

## Subtype LWDV 91-1/3

|                     |                                       |
|---------------------|---------------------------------------|
| Certificate Holder  | ait-deutschland GmbH                  |
| Address             | Industriestr. 3                       |
| ZIP                 | 95359                                 |
| City                | Kasendorf                             |
| Country             | DE                                    |
| Certification Body  | BRE Global Limited                    |
| Subtype title       | LWDV 91-1/3                           |
| Registration number | 041-K001-24                           |
| Heat Pump Type      | Outdoor Air/Water                     |
| Refrigerant         | R290                                  |
| Mass of Refrigerant | 1.05 kg                               |
| Certification Date  | 27.03.2019                            |
| Testing basis       | Heat Pump Keymark Scheme Rules Rev 08 |

## Model LWDV 91-1/3-HDV 12-3

|                                     |                                |
|-------------------------------------|--------------------------------|
| Model name                          | LWDV 91-1/3-HDV 12-3           |
| Application                         | Heating (medium temp)          |
| Units                               | 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     | 1x230V 50Hz |
| Off-peak product | n/a         |

## Outdoor Air/Water

### EN 14511-4 | Heating

|                                            |        |
|--------------------------------------------|--------|
| Shutting off the heat transfer medium flow | passed |
| Complete power supply failure              | passed |
| Defrost test                               | passed |

### EN 14511-2 | Heating

|             | Low temperature | Medium temperature |
|-------------|-----------------|--------------------|
| Heat output | 2.77 kW         | 4.23 kW            |
| El input    | 0.52 kW         | 1.26 kW            |
| COP         | 5.41            | 3.35               |

### EN 12102-1 | Average Climate

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

### EN 14825 | Average Climate

|               | Low temperature | Medium temperature |
|---------------|-----------------|--------------------|
| $\eta_s$      | 187 %           | 147 %              |
| Prated        | 9.50 kW         | 8.90 kW            |
| SCOP          | 4.75            | 3.75               |
| Tbiv          | -5 °C           | -6 °C              |
| TOL           | -10 °C          | -10 °C             |
| Pdh Tj = -7°C | 7.28 kW         | 7.07 kW            |
| COP Tj = -7°C | 2.96            | 2.19               |
| Pdh Tj = +2°C | 5.43 kW         | 4.86 kW            |
| COP Tj = +2°C | 5.17            | 4.86               |
| Pdh Tj = +7°C | 3.37 kW         | 3.18 kW            |
| COP Tj = +7°C | 6.90            | 5.36               |
| Pdh Tj = 12°C | 3.28 kW         | 3.18 kW            |
| COP Tj = 12°C | 8.22            | 6.77               |
| Pdh Tj = Tbiv | 7.68 kW         | 7.50 kW            |

|                                                     |             |             |
|-----------------------------------------------------|-------------|-------------|
| COP Tj = Tbiv                                       | 3.11        | 2.35        |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 7.63 kW     | 6.79 kW     |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.05        | 2.07        |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 1.00        | 1.00        |
| WTOL                                                | 60 °C       | 60 °C       |
| Poff                                                | 0 W         | 0 W         |
| PTO                                                 | 22 W        | 22 W        |
| PSB                                                 | 22 W        | 22 W        |
| PCK                                                 | 30 W        | 30 W        |
| Supplementary Heater: Type of energy input          | Electricity | Electricity |
| Supplementary Heater: PSUP                          | 1.87 kW     | 2.11 kW     |
| Annual energy consumption Qhe                       | 4135 kWh    | 4904 kWh    |

#### EN 12102-1 | Colder Climate

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

#### EN 14825 | Colder Climate

|                                                     | Low temperature | Medium temperature |
|-----------------------------------------------------|-----------------|--------------------|
| $\eta_s$                                            | 160 %           | 119 %              |
| Prated                                              | 7.50 kW         | 6.50 kW            |
| SCOP                                                | 4.07            | 3.04               |
| Tbiv                                                | -17 °C          | -17 °C             |
| TOL                                                 | -22 °C          | -22 °C             |
| Pdh Tj = -7°C                                       | 4.50 kW         | 3.87 kW            |
| COP Tj = -7°C                                       | 3.49            | 2.57               |
| Pdh Tj = +2°C                                       | 2.87 kW         | 2.35 kW            |
| COP Tj = +2°C                                       | 4.82            | 3.57               |
| Pdh Tj = +7°C                                       | 2.97 kW         | 2.88 kW            |
| COP Tj = +7°C                                       | 7.17            | 5.76               |
| Pdh Tj = 12°C                                       | 3.05 kW         | 3.17 kW            |
| COP Tj = 12°C                                       | 7.39            | 6.91               |
| Pdh Tj = Tbiv                                       | 6.43 kW         | 5.70 kW            |
| COP Tj = Tbiv                                       | 2.50            | 1.72               |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 5.59 kW         | 5.06 kW            |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.14            | 1.53               |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 1.00            | 1.00               |
| WTOL                                                | 60 °C           | 60 °C              |
| Poff                                                | 0 W             | 0 W                |
| PTO                                                 | 22 W            | 22 W               |

|                                            |             |             |
|--------------------------------------------|-------------|-------------|
| PSB                                        | 22 W        | 22 W        |
| PCK                                        | 30 W        | 30 W        |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP                 | 1.91 kW     | 1.44 kW     |
| Annual energy consumption Q <sub>he</sub>  | 4541 kWh    | 5277 kWh    |

#### EN 12102-1 | Warmer Climate

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

#### EN 14825 | Warmer Climate

|                                                                                                                             | Low temperature | Medium temperature |
|-----------------------------------------------------------------------------------------------------------------------------|-----------------|--------------------|
| $\eta_s$                                                                                                                    | 218 %           | 171 %              |
| Prated                                                                                                                      | 9.50 kW         | 9.50 kW            |
| SCOP                                                                                                                        | 5.53            | 4.36               |
| T <sub>biv</sub>                                                                                                            | 4 °C            | 4 °C               |
| TOL                                                                                                                         | 2 °C            | 2 °C               |
| P <sub>dh</sub> T <sub>j</sub> = +2°C                                                                                       | 7.98 kW         | 8.10 kW            |
| COP T <sub>j</sub> = +2°C                                                                                                   | 3.49            | 2.32               |
| P <sub>dh</sub> T <sub>j</sub> = +7°C                                                                                       | 5.89 kW         | 6.24 kW            |
| COP T <sub>j</sub> = +7°C                                                                                                   | 5.99            | 4.07               |
| P <sub>dh</sub> T <sub>j</sub> = 12°C                                                                                       | 3.12 kW         | 3.24 kW            |
| COP T <sub>j</sub> = 12°C                                                                                                   | 7.47            | 6.53               |
| P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>                                                                           | 8.15 kW         | 8.06 kW            |
| COP T <sub>j</sub> = T <sub>biv</sub>                                                                                       | 3.81            | 2.70               |
| 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> | 7.98 kW         | 8.10 kW            |
| COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>                         | 3.49            | 2.32               |
| C <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> | 1.00            | 1.00               |
| WTOL                                                                                                                        | 60 °C           | 60 °C              |
| P <sub>off</sub>                                                                                                            | 0 W             | 0 W                |
| PTO                                                                                                                         | 22 W            | 22 W               |
| PSB                                                                                                                         | 22 W            | 22 W               |
| PCK                                                                                                                         | 30 W            | 30 W               |
| Supplementary Heater: Type of energy input                                                                                  | Electricity     | Electricity        |
| Supplementary Heater: PSUP                                                                                                  | 1.52 kW         | 1.40 kW            |
| Annual energy consumption Q <sub>he</sub>                                                                                   | 2295 kWh        | 2910 kWh           |

## Model LWDV 91-1/3-HDV 9-1/3

|                                     |                                |
|-------------------------------------|--------------------------------|
| Model name                          | LWDV 91-1/3-HDV 9-1/3          |
| Application                         | Heating (medium temp)          |
| Units                               | 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     | 1x230V 50Hz |
| Off-peak product | n/a         |

## Outdoor Air/Water

### EN 14511-4 | Heating

|                                            |        |
|--------------------------------------------|--------|
| Shutting off the heat transfer medium flow | passed |
| Complete power supply failure              | passed |
| Defrost test                               | passed |

### EN 14511-2 | Heating

|             | Low temperature | Medium temperature |
|-------------|-----------------|--------------------|
| Heat output | 2.77 kW         | 4.23 kW            |
| El input    | 0.52 kW         | 1.26 kW            |
| COP         | 5.41            | 3.35               |

### EN 12102-1 | Average Climate

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

### EN 14825 | Average Climate

|                | Low temperature | Medium temperature |
|----------------|-----------------|--------------------|
| $\eta_s$       | 187 %           | 147 %              |
| Prated         | 9.50 kW         | 8.90 kW            |
| SCOP           | 4.90            | 3.85               |
| Tbiv           | -5 °C           | -6 °C              |
| TOL            | -10 °C          | -10 °C             |
| Pdh Tj = -7°C  | 7.28 kW         | 7.07 kW            |
| COP Tj = -7°C  | 2.96            | 2.19               |
| Cdh Tj = -7 °C |                 |                    |
| Pdh Tj = +2°C  | 5.43 kW         | 4.86 kW            |
| COP Tj = +2°C  | 5.17            | 4.86               |
| Cdh Tj = +2 °C |                 |                    |
| Pdh Tj = +7°C  | 3.37 kW         | 3.18 kW            |
| COP Tj = +7°C  | 6.90            | 5.36               |
| Cdh Tj = +7 °C |                 |                    |

|                                                     |             |             |
|-----------------------------------------------------|-------------|-------------|
| Pdh Tj = 12°C                                       | 3.28 kW     | 3.18 kW     |
| COP Tj = 12°C                                       | 8.22        | 6.77        |
| Cdh Tj = +12 °C                                     |             |             |
| Pdh Tj = Tbiv                                       | 7.68 kW     | 7.50 kW     |
| COP Tj = Tbiv                                       | 3.11        | 2.35        |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 7.63 kW     | 6.79 kW     |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.05        | 2.07        |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 1.000       | 1.000       |
| WTOL                                                | 60 °C       | 60 °C       |
| Poff                                                | 0 W         | 0 W         |
| PTO                                                 | 22 W        | 22 W        |
| PSB                                                 | 22 W        | 22 W        |
| PCK                                                 | 30 W        | 30 W        |
| Supplementary Heater: Type of energy input          | Electricity | Electricity |
| Supplementary Heater: PSUP                          | 1.87 kW     | 2.11 kW     |
| Annual energy consumption Qhe                       | 4135 kWh    | 4904 kWh    |

#### EN 12102-1 | Colder Climate

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

#### EN 14825 | Colder Climate

|                                                     | Low temperature | Medium temperature |
|-----------------------------------------------------|-----------------|--------------------|
| ηs                                                  | 160 %           | 118 %              |
| Prated                                              | 7.50 kW         | 6.50 kW            |
| SCOP                                                | 4.07            | 3.04               |
| Tbiv                                                | -17 °C          | -17 °C             |
| TOL                                                 | -22 °C          | -22 °C             |
| Pdh Tj = -7°C                                       | 4.50 kW         | 3.87 kW            |
| COP Tj = -7°C                                       | 3.49            | 2.57               |
| Pdh Tj = +2°C                                       | 2.87 kW         | 2.35 kW            |
| COP Tj = +2°C                                       | 4.82            | 3.57               |
| Pdh Tj = +7°C                                       | 2.97 kW         | 2.88 kW            |
| COP Tj = +7°C                                       | 7.17            | 5.76               |
| Pdh Tj = 12°C                                       | 3.05 kW         | 3.17 kW            |
| COP Tj = 12°C                                       | 7.39            | 6.91               |
| Pdh Tj = Tbiv                                       | 6.43 kW         | 5.70 kW            |
| COP Tj = Tbiv                                       | 2.50            | 1.72               |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 5.59 kW         | 5.06 kW            |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.14            | 1.53               |

|                                                     |             |             |
|-----------------------------------------------------|-------------|-------------|
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 1.00        | 1.00        |
| WTOL                                                | 60 °C       | 60 °C       |
| Poff                                                | 0 W         | 0 W         |
| PTO                                                 | 22 W        | 22 W        |
| PSB                                                 | 22 W        | 22 W        |
| PCK                                                 | 30 W        | 30 W        |
| Supplementary Heater: Type of energy input          | Electricity | Electricity |
| Supplementary Heater: PSUP                          | 1.91 kW     | 1.44 kW     |
| Annual energy consumption Qhe                       | 4541 kWh    | 5277 kWh    |

#### EN 12102-1 | Warmer Climate

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

#### EN 14825 | Warmer Climate

|                                                     | Low temperature | Medium temperature |
|-----------------------------------------------------|-----------------|--------------------|
| $\eta_s$                                            | 218 %           | 172 %              |
| Prated                                              | 9.50 kW         | 9.50 kW            |
| SCOP                                                | 5.53            | 4.36               |
| Tbiv                                                | 4 °C            | 4 °C               |
| TOL                                                 | 2 °C            | 2 °C               |
| Pdh Tj = +2°C                                       | 7.98 kW         | 8.10 kW            |
| COP Tj = +2°C                                       | 3.49            | 2.32               |
| Pdh Tj = +7°C                                       | 5.89 kW         | 6.24 kW            |
| COP Tj = +7°C                                       | 5.99            | 4.07               |
| Pdh Tj = 12°C                                       | 3.12 kW         | 3.24 kW            |
| COP Tj = 12°C                                       | 7.47            | 6.53               |
| Pdh Tj = Tbiv                                       | 8.15 kW         | 8.06 kW            |
| COP Tj = Tbiv                                       | 3.81            | 2.70               |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 7.98 kW         | 8.10 kW            |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.49            | 2.32               |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 1.00            | 1.00               |
| WTOL                                                | 60 °C           | 60 °C              |
| Poff                                                | 0 W             | 0 W                |
| PTO                                                 | 22 W            | 22 W               |
| PSB                                                 | 22 W            | 22 W               |
| PCK                                                 | 30 W            | 30 W               |
| Supplementary Heater: Type of energy input          | Electricity     | Electricity        |
| Supplementary Heater: PSUP                          | 1.52 kW         | 1.40 kW            |
| Annual energy consumption Qhe                       | 2295 kWh        | 2910 kWh           |

## Model LWDV 91-1/3-HSDV 12M3

|                                     |                                |
|-------------------------------------|--------------------------------|
| Model name                          | LWDV 91-1/3-HSDV 12M3          |
| Application                         | Heating (medium temp)          |
| Units                               | 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     | 1x230V 50Hz |
| Off-peak product | n/a         |

## Outdoor Air/Water

### EN 14511-4 | Heating

|                                            |        |
|--------------------------------------------|--------|
| Shutting off the heat transfer medium flow | passed |
| Complete power supply failure              | passed |
| Defrost test                               | passed |

### EN 14511-2 | Heating

|             | Low temperature | Medium temperature |
|-------------|-----------------|--------------------|
| Heat output | 2.77 kW         | 4.23 kW            |
| El input    | 0.52 kW         | 1.26 kW            |
| COP         | 5.41            | 3.35               |

### EN 12102-1 | Average Climate

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

### EN 14825 | Average Climate

|               | Low temperature | Medium temperature |
|---------------|-----------------|--------------------|
| $\eta_s$      | 187 %           | 147 %              |
| Prated        | 9.50 kW         | 8.90 kW            |
| SCOP          | 4.90            | 3.85               |
| Tbiv          | -5 °C           | -6 °C              |
| TOL           | -10 °C          | -10 °C             |
| Pdh Tj = -7°C | 7.28 kW         | 7.07 kW            |
| COP Tj = -7°C | 2.96            | 2.19               |
| Pdh Tj = +2°C | 5.43 kW         | 4.86 kW            |
| COP Tj = +2°C | 5.17            | 4.86               |
| Pdh Tj = +7°C | 3.37 kW         | 3.18 kW            |
| COP Tj = +7°C | 6.90            | 5.36               |
| Pdh Tj = 12°C | 3.28 kW         | 3.18 kW            |
| COP Tj = 12°C | 8.22            | 6.77               |
| Pdh Tj = Tbiv | 7.68 kW         | 7.50 kW            |

|                                                     |             |             |
|-----------------------------------------------------|-------------|-------------|
| COP Tj = Tbiv                                       | 3.11        | 2.35        |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 7.63 kW     | 6.79 kW     |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.05        | 2.07        |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 1.00        | 1.00        |
| WTOL                                                | 60 °C       | 60 °C       |
| Poff                                                | 0 W         | 0 W         |
| PTO                                                 | 22 W        | 22 W        |
| PSB                                                 | 22 W        | 22 W        |
| PCK                                                 | 30 W        | 30 W        |
| Supplementary Heater: Type of energy input          | Electricity | Electricity |
| Supplementary Heater: PSUP                          | 1.87 kW     | 2.11 kW     |
| Annual energy consumption Qhe                       | 4135 kWh    | 4904 kWh    |

#### EN 12102-1 | Colder Climate

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

#### EN 14825 | Colder Climate

|                                                     | Low temperature | Medium temperature |
|-----------------------------------------------------|-----------------|--------------------|
| $\eta_s$                                            | 160 %           | 119 %              |
| Prated                                              | 7.50 kW         | 6.50 kW            |
| SCOP                                                | 4.07            | 3.04               |
| Tbiv                                                | -17 °C          | -17 °C             |
| TOL                                                 | -22 °C          | -22 °C             |
| Pdh Tj = -7°C                                       | 4.50 kW         | 3.87 kW            |
| COP Tj = -7°C                                       | 3.49            | 2.57               |
| Pdh Tj = +2°C                                       | 2.87 kW         | 2.35 kW            |
| COP Tj = +2°C                                       | 4.82            | 3.57               |
| Pdh Tj = +7°C                                       | 2.97 kW         | 2.88 kW            |
| COP Tj = +7°C                                       | 7.17            | 5.76               |
| Pdh Tj = 12°C                                       | 3.05 kW         | 3.17 kW            |
| COP Tj = 12°C                                       | 7.39            | 6.91               |
| Pdh Tj = Tbiv                                       | 6.43 kW         | 5.70 kW            |
| COP Tj = Tbiv                                       | 2.50            | 1.72               |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 5.59 kW         | 5.06 kW            |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.14            | 1.53               |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 1.00            | 1.00               |
| WTOL                                                | 60 °C           | 60 °C              |
| Poff                                                | 0 W             | 0 W                |
| PTO                                                 | 22 W            | 22 W               |

|                                            |             |             |
|--------------------------------------------|-------------|-------------|
| PSB                                        | 22 W        | 22 W        |
| PCK                                        | 30 W        | 30 W        |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP                 | 1.91 kW     | 1.44 kW     |
| Annual energy consumption Q <sub>he</sub>  | 4541 kWh    | 5277 kWh    |

#### EN 12102-1 | Warmer Climate

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

#### EN 14825 | Warmer Climate

|                                                                                                                             | Low temperature | Medium temperature |
|-----------------------------------------------------------------------------------------------------------------------------|-----------------|--------------------|
| $\eta_s$                                                                                                                    | 218 %           | 171 %              |
| Prated                                                                                                                      | 9.50 kW         | 9.50 kW            |
| SCOP                                                                                                                        | 5.53            | 4.36               |
| T <sub>biv</sub>                                                                                                            | 4 °C            | 4 °C               |
| TOL                                                                                                                         | 2 °C            | 2 °C               |
| P <sub>dh</sub> T <sub>j</sub> = +2°C                                                                                       | 7.98 kW         | 8.10 kW            |
| COP T <sub>j</sub> = +2°C                                                                                                   | 3.49            | 2.32               |
| P <sub>dh</sub> T <sub>j</sub> = +7°C                                                                                       | 5.89 kW         | 6.24 kW            |
| COP T <sub>j</sub> = +7°C                                                                                                   | 5.99            | 4.07               |
| P <sub>dh</sub> T <sub>j</sub> = 12°C                                                                                       | 3.12 kW         | 3.24 kW            |
| COP T <sub>j</sub> = 12°C                                                                                                   | 7.47            | 6.53               |
| P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>                                                                           | 8.15 kW         | 8.06 kW            |
| COP T <sub>j</sub> = T <sub>biv</sub>                                                                                       | 3.81            | 2.70               |
| 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> | 7.98 kW         | 8.10 kW            |
| COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>                         | 3.49            | 2.32               |
| C <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> | 1.00            | 1.00               |
| WTOL                                                                                                                        | 60 °C           | 60 °C              |
| P <sub>off</sub>                                                                                                            | 0 W             | 0 W                |
| PTO                                                                                                                         | 22 W            | 22 W               |
| PSB                                                                                                                         | 22 W            | 22 W               |
| PCK                                                                                                                         | 30 W            | 30 W               |
| Supplementary Heater: Type of energy input                                                                                  | Electricity     | Electricity        |
| Supplementary Heater: PSUP                                                                                                  | 1.52 kW         | 1.40 kW            |
| Annual energy consumption Q <sub>he</sub>                                                                                   | 2295 kWh        | 2910 kWh           |

## Model LWDV91-1/3-HSDV 9M-1/3

|                                     |                                |
|-------------------------------------|--------------------------------|
| Model name                          | LWDV91-1/3-HSDV 9M-1/3         |
| Application                         | Heating (medium temp)          |
| Units                               | 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     | 1x230V 50Hz |
| Off-peak product | n/a         |

## Outdoor Air/Water

### EN 14511-4 | Heating

|                                            |        |
|--------------------------------------------|--------|
| Shutting off the heat transfer medium flow | passed |
| Complete power supply failure              | passed |
| Defrost test                               | passed |

### EN 14511-2 | Heating

|             | Low temperature | Medium temperature |
|-------------|-----------------|--------------------|
| Heat output | 2.77 kW         | 4.23 kW            |
| El input    | 0.52 kW         | 1.26 kW            |
| COP         | 5.41            | 3.35               |

### EN 12102-1 | Average Climate

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

### EN 14825 | Average Climate

|               | Low temperature | Medium temperature |
|---------------|-----------------|--------------------|
| $\eta_s$      | 187 %           | 147 %              |
| Prated        | 9.50 kW         | 8.90 kW            |
| SCOP          | 4.75            | 3.75               |
| Tbiv          | -5 °C           | -6 °C              |
| TOL           | -10 °C          | -10 °C             |
| Pdh Tj = -7°C | 7.28 kW         | 7.07 kW            |
| COP Tj = -7°C | 2.96            | 2.19               |
| Pdh Tj = +2°C | 5.43 kW         | 4.86 kW            |
| COP Tj = +2°C | 5.17            | 4.86               |
| Pdh Tj = +7°C | 3.37 kW         | 3.18 kW            |
| COP Tj = +7°C | 6.90            | 5.36               |
| Pdh Tj = 12°C | 3.28 kW         | 3.18 kW            |
| COP Tj = 12°C | 8.22            | 6.77               |
| Pdh Tj = Tbiv | 7.68 kW         | 7.50 kW            |

|                                                     |             |             |
|-----------------------------------------------------|-------------|-------------|
| COP Tj = Tbiv                                       | 3.11        | 2.35        |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 7.63 kW     | 6.79 kW     |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.05        | 2.07        |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 1.00        | 1.00        |
| WTOL                                                | 60 °C       | 60 °C       |
| Poff                                                | 0 W         | 0 W         |
| PTO                                                 | 22 W        | 22 W        |
| PSB                                                 | 22 W        | 22 W        |
| PCK                                                 | 30 W        | 30 W        |
| Supplementary Heater: Type of energy input          | Electricity | Electricity |
| Supplementary Heater: PSUP                          | 1.87 kW     | 2.11 kW     |
| Annual energy consumption Qhe                       | 4135 kWh    | 4904 kWh    |

#### EN 12102-1 | Colder Climate

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

#### EN 14825 | Colder Climate

|                                                     | Low temperature | Medium temperature |
|-----------------------------------------------------|-----------------|--------------------|
| $\eta_s$                                            | 160 %           | 119 %              |
| Prated                                              | 7.50 kW         | 6.50 kW            |
| SCOP                                                | 4.07            | 3.04               |
| Tbiv                                                | -17 °C          | -17 °C             |
| TOL                                                 | -22 °C          | -22 °C             |
| Pdh Tj = -7°C                                       | 4.50 kW         | 3.87 kW            |
| COP Tj = -7°C                                       | 3.49            | 2.57               |
| Pdh Tj = +2°C                                       | 2.87 kW         | 2.35 kW            |
| COP Tj = +2°C                                       | 4.82            | 3.57               |
| Pdh Tj = +7°C                                       | 2.97 kW         | 2.88 kW            |
| COP Tj = +7°C                                       | 7.17            | 5.76               |
| Pdh Tj = 12°C                                       | 3.05 kW         | 3.17 kW            |
| COP Tj = 12°C                                       | 7.39            | 6.91               |
| Pdh Tj = Tbiv                                       | 6.43 kW         | 5.70 kW            |
| COP Tj = Tbiv                                       | 2.50            | 1.72               |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 5.59 kW         | 5.06 kW            |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.14            | 1.53               |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 1.00            | 1.00               |
| WTOL                                                | 60 °C           | 60 °C              |
| Poff                                                | 0 W             | 0 W                |
| PTO                                                 | 22 W            | 22 W               |

|                                            |             |             |
|--------------------------------------------|-------------|-------------|
| PSB                                        | 22 W        | 22 W        |
| PCK                                        | 30 W        | 30 W        |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP                 | 1.91 kW     | 1.44 kW     |
| Annual energy consumption Q <sub>he</sub>  | 4541 kWh    | 5277 kWh    |

#### EN 12102-1 | Warmer Climate

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

#### EN 14825 | Warmer Climate

|                                                                                                                             | Low temperature | Medium temperature |
|-----------------------------------------------------------------------------------------------------------------------------|-----------------|--------------------|
| $\eta_s$                                                                                                                    | 218 %           | 171 %              |
| Prated                                                                                                                      | 9.50 kW         | 9.50 kW            |
| SCOP                                                                                                                        | 5.53            | 4.36               |
| T <sub>biv</sub>                                                                                                            | 4 °C            | 4 °C               |
| TOL                                                                                                                         | 2 °C            | 2 °C               |
| P <sub>dh</sub> T <sub>j</sub> = +2°C                                                                                       | 7.98 kW         | 8.10 kW            |
| COP T <sub>j</sub> = +2°C                                                                                                   | 3.49            | 2.32               |
| P <sub>dh</sub> T <sub>j</sub> = +7°C                                                                                       | 5.89 kW         | 6.24 kW            |
| COP T <sub>j</sub> = +7°C                                                                                                   | 5.99            | 4.07               |
| P <sub>dh</sub> T <sub>j</sub> = 12°C                                                                                       | 3.12 kW         | 3.24 kW            |
| COP T <sub>j</sub> = 12°C                                                                                                   | 7.47            | 6.53               |
| P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>                                                                           | 8.15 kW         | 8.06 kW            |
| COP T <sub>j</sub> = T <sub>biv</sub>                                                                                       | 3.81            | 2.70               |
| 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> | 7.98 kW         | 8.10 kW            |
| COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>                         | 3.49            | 2.32               |
| C <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> | 1.00            | 1.00               |
| WTOL                                                                                                                        | 60 °C           | 60 °C              |
| P <sub>off</sub>                                                                                                            | 0 W             | 0 W                |
| PTO                                                                                                                         | 22 W            | 22 W               |
| PSB                                                                                                                         | 22 W            | 22 W               |
| PCK                                                                                                                         | 30 W            | 30 W               |
| Supplementary Heater: Type of energy input                                                                                  | Electricity     | Electricity        |
| Supplementary Heater: PSUP                                                                                                  | 1.52 kW         | 1.40 kW            |
| Annual energy consumption Q <sub>he</sub>                                                                                   | 2295 kWh        | 2910 kWh           |