

This information was generated by the HP KEYMARK database on 18 Mar 2022

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|                     |   |          |            |
|---------------------|---|----------|------------|
| Summary of          | TTF 87.5  | Reg. No. | 011-1W0460 |
| Certificate Holder  |   |          |            |
| Name                | tecalor GmbH  |          |            |
| Address             | Fürstenbergerstr. 77                                  | Zip      | 37603      |
| City                | Holzminden  | Country  | Germany    |
| Certification Body  | DIN CERTCO Gesellschaft für Konformitätsbewertung mbH |          |            |
| Subtype title       | TTF 87.5  |          |            |
| Heat Pump Type      | Brine/Water   |          |            |
| Refrigerant         | R410A   |          |            |
| Mass of Refrigerant | 9 kg  |          |            |
| Certification Date  | 15.03.2021  |          |            |
| Testing basis       | HP KEYMARK certification scheme rules V8              |          |            |

## Model: TTF 87.5

| Configure model                     |                                 |
|-------------------------------------|---------------------------------|
| Model name                          | TTF 87.5                        |
| Application                         | Heating (medium temp)           |
| Units                               | Indoor                          |
| Climate Zone                        | Colder Climate + Warmer Climate |
| Reversibility                       | Yes                             |
| Cooling mode application (optional) | n/a                             |

| General Data |             |
|--------------|-------------|
| Power supply | 3x400V 50Hz |

### Heating

| EN 14511-2  |                 |                    |
|-------------|-----------------|--------------------|
|             | Low temperature | Medium temperature |
| Heat output | 52.18 kW        | 48.32 kW           |
| El input    | 11.09 kW        | 17.02 kW           |
| COP         | 4.71            | 2.84               |

| EN 14511-4                                 |        |
|--|--------|
| Shutting off the heat transfer medium flow | passed |
| Complete power supply failure              | passed |
| Defrost test                               | failed |
| Starting and operating test                | passed |

### Average Climate

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### EN 12102-1

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

### EN 14825

|                | Low temperature | Medium temperature |
|----------------|-----------------|--------------------|
| $\eta_s$       | 199 %           | 157 %              |
| Prated         | 84.67 kW        | 79.00 kW           |
| SCOP           | 5.17            | 4.13               |
| Tbiv           | -10 °C          | -10 °C             |
| TOL            | -10 °C          | -10 °C             |
| Pdh Tj = -7°C  | 74.90 kW        | 69.88 kW           |
| COP Tj = -7°C  | 4.26            | 3.00               |
| Cdh Tj = -7 °C | 0.90            | 0.90               |
| Pdh Tj = +2°C  | 45.59 kW        | 42.54 kW           |
| COP Tj = +2°C  | 5.14            | 4.08               |
| Cdh Tj = +2 °C | 0.90            | 0.90               |
| Pdh Tj = +7°C  | 29.31 kW        | 27.35 kW           |
| COP Tj = +7°C  | 5.81            | 4.94               |
| Cdh Tj = +7 °C | 0.90            | 0.90               |
| Pdh Tj = 12°C  | 24.37 kW        | 24.08 kW           |

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|   |           |           |
|---|-----------|-----------|
| COP Tj = 12°C                                       | 5.65      | 5.16      |
| Cdh Tj = +12 °C                                     | 0.90      | 0.90      |
| Pdh Tj = Tbiv                                       | 84.67 kW  | 79.00 kW  |
| COP Tj = Tbiv                                       | 3.97      | 2.72      |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 84.67 kW  | 79.00 kW  |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.97      | 2.72      |
| WTOL  | 65 °C     | 65 °C     |
| Poff  | 9 W       | 9 W       |
| PTO   | 11 W      | 11 W      |
| PSB   | 11 W      | 11 W      |
| PCK   | 0 W       | 0 W       |
| Supplementary Heater: Type of energy input          | n/a       | n/a       |
| Supplementary Heater: PSUP                          | 0.00 kW   | 0.00 kW   |
| Annual energy consumption Qhe                       | 33804 kWh | 39457 kWh |

## Warmer Climate

| <b>EN 14825</b> |                        |                           |
|-----------------|------------------------|---------------------------|
|                 | <b>Low temperature</b> | <b>Medium temperature</b> |
| $\eta_s$        | 202 %                  | 160 %                     |
| Prated          | 84.67 kW               | 79.00 kW                  |
| SCOP            | 5.25                   | 4.21                      |

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|   |          |          |
|---|----------|----------|
| Tbiv  | 2 °C     | 2 °C     |
| TOL   | 2 °C     | 2 °C     |
| Pdh Tj = +2°C                                       | 84.67 kW | 79.00 kW |
| COP Tj = +2°C                                       | 3.97     | 2.72     |
| Cdh Tj = +2 °C                                      | 0.90     | 0.90     |
| Pdh Tj = +7°C                                       | 54.43 kW | 50.79 kW |
| COP Tj = +7°C                                       | 4.85     | 3.60     |
| Cdh Tj = +7 °C                                      | 0.90     | 0.90     |
| Pdh Tj = 12°C                                       | 24.19 kW | 24.07 kW |
| COP Tj = 12°C                                       | 5.85     | 5.16     |
| Cdh Tj = +12 °C                                     | 0.90     | 0.90     |
| Pdh Tj = Tbiv                                       | 84.67 kW | 79.00 kW |
| COP Tj = Tbiv                                       | 3.97     | 2.72     |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 84.67 kW | 79.00 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.97     | 2.72     |
| WTOL  | 65 °C    | 65 °C    |
| Poff  | 9 W      | 9 W      |
| PTO   | 11 W     | 11 W     |
| PSB   | 11 W     | 11 W     |
| PCK   | 0 W      | 0 W      |
| Supplementary Heater: Type of energy input          | n/a      | n/a      |

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|   |           |           |
|---|-----------|-----------|
| Supplementary Heater: PSUP                | 0.00 kW   | 0.00 kW   |
| Annual energy consumption Q <sub>he</sub> | 21524 kWh | 23056 kWh |

| <b>EN 12102-1</b>        |                        |                           |
|--------------------------|------------------------|---------------------------|
|                          | <b>Low temperature</b> | <b>Medium temperature</b> |
| Sound power level indoor | 50 dB(A)               | 50 dB(A)                  |

## Colder Climate

| <b>EN 14825</b>                        |                        |                           |
|--|------------------------|---------------------------|
|  | <b>Low temperature</b> | <b>Medium temperature</b> |
| $\eta_s$                               | 204 %                  | 165 %                     |
| Prated                                 | 84.67 kW               | 79.00 kW                  |
| SCOP                                   | 5.30                   | 4.32                      |
| T <sub>biv</sub>                       | -22 °C                 | -22 °C                    |
| TOL                                    | -22 °C                 | -22 °C                    |
| P <sub>dh</sub> T <sub>j</sub> = -7°C  | 51.25 kW               | 48.52 kW                  |
| COP T <sub>j</sub> = -7°C              | 5.06                   | 3.85                      |
| C <sub>dh</sub> T <sub>j</sub> = -7 °C | 0.90                   | 0.90                      |
| P <sub>dh</sub> T <sub>j</sub> = +2°C  | 31.20 kW               | 29.11 kW                  |
| COP T <sub>j</sub> = +2°C              | 5.81                   | 4.83                      |
| C <sub>dh</sub> T <sub>j</sub> = +2 °C | 0.90                   | 0.90                      |

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|   |           |           |
|---|-----------|-----------|
| Pdh Tj = +7°C                                       | 24.49 kW  | 24.11 kW  |
| COP Tj = +7°C                                       | 5.85      | 5.20      |
| Cdh Tj = +7 °C                                      | 0.90      | 0.90      |
| Pdh Tj = 12°C                                       | 24.39 kW  | 24.22 kW  |
| COP Tj = 12°C                                       | 5.66      | 5.27      |
| Cdh Tj = +12 °C                                     | 0.90      | 0.90      |
| Pdh Tj = Tbiv                                       | 84.67 kW  | 79.00 kW  |
| COP Tj = Tbiv                                       | 3.97      | 2.72      |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 84.67 kW  | 79.00 kW  |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.97      | 2.72      |
| WTOL  | 65 °C     | 65 °C     |
| Poff  | 9 W       | 9 W       |
| PTO   | 11 W      | 11 W      |
| PSB   | 11 W      | 11 W      |
| PCK   | 0 W       | 0 W       |
| Supplementary Heater: Type of energy input          | n/a       | n/a       |
| Supplementary Heater: PSUP                          | 0.00 kW   | 0.00 kW   |
| Annual energy consumption Qhe                       | 39378 kWh | 45048 kWh |
| Pdh Tj = -15°C (if TOL<-20°C)                       | 84.67     | 79.00     |
| COP Tj = -15°C (if TOL<-20°C)                       | 3.97      | 2.72      |
| Cdh Tj = -15 °C                                     | 0.90      | 0.90      |

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| EN 12102-1               |                 |                    |
|--------------------------|-----------------|--------------------|
|                          | Low temperature | Medium temperature |
| Sound power level indoor | 50 dB(A)        | 50 dB(A)           |