

## Subtype TTF 27 HT

Certificate Holder	tecalor GmbH
Address	Lüchtringer Weg 3
ZIP	37603
City	Holzminden
Country	DE
Certification Body	DIN CERTCO Gesellschaft für Konformitätsbewertung mbH
Subtype title	TTF 27 HT
Registration number	011-1W0187
Heat Pump Type	Brine/Water
Refrigerant	R134a
Mass of Refrigerant	6 kg
Certification Date	04.09.2019

## Model TTF 27 HT

Model name	TTF 27 HT
Application	Heating (medium temp)
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate, Colder Climate
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

## General data

Power supply	3x400V 50Hz
Off-peak product	No

## Brine/Water

### EN 14511-4 | Heating

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

### EN 14511-2 | Heating

	Low temperature	Medium temperature
Heat output	27.41 kW	25.10 kW
El input	6.32 kW	8.49 kW
COP	4.34	2.95

### EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	60 dB(A)	64 dB(A)
Sound power level outdoor	60 dB(A)	64 dB(A)

### EN 14825 | Average Climate

	Low temperature	Medium temperature
$\eta_s$	175 %	131 %
Prated	27.00 kW	25.00 kW
SCOP	4.58	4.58
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	27.50 kW	25.30 kW
COP Tj = -7°C	4.38	3.06
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = +2°C	27.70 kW	26.10 kW
COP Tj = +2°C	4.59	3.48
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = +7°C	27.90 kW	26.60 kW
COP Tj = +7°C	4.80	3.78

Cdh Tj = +7 °C	0.90	
Pdh Tj = 12°C	28.20 kW	27.10 kW
COP Tj = 12°C	5.03	4.12
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	27.40 kW	25.10 kW
COP Tj = Tbiv	4.34	2.96
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	27.40 kW	25.10 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	4.34	2.96
WTOL	75 °C	75 °C
Poff	0 W	0 W
PTO	3 W	3 W
PSB	3 W	3 W
PCK	46 W	46 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	12359 kWh	14872 kWh

#### EN 14825 | Colder Climate

	Low temperature	Medium temperature
ηs	180 %	136 %
Prated	34.00 kW	32.00 kW
SCOP	4.58	4.58
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	27.80 kW	26.10 kW
COP Tj = -7°C	4.70	3.46
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = +2°C	28.00 kW	26.60 kW
COP Tj = +2°C	4.86	3.77
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = +7°C	28.10 kW	27.00 kW
COP Tj = +7°C	5.00	4.05
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	28.20 kW	27.30 kW
COP Tj = 12°C	5.02	4.28
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	27.80 kW	25.00 kW
COP Tj = Tbiv	4.63	3.29
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	27.40 kW	25.10 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	4.34	2.96
WTOL	75 °C	75 °C
Poff	0 W	0 W

PTO	3 W	3 W
PSB	3 W	3 W
PCK	46 W	46 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.61 kW	6.52 kW
Annual energy consumption Q <sub>he</sub>	17849 kWh	21670 kWh
P <sub>dh</sub> T <sub>j</sub> = -15 °C (if TOL	27.80	25.00
COP T <sub>j</sub> = -15 °C (if TOL	4.63	3.29
C <sub>dh</sub> T <sub>j</sub> = -15 °C	0.90	0.90

#### EN 14825 | Warmer Climate

	Low temperature	Medium temperature
η <sub>s</sub>	174 %	131 %
Prated	27.00 kW	25.00 kW
SCOP	4.58	4.58
T <sub>biv</sub>	2 °C	2 °C
TOL	2 °C	2 °C
P <sub>dh</sub> T <sub>j</sub> = +2 °C	27.40 kW	25.10 kW
COP T <sub>j</sub> = +2 °C	4.34	2.96
C <sub>dh</sub> T <sub>j</sub> = +2 °C	0.90	0.90
P <sub>dh</sub> T <sub>j</sub> = +7 °C	27.70 kW	25.80 kW
COP T <sub>j</sub> = +7 °C	4.55	3.29
C <sub>dh</sub> T <sub>j</sub> = +7 °C	0.90	0.90
P <sub>dh</sub> T <sub>j</sub> = 12 °C	28.00 kW	26.80 kW
COP T <sub>j</sub> = 12 °C	4.88	3.89
C <sub>dh</sub> T <sub>j</sub> = +12 °C	0.90	0.90
P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>	27.40 kW	25.10 kW
COP T <sub>j</sub> = T <sub>biv</sub>	4.34	2.96
P <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	27.40 kW	25.10 kW
COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	4.34	2.96
WTOL	75 °C	75 °C
P <sub>off</sub>	0 W	0 W
PTO	3 W	3 W
PSB	3 W	3 W
PCK	46 W	46 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>	8031 kWh	9675 kWh