Subtype TTF 85.6 I topline

Certificate Holder	tecalor GmbH
Address	Lüchtringer Weg 3
ZIP	37603
City	Holzminden
Country	DE
Certification Body	RISE CERT
Subtype title	TTF 85.6 I topline
Registration number	012-C700276
Heat Pump Type	Brine/Water and Water/Water
Refrigerant	R454B
Mass of Refrigerant	8.8 kg
Certification Date	10.07.2024
Testing basis	EN 14511:2018, EN 14825:2016, EN 12102:2017.
Testing laboratory	RISE Research Institutes of Sweden

Model TTF 85.6 I topline

Model name	TTF 85.6 I topline
Application	Heating (medium temp)
Units	Indoor
Climate zone (for heating)	Colder, Warmer, 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	Yes

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	50.31 kW	48.10 kW
El input	11.06 kW	15.92 kW
COP	4.55	3.02

EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level indoor	50 dB(A)	50 dB(A)

EN 14825 | Average Climate

	Low temperature	Medium temperature
ηs	202 %	159 %
Prated	84.07 kW	81.29 kW
SCOP	5.25	4.18
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	74.37 kW	71.91 kW
COP Tj = -7°C	4.23	3.15
Cdh Tj = -7 °C	1.000	1.000
Pdh Tj = +2°C	45.27 kW	43.77 kW
COP Tj = +2°C	5.26	4.15
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	29.10 kW	28.14 kW
COP Tj = +7°C	5.95	4.91
Cdh Tj = +7 °C	1.000	1.000

Pdh Tj = 12°C	22.80 kW	23.00 kW
COP Tj = 12°C	5.72	4.94
Cdh Tj = +12 °C	1.000	1.000
Pdh Tj = Tbiv	84.07 kW	81.29 kW
COP Tj = Tbiv	3.95	2.91
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	84.07 kW	81.29 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.95	2.91
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	65 °C	65 °C
Poff	12 W	12 W
PTO	12 W	12 W
PSB	12 W	12 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	33054 kWh	40141 kWh

EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	50 dB(A)	50 dB(A)

EN 14825 | Colder Climate

	Low temperature	Medium temperature
ηs	209 %	166 %
Prated	84.07 kW	81.29 kW
SCOP	5.44	4.35
Tbiv	-22 °C	-22 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	50.89 kW	49.20 kW
COP Tj = -7°C	5.11	3.92
Cdh Tj = -7 °C	1.000	1.000
Pdh Tj = +2°C	30.97 kW	29.95 kW
COP Tj = +2°C	5.91	4.84
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	22.81 kW	23.10 kW
COP Tj = +7°C	5.80	5.00
Cdh Tj = +7 °C	1.000	1.000
Pdh Tj = 12°C	22.79 kW	23.19 kW
COP Tj = 12°C	5.58	5.06
Cdh Tj = +12 °C	1.000	1.000
Pdh Tj = Tbiv	84.07 kW	81.29 kW
COP Tj = Tbiv	3.95	2.91

Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	84.07 kW	81.29 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.95	2.91
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	65 °C	65 °C
Poff	12 W	12 W
PTO	12 W	12 W
PSB	12 W	12 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	38123 kWh	46029 kWh

EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	50 dB(A)	50 dB(A)

EN 14825 | Warmer Climate

	Low temperature	Medium temperature
ηs	203 %	158 %
Prated	84.07 kW	81.29 kW
SCOP	5.27	4.16
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	84.07 kW	81.29 kW
COP Tj = +2°C	3.95	2.91
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	54.05 kW	52.26 kW
COP Tj = +7°C	4.94	3.69
Cdh Tj = +7 °C	1.000	1.000
Pdh Tj = 12°C	24.02 kW	23.23 kW
COP Tj = 12°C	5.84	4.87
Cdh Tj = +12 °C	1.000	1.000
Pdh Tj = Tbiv	84.07 kW	81.29 kW
COP Tj = Tbiv	3.95	2.91
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	84.07 kW	81.29 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.95	2.91
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	65 °C	65 °C
Poff	12 W	12 W
PTO	12 W	12 W

PSB	12 W	12 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	21295 kWh	26114 kWh

Water/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	50.31 kW	48.10 kW
El input	11.06 kW	15.92 kW
COP	4.55	3.02

EN 14825 | Average Climate

	Low temperature	Medium temperature
ηs	303 %	219 %
Prated	75.12 kW	79.55 kW
SCOP	7.78	5.68
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	66.45 kW	70.37 kW
COP Tj = -7°C	5.86	4.11
Cdh Tj = -7 °C	1.000	1.000
Pdh Tj = +2°C	40.45 kW	42.83 kW
COP Tj = +2°C	7.78	5.61
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	28.63 kW	27.54 kW
COP Tj = +7°C	9.07	6.84
Cdh Tj = +7 °C	1.000	1.000
Pdh Tj = 12°C	28.63 kW	28.56 kW
COP Tj = 12°C	9.08	7.16
Cdh Tj = +12 °C	1.000	1.000
Pdh Tj = Tbiv	75.12 kW	79.55 kW
COP Tj = Tbiv	5.44	3.77
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	75.12 kW	79.55 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	5.44	5.44

Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	65 °C	65 °C
Poff	12 W	12 W
PTO	12 W	12 W
PSB	12 W	12 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	19949 kWh	28911 kWh

EN 14825 | Colder Climate

	Low temperature	Medium temperature
ηs	320 %	229 %
Prated	75.12 kW	79.55 kW
SCOP	8.20	5.93
Tbiv	-22 °C	-22 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	45.47 kW	48.15 kW
COP Tj = -7°C	7.58	5.25
Cdh Tj = -7 °C	1.000	1.000
Pdh Tj = +2°C	27.68 kW	29.31 kW
COP Tj = +2°C	9.08	6.62
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	28.63 kW	28.55 kW
COP Tj = +7°C	9.11	7.13
Cdh Tj = +7 °C	1.000	1.000
Pdh Tj = 12°C	28.60 kW	28.61 kW
COP Tj = 12°C	8.86	7.38
Cdh Tj = +12 °C	1.000	1.000
Pdh Tj = Tbiv	75.12 kW	79.55 kW
COP Tj = Tbiv	5.44	3.77
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	75.12 kW	79.55 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	5.44	3.77
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	65 °C	65 °C
Poff	12 W	12 W
PTO	12 W	12 W
PSB	12 W	12 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	22572 kWh	33084 kWh

EN 14825 | Warmer Climate		
	Low temperature	Medium temperature
ηs	307 %	221 %
Prated	75.12 kW	79.55 kW
SCOP	7.88	5.72
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	75.12 kW	79.55 kW
COP Tj = +2°C	5.44	3.77
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	48.29 kW	51.14 kW
COP Tj = +7°C	7.27	4.96
Cdh Tj = +7 °C	1.000	1.000
Pdh Tj = 12°C	28.61 kW	28.49 kW
COP Tj = 12°C	8.99	6.92
Cdh Tj = +12 °C	1.000	1.000
Pdh Tj = Tbiv	75.12 kW	79.55 kW
COP Tj = Tbiv	5.44	3.77
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	75.12 kW	79.55 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	5.44	3.77
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	65 °C	65 °C
Poff	12 W	12 W
PTO	12 W	12 W
PSB	12 W	12 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	12740 kWh	18594 kWh