

This information was generated by the HP KEYMARK database on 17 Dec 2020

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		
Name of testing laboratory	TÜV Rheinland Energy GmbH		
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

### General Data

Power supply	3x230V 50Hz
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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
Indoor water flow rate	4.94 m <sup>3</sup> /h	3.53 m <sup>3</sup> /h

### Average Climate

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### EN 12102-1

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

### EN 14825

	Low temperature	Medium temperature
$\eta_s$	192 %	155 %
Prated	29.00 kW	25.00 kW
SCOP	5.01	4.08
Tbiv	-10 °C	-10 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	28.99 kW	25.54 kW
COP Tj = -7°C	4.49	2.94
Pdh Tj = +2°C	29.85 kW	27.53 kW
COP Tj = +2°C	5.02	4.05
Pdh Tj = +7°C	30.42 kW	28.52 kW
COP Tj = +7°C	5.24	4.75
Pdh Tj = 12°C	31.00 kW	29.76 kW
COP Tj = 12°C	5.54	5.56
Pdh Tj = Tbiv	28.70 kW	24.80 kW
COP Tj = Tbiv	4.40	2.70

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Pdh Tj = TOL	28.70 kW	24.80 kW
COP Tj = TOL	4.40	2.70
Cdh	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	Elektrizität	Elektrizität
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	11837 kWh	12560 kWh

## Warmer 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>
$\eta_s$	193 %	157 %
Prated	29.00 kW	25.00 kW

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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	28.70 kW	24.80 kW
COP Tj = TOL	4.40	2.70
Cdh	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	Elektrizität	Elektrizität
Supplementary Heater: PSUP	0.00 kW	0.00 kW

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Annual energy consumption Q <sub>he</sub>	7630 kWh	8030 kWh
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## 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
T <sub>biv</sub>	-22 °C	-22 °C
TOL	-22 °C	-22 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	29.85 kW	27.03 kW
COP T <sub>j</sub> = -7°C	5.02	3.81
P <sub>dh</sub> T <sub>j</sub> = +2°C	30.42 kW	28.52 kW
COP T <sub>j</sub> = +2°C	5.24	4.62
P <sub>dh</sub> T <sub>j</sub> = +7°C	30.71 kW	29.51 kW
COP T <sub>j</sub> = +7°C	5.46	5.24
P <sub>dh</sub> T <sub>j</sub> = 12°C	31.00 kW	30.26 kW

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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	28.70 kW	24.80 kW
COP Tj = TOL	4.40	2.70
Cdh	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	Elektrizität	Elektrizität
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	13792 kWh	14453 kWh

Water/Water Heat Pump

## Heating

<b>EN 14511-4</b>	
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

<b>EN 14511-2</b>		
	<b>Low temperature</b>	<b>Medium temperature</b>
Heat output	35.50 kW	34.20 kW
El input	7.00 kW	9.70 kW
COP	5.10	3.50
Indoor water flow rate	6.15 m <sup>3</sup> /h	4.37 m <sup>3</sup> /h

## 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>
$\eta_s$	232 %	189 %



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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	37.20 kW	34.16 kW
COP Tj = TOL	5.38	3.52
Cdh	1.00	1.00
WTOL	60 °C	60 °C
Poff	0 W	0 W
PTO	10 W	10 W
PSB	10 W	10 W

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PCK	0 W	0 W
Supplementary Heater: Type of energy input	Elektrizität	Elektrizität
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Q <sub>he</sub>	12807 kWh	14330 kWh

## Warmer 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>
$\eta_s$	233 %	191 %
Prated	37.00 kW	34.00 kW
SCOP	6.02	4.98
T <sub>biv</sub>	2 °C	2 °C
TOL	-22 °C	-22 °C
P <sub>dh</sub> T <sub>j</sub> = +2°C	37.20 kW	34.16 kW
COP T <sub>j</sub> = +2°C	5.38	3.52
P <sub>dh</sub> T <sub>j</sub> = +7°C	38.06 kW	35.90 kW
COP T <sub>j</sub> = +7°C	5.82	4.41

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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	37.20 kW	34.16 kW
COP Tj = TOL	5.38	3.52
Cdh	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	Elektrizität	Elektrizität
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	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)

This information was generated by the HP KEYMARK database on 17 Dec 2020

**EN 14825**

	<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
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	37.20 kW	34.16 kW
COP Tj = TOL	5.38	3.52
Cdh	1.00	1.00
WTOL	60 °C	60 °C

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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	Elektrizität	Elektrizität
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	15056 kWh	16805 kWh