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 | 58 dB(A) | 60 dB(A) |

EN 14825

| | Low temperature | Medium temperature |
|-----------------|-----------------|--------------------|
| η_s | 250 % | 173 % |
| Prated | 10.42 kW | 10.36 kW |
| SCOP | 6.32 | 4.41 |
| 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 | 0.99 | 0.99 |
| Pdh Tj = +7°C | 6.71 kW | 6.37 kW |
| COP Tj = +7°C | 6.07 | 3.95 |
| Cdh Tj = +7 °C | 0.96 | 0.97 |
| Pdh Tj = 12°C | 6.58 kW | 6.20 kW |
| COP Tj = 12°C | 8.09 | 5.85 |
| Cdh Tj = +12 °C | 0.95 | 0.96 |
| Pdh Tj = Tbiv | 10.42 kW | 10.36 kW |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|-------------|-------------|
| COP $T_j = T_{biv}$ | 3.42 | 2.32 |
| P _{dh} $T_j = TOL$ or P _{dh} $T_j = T_{designh}$ if $TOL < T_{designh}$ | 10.42 kW | 10.36 kW |
| COP $T_j = TOL$ or COP $T_j = T_{designh}$ if $TOL < T_{designh}$ | 3.42 | 2.32 |
| WTOL | 55 °C | 55 °C |
| P _{off} | 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 |

Colder Climate

| EN 12102-1 | | |
|---------------------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| Sound power level outdoor | 58 dB(A) | 60 dB(A) |

| EN 14825 | | |
|-----------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| η_s | 171 % | 125 % |
| Prated | 7.61 kW | 7.38 kW |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|---------|---------|
| 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 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|--|-------------|-------------|
| 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 Qhe | 4314 kWh | 5691 kWh |
| Pdh Tj = -15°C (if TOL<-20°C) | | |
| COP Tj = -15°C (if TOL<-20°C) | | |
| Cdh Tj = -15 °C | | |

Average Climate

| EN 12102-1 | | |
|---------------------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| Sound power level outdoor | 58 dB(A) | 60 dB(A) |

| EN 14825 | | |
|-----------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| η_s | 197 % | 142 % |
| Prated | 8.86 kW | 9.09 kW |
| SCOP | 5.01 | 3.64 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|---------|---------|
| 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 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|--|-------------|-------------|
| 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} | 3653 kWh | 5165 kWh |

Model: HA 10-6 O

| Configure model | |
|-------------------------------------|---------------------------------|
| Model name | HA 10-6 O |
| Application | Heating (medium temp) |
| Units | Outdoor |
| Climate Zone | Colder Climate + Warmer Climate |
| Reversibility | Yes |
| Cooling mode application (optional) | n/a |

| General Data | |
|--------------|-------------|
| Power supply | 3x400V 50Hz |

Heating

| EN 14511-2 | | |
|-------------|-----------------|--------------------|
| | Low temperature | Medium temperature |
| Heat output | 8.13 kW | 9.08 kW |
| El input | 1.54 kW | 2.95 kW |
| COP | 5.27 | 3.08 |

| 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 | 59 dB(A) | 59 dB(A) |

EN 14825

| | Low temperature | Medium temperature |
|-----------------|-----------------|--------------------|
| η_s | 252 % | 175 % |
| Prated | 10.42 kW | 10.36 kW |
| SCOP | 6.39 | 4.44 |
| 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 | 0.98 | 0.99 |
| Pdh Tj = +7°C | 6.71 kW | 6.37 kW |
| COP Tj = +7°C | 6.07 | 3.95 |
| Cdh Tj = +7 °C | 0.96 | 0.97 |
| Pdh Tj = 12°C | 6.58 kW | 6.20 kW |
| COP Tj = 12°C | 8.09 | 5.85 |
| Cdh Tj = +12 °C | 0.94 | 0.96 |
| Pdh Tj = Tbiv | 10.42 kW | 10.36 kW |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|-------------|-------------|
| COP $T_j = T_{biv}$ | 3.42 | 2.32 |
| $P_{dh} T_j = TOL$ or $P_{dh} T_j = T_{designh}$ if $TOL < T_{designh}$ | 10.42 kW | 10.36 kW |
| COP $T_j = TOL$ or COP $T_j = T_{designh}$ if $TOL < T_{designh}$ | 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 |

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 | 171 % | 125 % |
| Prated | 7.61 kW | 7.38 kW |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|---------|---------|
| 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 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|-------------|-------------|
| 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 _{he} | 4314 kWh | 5692 kWh |
| P _{dh} T _j = -15°C (if TOL<-20°C) | | |
| COP T _j = -15°C (if TOL<-20°C) | | |
| C _{dh} T _j = -15 °C | | |

Average 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 | 199 % | 143 % |
| Prated | 8.86 kW | 9.09 kW |
| SCOP | 5.05 | 3.65 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|---------|---------|
| 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 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|--|-------------|-------------|
| 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} | 3634 kWh | 5146 kWh |

Model: HA 10-6 O B2

| Configure model | |
|-------------------------------------|---------------------------------|
| Model name | HA 10-6 O 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 | 3x400V 50Hz |

Heating

| EN 14511-2 | | |
|-------------|-----------------|--------------------|
| | Low temperature | Medium temperature |
| Heat output | 8.13 kW | 9.08 kW |
| El input | 1.54 kW | 2.95 kW |
| COP | 5.27 | 3.08 |

| 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 | 59 dB(A) | 59 dB(A) |

EN 14825

| | Low temperature | Medium temperature |
|-----------------|-----------------|--------------------|
| η_s | 245 % | 171 % |
| Prated | 10.42 kW | 10.36 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 | 0.98 | 0.99 |
| Pdh Tj = +7°C | 6.71 kW | 6.37 kW |
| COP Tj = +7°C | 6.07 | 3.95 |
| Cdh Tj = +7 °C | 0.96 | 0.97 |
| Pdh Tj = 12°C | 6.58 kW | 6.20 kW |
| COP Tj = 12°C | 8.09 | 5.85 |
| Cdh Tj = +12 °C | 0.94 | 0.96 |
| Pdh Tj = Tbiv | 10.42 kW | 10.36 kW |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|-------------|-------------|
| COP $T_j = T_{biv}$ | 3.42 | 2.32 |
| $P_{dh} T_j = TOL$ or $P_{dh} T_j = T_{designh}$ if $TOL < T_{designh}$ | 10.42 kW | 10.36 kW |
| COP $T_j = TOL$ or COP $T_j = T_{designh}$ if $TOL < T_{designh}$ | 3.42 | 2.32 |
| WTOL | 55 °C | 55 °C |
| P _{off} | 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} | 2243 kWh | 3180 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 % | 124 % |
| Prated | 7.61 kW | 7.38 kW |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|---------|---------|
| 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 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|--|-------------|-------------|
| 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<-20°C) | | |
| COP Tj = -15°C (if TOL<-20°C) | | |
| Cdh Tj = -15 °C | | |

Average 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 | 196 % | 141 % |
| Prated | 8.86 kW | 9.09 kW |
| SCOP | 4.97 | 3.61 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|---------|---------|
| 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 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|--|-------------|-------------|
| 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} | 3686 kWh | 5199 kWh |

Model: HA 12-6 O 230V B3

| Configure model | |
|-------------------------------------|---------------------------------|
| Model name | HA 12-6 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 | 1x230V 50Hz |

Heating

| EN 14511-2 | | |
|-------------|-----------------|--------------------|
| | Low temperature | Medium temperature |
| Heat output | 11.60 kW | 13.15 kW |
| El input | 2.46 kW | 4.55 kW |
| COP | 4.71 | 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 | 58 dB(A) | 60 dB(A) |

EN 14825

| | Low temperature | Medium temperature |
|-----------------|-----------------|--------------------|
| η_s | 256 % | 176 % |
| Prated | 11.16 kW | 11.02 kW |
| SCOP | 6.48 | 4.47 |
| Tbiv | 2 °C | 2 °C |
| TOL | 2 °C | 2 °C |
| Pdh Tj = +2°C | 11.16 kW | 11.02 kW |
| COP Tj = +2°C | 3.26 | 2.23 |
| Cdh Tj = +2 °C | 0.99 | 1.00 |
| Pdh Tj = +7°C | 7.36 kW | 7.20 kW |
| COP Tj = +7°C | 5.90 | 3.84 |
| Cdh Tj = +7 °C | 0.98 | 0.99 |
| Pdh Tj = 12°C | 6.53 kW | 6.25 kW |
| COP Tj = 12°C | 8.26 | 5.95 |
| Cdh Tj = +12 °C | 0.97 | 0.98 |
| Pdh Tj = Tbiv | 11.16 kW | 11.02 kW |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|-------------|-------------|
| COP $T_j = T_{biv}$ | 3.26 | 2.23 |
| P _{dh} $T_j = TOL$ or P _{dh} $T_j = T_{designh}$ if $TOL < T_{designh}$ | 11.16 kW | 11.02 kW |
| COP $T_j = TOL$ or COP $T_j = T_{designh}$ if $TOL < T_{designh}$ | 3.26 | 2.23 |
| WTOL | 75 °C | 75 °C |
| P _{off} | 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} | 2303 kWh | 3295 kWh |

Colder Climate

| EN 12102-1 | | |
|---------------------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| Sound power level outdoor | 58 dB(A) | 60 dB(A) |

| EN 14825 | | |
|-----------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| η_s | 168 % | 126 % |
| Prated | 10.24 kW | 10.65 kW |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|---------|---------|
| 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 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|-------------|-------------|
| 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 _{he} | 5906 kWh | 8111 kWh |
| P _{dh} T _j = -15°C (if TOL<-20°C) | | |
| COP T _j = -15°C (if TOL<-20°C) | | |
| C _{dh} T _j = -15 °C | | |

Average Climate

| EN 12102-1 | | |
|---------------------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| Sound power level outdoor | 58 dB(A) | 60 dB(A) |

| EN 14825 | | |
|-----------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| η_s | 200 % | 144 % |
| Prated | 9.35 kW | 9.66 kW |
| SCOP | 5.07 | 3.67 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|---------|---------|
| 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 |
| | | |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|--|-------------|-------------|
| 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} | 3812 kWh | 5437 kWh |

Model: HA 12-6 O B3

| Configure model | |
|-------------------------------------|---------------------------------|
| Model name | HA 12-6 O 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 | 3x400V 50Hz |

Heating

| EN 14511-2 | | |
|-------------|-----------------|--------------------|
| | Low temperature | Medium temperature |
| Heat output | 11.60 kW | 13.15 kW |
| El input | 2.46 kW | 4.55 kW |
| COP | 4.71 | 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 | 58 dB(A) | 60 dB(A) |

EN 14825

| | Low temperature | Medium temperature |
|-----------------|-----------------|--------------------|
| η_s | 255 % | 175 % |
| Prated | 11.16 kW | 11.02 kW |
| SCOP | 6.46 | 4.46 |
| Tbiv | 2 °C | 2 °C |
| TOL | 2 °C | 2 °C |
| Pdh Tj = +2°C | 11.16 kW | 11.02 kW |
| COP Tj = +2°C | 3.26 | 2.23 |
| Cdh Tj = +2 °C | 0.99 | 1.00 |
| Pdh Tj = +7°C | 7.36 kW | 7.20 kW |
| COP Tj = +7°C | 5.90 | 3.84 |
| Cdh Tj = +7 °C | 0.98 | 0.99 |
| Pdh Tj = 12°C | 6.53 kW | 6.25 kW |
| COP Tj = 12°C | 8.26 | 5.95 |
| Cdh Tj = +12 °C | 0.97 | 0.98 |
| Pdh Tj = Tbiv | 11.16 kW | 11.02 kW |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|-------------|-------------|
| COP $T_j = T_{biv}$ | 3.26 | 2.23 |
| P _{dh} $T_j = TOL$ or P _{dh} $T_j = T_{designh}$ if $TOL < T_{designh}$ | 11.16 kW | 11.02 kW |
| COP $T_j = TOL$ or COP $T_j = T_{designh}$ if $TOL < T_{designh}$ | 3.26 | 2.23 |
| WTOL | 75 °C | 75 °C |
| P _{off} | 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} | 2307 kWh | 3299 kWh |

Colder Climate

| EN 12102-1 | | |
|---------------------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| Sound power level outdoor | 58 dB(A) | 60 dB(A) |

| EN 14825 | | |
|-----------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| η_s | 168 % | 126 % |
| Prated | 10.24 kW | 10.65 kW |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|---------|---------|
| 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 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|-------------|-------------|
| 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 _{he} | 5907 kWh | 8112 kWh |
| P _{dh} T _j = -15°C (if TOL<-20°C) | | |
| COP T _j = -15°C (if TOL<-20°C) | | |
| C _{dh} T _j = -15 °C | | |

Average Climate

| EN 12102-1 | | |
|---------------------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| Sound power level outdoor | 58 dB(A) | 60 dB(A) |

| EN 14825 | | |
|-----------------|------------------------|---------------------------|
| | Low temperature | Medium temperature |
| η_s | 200 % | 144 % |
| Prated | 9.35 kW | 9.66 kW |
| SCOP | 5.06 | 3.67 |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|---|---------|---------|
| 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 |
| | | |

This information was generated by the HP KEYMARK database on 21 Jun 2022

| | | |
|--|-------------|-------------|
| 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} | 3813 kWh | 5438 kWh |