

This information was generated by the HP KEYMARK database on 7 Jul 2022

[Login](#)

|                     |   |          |            |
|---------------------|---|----------|------------|
| Summary of          | AQUATOP T28H  | Reg. No. | 011-1W0310 |
| Certificate Holder  |   |          |            |
| Name                | ELCO GmbH   |          |            |
| Address             | Hohenzollernstrasse 31                                | Zip      | 72379      |
| City                | Hechingen   | Country  | Germany    |
| Certification Body  | DIN CERTCO Gesellschaft für Konformitätsbewertung mbH |          |            |
| Subtype title       | AQUATOP T28H  |          |            |
| Heat Pump Type      | Brine/Water and Water/Water                           |          |            |
| Refrigerant         | R407c   |          |            |
| Mass of Refrigerant | 5.7 kg  |          |            |
| Certification Date  | 04.05.2019  |          |            |

## Model: AQUATOP T28H

| Configure model                     |                                 |
|-------------------------------------|---------------------------------|
| Model name                          | AQUATOP T28H                    |
| Application                         | Heating (medium temp)           |
| Units                               | Indoor                          |
| Climate Zone                        | Colder Climate + Warmer Climate |
| Reversibility                       | No                              |
| Cooling mode application (optional) | n/a                             |

| General Data |             |
|--------------|-------------|
| Power supply | 3x230V 50Hz |

Brine/Water Heat Pump

### Heating

| EN 14511-4   |        |
|--|--------|
| Operating range outdoor exchanger/indoor exchanger upper limit/upper limit | passed |
| Operating range outdoor exchanger/indoor exchanger lower limit/lower limit | passed |
| Shutting off the heat transfer medium flow                                 | passed |
| Complete power supply failure  | passed |

| EN 14511-2  |                 |                    |
|-------------|-----------------|--------------------|
|             | Low temperature | Medium temperature |
| Heat output | 28.70 kW        | 24.80 kW           |
| El input    | 6.50 kW         | 9.20 kW            |
| COP         | 4.40            | 2.70               |

### Warmer Climate

This information was generated by the HP KEYMARK database on 7 Jul 2022

### EN 12102-1

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

### EN 14825

|   | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| $\eta_s$  | 193 %           | 157 %              |
| Prated  | 29.00 kW        | 25.00 kW           |
| SCOP  | 5.03            | 4.13               |
| Tbiv  | 2 °C            | 2 °C               |
| TOL   | -22 °C          | -22 °C             |
| Pdh Tj = +2°C                                       | 28.70 kW        | 24.80 kW           |
| COP Tj = +2°C                                       | 4.40            | 2.70               |
| Pdh Tj = +7°C                                       | 29.56 kW        | 26.54 kW           |
| COP Tj = +7°C                                       | 4.84            | 3.59               |
| Pdh Tj = 12°C                                       | 30.42 kW        | 29.02 kW           |
| COP Tj = 12°C                                       | 5.32            | 5.00               |
| Pdh Tj = Tbiv                                       | 28.70 kW        | 24.80 kW           |
| COP Tj = Tbiv                                       | 4.40            | 2.70               |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 28.70 kW        | 24.80 kW           |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 4.40            | 2.70               |

This information was generated by the HP KEYMARK database on 7 Jul 2022

|   |             |             |
|---|-------------|-------------|
| $C_{dh} T_j = TOL$ or $P_{dh} T_j = T_{designh}$ if $TOL < T_{designh}$ | 1.00        | 1.00        |
| WTOL  | 60 °C       | 60 °C       |
| Poff  | 0 W         | 0 W         |
| PTO   | 10 W        | 10 W        |
| PSB   | 10 W        | 10 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 $Q_{he}$                                      | 7630 kWh    | 8030 kWh    |

## Colder Climate

| <b>EN 12102-1</b>        |                        |                           |
|--------------------------|------------------------|---------------------------|
|                          | <b>Low temperature</b> | <b>Medium temperature</b> |
| Sound power level indoor | 59 dB(A)               | 59 dB(A)                  |

| <b>EN 14825</b> |                        |                           |
|-----------------|------------------------|---------------------------|
|                 | <b>Low temperature</b> | <b>Medium temperature</b> |
| $\eta_s$        | 197 %                  | 161 %                     |
| Prated          | 29.00 kW               | 25.00 kW                  |
| SCOP            | 5.13                   | 4.23                      |
| Tbiv            | -22 °C                 | -22 °C                    |

This information was generated by the HP KEYMARK database on 7 Jul 2022

|   |             |             |
|---|-------------|-------------|
| TOL   | -22 °C      | -22 °C      |
| Pdh Tj = -7°C                                       | 29.85 kW    | 27.03 kW    |
| COP Tj = -7°C                                       | 5.02        | 3.81        |
| Pdh Tj = +2°C                                       | 30.42 kW    | 28.52 kW    |
| COP Tj = +2°C                                       | 5.24        | 4.62        |
| Pdh Tj = +7°C                                       | 30.71 kW    | 29.51 kW    |
| COP Tj = +7°C                                       | 5.46        | 5.24        |
| Pdh Tj = 12°C                                       | 31.00 kW    | 30.26 kW    |
| COP Tj = 12°C                                       | 5.54        | 5.67        |
| Pdh Tj = Tbiv                                       | 28.70 kW    | 24.80 kW    |
| COP Tj = Tbiv                                       | 4.40        | 2.70        |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 28.70 kW    | 24.80 kW    |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 4.40        | 2.70        |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 1.00        | 1.00        |
| WTOL  | 60 °C       | 60 °C       |
| Poff  | 0 W         | 0 W         |
| PTO   | 10 W        | 10 W        |
| PSB   | 10 W        | 10 W        |
| PCK   | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input          | Electricity | Electricity |
| Supplementary Heater: PSUP                          | 0.00 kW     | 0.00 kW     |

This information was generated by the HP KEYMARK database on 7 Jul 2022

|   |           |           |
|---|-----------|-----------|
| Annual energy consumption Q <sub>he</sub> | 13792 kWh | 14453 kWh |
|---|-----------|-----------|

## Average Climate

| <b>EN 12102-1</b>        |                        |                           |
|--------------------------|------------------------|---------------------------|
|                          | <b>Low temperature</b> | <b>Medium temperature</b> |
| Sound power level indoor | 59 dB(A)               | 59 dB(A)                  |

| <b>EN 14825</b>                       |                        |                           |
|---------------------------------------|------------------------|---------------------------|
|                                       | <b>Low temperature</b> | <b>Medium temperature</b> |
| $\eta_s$                              | 192 %                  | 155 %                     |
| Prated                                | 29.00 kW               | 25.00 kW                  |
| SCOP                                  | 5.01                   | 4.08                      |
| T <sub>biv</sub>                      | -10 °C                 | -10 °C                    |
| TOL                                   | -22 °C                 | -22 °C                    |
| P <sub>dh</sub> T <sub>j</sub> = -7°C | 28.99 kW               | 25.54 kW                  |
| COP T <sub>j</sub> = -7°C             | 4.49                   | 2.94                      |
| P <sub>dh</sub> T <sub>j</sub> = +2°C | 29.85 kW               | 27.53 kW                  |
| COP T <sub>j</sub> = +2°C             | 5.02                   | 4.05                      |
| P <sub>dh</sub> T <sub>j</sub> = +7°C | 30.42 kW               | 28.52 kW                  |
| COP T <sub>j</sub> = +7°C             | 5.24                   | 4.75                      |
| P <sub>dh</sub> T <sub>j</sub> = 12°C | 31.00 kW               | 29.76 kW                  |

This information was generated by the HP KEYMARK database on 7 Jul 2022

|   |             |             |
|---|-------------|-------------|
| COP Tj = 12°C                                       | 5.54        | 5.56        |
| Pdh Tj = Tbiv                                       | 28.70 kW    | 24.80 kW    |
| COP Tj = Tbiv                                       | 4.40        | 2.70        |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 28.70 kW    | 24.80 kW    |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 4.40        | 2.70        |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 1.00        | 1.00        |
| WTOL  | 60 °C       | 60 °C       |
| Poff  | 0 W         | 0 W         |
| PTO   | 10 W        | 10 W        |
| PSB   | 10 W        | 10 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                       | 11837 kWh   | 12560 kWh   |

Water/Water Heat Pump

## Heating

### EN 14511-4

|  |        |
|--|--------|
| Operating range outdoor exchanger/indoor exchanger upper limit/upper limit | passed |
| Operating range outdoor exchanger/indoor exchanger lower limit/lower limit | passed |
| Shutting off the heat transfer medium flow                                 | passed |
| Complete power supply failure  | passed |

### EN 14511-2

|             | Low temperature | Medium temperature |
|-------------|-----------------|--------------------|
| Heat output | 35.50 kW        | 34.20 kW           |
| El input    | 7.00 kW         | 9.70 kW            |
| COP         | 5.10            | 3.50               |

## Warmer Climate

### EN 12102-1

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

### EN 14825

|          | Low temperature | Medium temperature |
|----------|-----------------|--------------------|
| $\eta_s$ | 233 %           | 191 %              |
| Prated   | 37.00 kW        | 34.00 kW           |



This information was generated by the HP KEYMARK database on 7 Jul 2022

|   |             |             |
|---|-------------|-------------|
| SCOP  | 6.02        | 4.98        |
| Tbiv  | 2 °C        | 2 °C        |
| TOL   | -22 °C      | -22 °C      |
| Pdh Tj = +2°C                                       | 37.20 kW    | 34.16 kW    |
| COP Tj = +2°C                                       | 5.38        | 3.52        |
| Pdh Tj = +7°C                                       | 38.06 kW    | 35.90 kW    |
| COP Tj = +7°C                                       | 5.82        | 4.41        |
| Pdh Tj = 12°C                                       | 38.92 kW    | 38.38 kW    |
| COP Tj = 12°C                                       | 6.30        | 5.82        |
| Pdh Tj = Tbiv                                       | 37.20 kW    | 34.16 kW    |
| COP Tj = Tbiv                                       | 5.38        | 3.52        |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 37.20 kW    | 34.16 kW    |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 5.38        | 3.52        |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 1.00        | 1.00        |
| WTOL  | 60 °C       | 60 °C       |
| Poff  | 0 W         | 0 W         |
| PTO   | 10 W        | 10 W        |
| PSB   | 10 W        | 10 W        |
| PCK   | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input          | Electricity | Electricity |
| Supplementary Heater: PSUP                          | 0.00 kW     | 0.00 kW     |

This information was generated by the HP KEYMARK database on 7 Jul 2022

|                                    |          |          |
|------------------------------------|----------|----------|
| Annual energy consumption $Q_{he}$ | 8253 kWh | 9170 kWh |
|------------------------------------|----------|----------|

## Colder Climate

| <b>EN 12102-1</b>        |                        |                           |
|--------------------------|------------------------|---------------------------|
|                          | <b>Low temperature</b> | <b>Medium temperature</b> |
| Sound power level indoor | 59 dB(A)               | 59 dB(A)                  |

| <b>EN 14825</b> |                        |                           |
|-----------------|------------------------|---------------------------|
|                 | <b>Low temperature</b> | <b>Medium temperature</b> |
| $\eta_s$        | 236 %                  | 192 %                     |
| Prated          | 37.00 kW               | 34.00 kW                  |
| SCOP            | 6.09                   | 5.01                      |
| Tbiv            | -22 °C                 | -22 °C                    |
| TOL             | -22 °C                 | -22 °C                    |
| Pdh Tj = -7°C   | 38.35 kW               | 36.39 kW                  |
| COP Tj = -7°C   | 5.99                   | 4.63                      |
| Pdh Tj = +2°C   | 38.92 kW               | 37.88 kW                  |
| COP Tj = +2°C   | 6.22                   | 5.43                      |
| Pdh Tj = +7°C   | 39.21 kW               | 38.87 kW                  |
| COP Tj = +7°C   | 6.44                   | 6.05                      |
| Pdh Tj = 12°C   | 39.50 kW               | 39.62 kW                  |

This information was generated by the HP KEYMARK database on 7 Jul 2022

|   |             |             |
|---|-------------|-------------|
| COP Tj = 12°C                                       | 6.52        | 6.48        |
| Pdh Tj = Tbiv                                       | 37.20 kW    | 34.16 kW    |
| COP Tj = Tbiv                                       | 5.38        | 3.52        |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 37.20 kW    | 34.16 kW    |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 5.38        | 3.52        |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 1.00        | 1.00        |
| WTOL  | 60 °C       | 60 °C       |
| Poff  | 0 W         | 0 W         |
| PTO   | 10 W        | 10 W        |
| PSB   | 10 W        | 10 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                       | 15056 kWh   | 16805 kWh   |

## Average Climate

| <b>EN 12102-1</b>        |                        |                           |
|--------------------------|------------------------|---------------------------|
|                          | <b>Low temperature</b> | <b>Medium temperature</b> |
| Sound power level indoor | 59 dB(A)               | 59 dB(A)                  |

| <b>EN 14825</b> |
|-----------------|
|-----------------|

This information was generated by the HP KEYMARK database on 7 Jul 2022

|   | <b>Low temperature</b> | <b>Medium temperature</b> |
|---|------------------------|---------------------------|
| $\eta_s$  | 232 %                  | 189 %                     |
| Prated  | 37.00 kW               | 34.00 kW                  |
| SCOP  | 6.00                   | 4.92                      |
| Tbiv  | -10 °C                 | -10 °C                    |
| TOL   | -22 °C                 | -22 °C                    |
| Pdh Tj = -7°C                                       | 37.49 kW               | 34.90 kW                  |
| COP Tj = -7°C                                       | 5.47                   | 3.76                      |
| Pdh Tj = +2°C                                       | 38.35 kW               | 36.89 kW                  |
| COP Tj = +2°C                                       | 5.99                   | 4.87                      |
| Pdh Tj = +7°C                                       | 38.92 kW               | 37.88 kW                  |
| COP Tj = +7°C                                       | 6.22                   | 5.57                      |
| Pdh Tj = 12°C                                       | 39.50 kW               | 39.12 kW                  |
| COP Tj = 12°C                                       | 6.52                   | 6.38                      |
| Pdh Tj = Tbiv                                       | 37.20 kW               | 34.16 kW                  |
| COP Tj = Tbiv                                       | 5.38                   | 3.52                      |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 37.20 kW               | 34.16 kW                  |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 5.38                   | 3.52                      |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 1.00                   | 1.00                      |
| WTOL  | 60 °C                  | 60 °C                     |
| Poff  | 0 W                    | 0 W                       |

This information was generated by the HP KEYMARK database on 7 Jul 2022

|  |             |             |
|--|-------------|-------------|
| PTO  | 10 W        | 10 W        |
| PSB  | 10 W        | 10 W        |
| PCK  | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP                 | 0.00 kW     | 0.00 kW     |
| Annual energy consumption Q <sub>he</sub>  | 12807 kWh   | 14330 kWh   |