

Subtype TTF 20

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|---------------------|---|
| Certificate Holder | tecalor GmbH |
| Address | Lütztringer Weg 3 |
| ZIP | 37603 |
| City | Holzminden |
| Country | DE |
| Certification Body | DIN CERTCO Gesellschaft für Konformitätsbewertung mbH |
| Subtype title | TTF 20 |
| Registration number | 011-1W0279 |
| Heat Pump Type | Brine/Water |
| Refrigerant | R410A |
| Mass of Refrigerant | 5.99 kg |

Model TTF 20

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|-------------------------------------|--------------------------------|
| Model name | TTF 20 |
| 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

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|------------------|-------------|
| Power supply | 3x400V 50Hz |
| Off-peak product | n/a |

Brine/Water
EN 14511-4 | Heating

Shutting off the heat transfer medium flow passed

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|-------------------------------|--------|
| Complete power supply failure | passed |
| Starting and operating test | passed |

EN 14511-2 | Heating

| | Low temperature | Medium temperature |
|-------------|-----------------|--------------------|
| Heat output | 21.50 kW | 20.10 kW |
| El input | 4.61 kW | 7.08 kW |
| COP | 4.66 | 3.16 |

EN 12102-1 | Average Climate

| | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level indoor | 54 dB(A) | 54 dB(A) |
| Sound power level outdoor | 59 dB(A) | 59 dB(A) |

EN 14825 | Average Climate

| | Low temperature | Medium temperature |
|----------------|-----------------|--------------------|
| η_s | 192 % | 131 % |
| Prated | 22.00 kW | 20.00 kW |
| SCOP | 5.00 | 3.48 |
| Tbiv | -10 °C | -10 °C |
| TOL | -10 °C | -10 °C |
| Pdh Tj = -7°C | 21.50 kW | 20.20 kW |
| COP Tj = -7°C | 4.72 | 2.96 |
| Cdh Tj = -7 °C | 0.90 | 0.90 |
| Pdh Tj = +2°C | 21.70 kW | 20.70 kW |
| COP Tj = +2°C | 5.06 | 3.48 |
| Cdh Tj = +2 °C | 0.90 | 0.90 |
| Pdh Tj = +7°C | 21.80 kW | 21.00 kW |
| COP Tj = +7°C | 5.41 | 3.88 |

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|---|-------------|-------------|
| Cdh Tj = +7 °C | 0.90 | 0.90 |
| Pdh Tj = 12°C | 22.00 kW | 21.30 kW |
| COP Tj = 12°C | 5.80 | 4.36 |
| Cdh Tj = +12 °C | 0.90 | 0.90 |
| Pdh Tj = Tbiv | 21.50 kW | 20.10 kW |
| COP Tj = Tbiv | 4.66 | 2.84 |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 21.50 kW | 20.10 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 4.66 | 2.84 |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 0.90 | 0.90 |
| WTOL | 60 °C | 60 °C |
| Poff | 0 W | 0 W |
| PTO | 7 W | 7 W |
| PSB | 7 W | 7 W |
| PCK | 74 W | 74 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 0.00 kW | 0.00 kW |
| Annual energy consumption Qhe | 8904 kWh | 11988 kWh |

EN 12102-1 | Colder Climate

| | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level indoor | 54 dB(A) | 54 dB(A) |
| Sound power level outdoor | 59 dB(A) | 59 dB(A) |

EN 14825 | Colder Climate

| | Low temperature | Medium temperature |
|-----------------|-----------------|--------------------|
| ηs | 201 % | 137 % |
| Prated | 27.00 kW | 25.00 kW |
| SCOP | 5.23 | 3.63 |
| Tbiv | -15 °C | -15 °C |
| TOL | -22 °C | -22 °C |
| Pdh Tj = -7°C | 21.80 kW | 20.70 kW |
| COP Tj = -7°C | 5.24 | 3.46 |
| Cdh Tj = -7 °C | 0.90 | 0.90 |
| Pdh Tj = +2°C | 21.90 kW | 21.00 kW |
| COP Tj = +2°C | 5.51 | 3.87 |
| Cdh Tj = +2 °C | 0.90 | 0.90 |
| Pdh Tj = +7°C | 21.90 kW | 21.30 kW |
| COP Tj = +7°C | 5.74 | 4.26 |
| Cdh Tj = +7 °C | 0.90 | 0.90 |
| Pdh Tj = 12°C | 22.00 kW | 21.50 kW |
| COP Tj = 12°C | 5.78 | 4.60 |
| Cdh Tj = +12 °C | 0.90 | 0.90 |
| Pdh Tj = Tbiv | 21.70 kW | 20.50 kW |

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|---|-------------|-------------|
| COP Tj = Tbiv | 5.12 | 3.24 |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 21.50 kW | 21.10 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 4.66 | 2.84 |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 0.90 | 0.90 |
| WTOL | 60 °C | 60 °C |
| Poff | 0 W | 0 W |
| PTO | 7 W | 7 W |
| PSB | 7 W | 7 W |
| PCK | 74 W | 74 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 5.11 kW | 5.05 kW |
| Annual energy consumption Qhe | 12535 kWh | 17067 kWh |
| Pdh Tj = -15°C (if TOL) | 21.50 | 21.10 |
| COP Tj = -15°C (if TOL) | 4.66 | 2.84 |
| Cdh Tj = -15 °C | 0.90 | 0.90 |

EN 12102-1 | Warmer Climate

| | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level indoor | 54 dB(A) | 54 dB(A) |
| Sound power level outdoor | 59 dB(A) | 59 dB(A) |

EN 14825 | Warmer Climate

| | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| ηs | 188 % | 128 % |
| Prated | 22.00 kW | 20.00 kW |
| SCOP | 4.90 | 3.40 |
| Tbiv | 2 °C | 2 °C |
| TOL | 2 °C | 2 °C |
| Pdh Tj = +2°C | 21.50 kW | 20.10 kW |
| COP Tj = +2°C | 4.66 | 2.84 |
| Cdh Tj = +2 °C | 0.90 | 0.90 |
| Pdh Tj = +7°C | 21.70 kW | 20.50 kW |
| COP Tj = +7°C | 4.99 | 3.24 |
| Cdh Tj = +7 °C | 0.90 | 0.90 |
| Pdh Tj = 12°C | 21.90 kW | 21.10 kW |
| COP Tj = 12°C | 5.54 | 4.03 |
| Cdh Tj = +12 °C | 0.90 | 0.90 |
| Pdh Tj = Tbiv | 21.50 kW | 20.10 kW |
| COP Tj = Tbiv | 4.66 | 2.84 |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 21.50 kW | 20.10 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 4.66 | 2.84 |

| | | |
|---|-------------|-------------|
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 0.90 | 0.90 |
| WTOL | 60 °C | 60 °C |
| Poff | 0 W | 0 W |
| PTO | 7 W | 7 W |
| PSB | 7 W | 7 W |
| PCK | 74 W | 74 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 0.00 kW | 0.00 kW |
| Annual energy consumption Qhe | 5871 kWh | 7884 kWh |