

Subtype LWD 90A

| | |
|---------------------|------------------------------------|
| Certificate Holder | ait-deutschland GmbH |
| Address | Industriestr. 3 |
| ZIP | 95359 |
| City | Kasendorf |
| Country | DE |
| Certification Body | BRE Global Limited |
| Subtype title | LWD 90A |
| Registration number | 041-K001-22 |
| Heat Pump Type | Outdoor Air/Water |
| Refrigerant | R290 |
| Mass of Refrigerant | 1.17 kg |
| Certification Date | 12.05.2017 |
| Testing basis | HP Keymark Scheme Transition Rules |
| Testing laboratory | Wärmepumpen-Testzentrum (WPZ), CH |

Model alpha innotec LWD 90A-HMD

| | |
|-------------------------------------|---------------------------|
| Model name | alpha innotec LWD 90A-HMD |
| Application | Heating (medium temp) |
| Units | Outdoor |
| Climate zone (for heating) | n/a |
| Cooling mode application (optional) | n/a |
| Any additional heat sources | n/a |

General data

| | |
|------------------|-------------|
| Power supply | 3x400V 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 | 10.10 kW | 9.40 kW |
| El input | 2.50 kW | 3.13 kW |
| COP | 4.12 | 3.00 |

EN 12102-1 | Average Climate

| | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 62 dB(A) | 62 dB(A) |

EN 14825 | Average Climate

| | Low temperature | Medium temperature |
|----------------|-----------------|--------------------|
| η_s | 150 % | 126 % |
| Prated | 10.45 kW | 10.21 kW |
| SCOP | 3.84 | 3.22 |
| Tbiv | -4 °C | -4 °C |
| TOL | -10 °C | -10 °C |
| Pdh Tj = -7°C | 7.50 kW | 7.20 kW |
| COP Tj = -7°C | 3.18 | 2.35 |
| Cdh Tj = -7 °C | 1.00 | 1.00 |
| Pdh Tj = +2°C | 9.00 kW | 9.00 kW |
| COP Tj = +2°C | 3.83 | 3.21 |
| Cdh Tj = +2 °C | 0.99 | 1.00 |
| Pdh Tj = +7°C | 10.30 kW | 10.10 kW |
| COP Tj = +7°C | 4.69 | 4.03 |
| Cdh Tj = +7 °C | 0.99 | 0.99 |

| | | |
|---|-------------|-------------|
| Pdh Tj = 12°C | 12.00 kW | 12.00 kW |
| COP Tj = 12°C | 5.42 | 5.30 |
| Cdh Tj = +12 °C | 0.99 | 0.99 |
| Pdh Tj = Tbiv | 8.10 kW | 7.80 kW |
| COP Tj = Tbiv | 3.43 | 2.63 |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 7.00 kW | 6.60 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.93 | 2.11 |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 0.90 | 0.90 |
| WTOL | 70 °C | 70 °C |
| Poff | 15 W | 15 W |
| PTO | 15 W | 15 W |
| PSB | 15 W | 15 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 3.45 kW | 3.61 kW |
| Annual energy consumption Qhe | 5628 kWh | 6557 kWh |

EN 12102-1 | Colder Climate

| | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 62 dB(A) | 62 dB(A) |

EN 14825 | Colder Climate

| | Low temperature | Medium temperature |
|-----------------|-----------------|--------------------|
| ηs | 139 % | 117 % |
| Prated | 7.66 kW | 7.03 kW |
| SCOP | 3.55 | 3.00 |
| Tbiv | -15 °C | -15 °C |
| TOL | -20 °C | -20 °C |
| Pdh Tj = -7°C | 7.60 kW | 7.30 kW |
| COP Tj = -7°C | 3.33 | 2.67 |
| Cdh Tj = -7 °C | 0.990 | 0.990 |
| Pdh Tj = +2°C | 9.10 kW | 9.00 kW |
| COP Tj = +2°C | 3.95 | 3.49 |
| Cdh Tj = +2 °C | 0.990 | 0.990 |
| Pdh Tj = +7°C | 10.30 kW | 10.20 kW |
| COP Tj = +7°C | 4.84 | 4.47 |
| Cdh Tj = +7 °C | 0.990 | 0.990 |
| Pdh Tj = 12°C | 12.00 kW | 12.00 kW |
| COP Tj = 12°C | 5.36 | 5.58 |
| Cdh Tj = +12 °C | 0.990 | 0.990 |
| Pdh Tj = Tbiv | 6.20 kW | 5.70 kW |
| COP Tj = Tbiv | 2.72 | 2.02 |

| | | |
|---|-------------|-------------|
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 5.40 kW | 4.70 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.31 | 1.64 |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 0.900 | 0.900 |
| WTOL | 70 °C | 70 °C |
| Poff | 15 W | 15 W |
| PTO | 15 W | 15 W |
| PSB | 15 W | 15 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 7.66 kW | 7.03 kW |
| Annual energy consumption Qhe | 5325 kWh | 5770 kWh |
| Pdh Tj = -15°C (if TOL | 6.20 | 5.70 |
| COP Tj = -15°C (if TOL | 2.72 | 2.02 |
| Cdh Tj = -15 °C | 1.000 | 1.000 |

EN 12102-1 | Warmer Climate

| | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 62 dB(A) | 62 dB(A) |

EN 14825 | Warmer Climate

| | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| η_s | 179 % | 146 % |
| Prated | 11.05 kW | 10.71 kW |
| SCOP | 4.56 | 3.72 |
| Tbiv | 4 °C | 4 °C |
| TOL | 2 °C | 2 °C |
| Pdh Tj = +2°C | 9.00 kW | 8.90 kW |
| COP Tj = +2°C | 3.61 | 2.66 |
| Cdh Tj = +2 °C | 1.00 | 1.00 |
| Pdh Tj = +7°C | 10.20 kW | 9.70 kW |
| COP Tj = +7°C | 4.41 | 3.19 |
| Cdh Tj = +7 °C | 0.99 | 1.00 |
| Pdh Tj = 12°C | 12.00 kW | 11.90 kW |
| COP Tj = 12°C | 5.25 | 4.80 |
| Cdh Tj = +12 °C | 0.99 | 0.99 |
| Pdh Tj = Tbiv | 9.50 kW | 9.20 kW |
| COP Tj = Tbiv | 3.95 | 2.82 |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 9.00 kW | 8.90 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.61 | 2.66 |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 0.90 | 0.90 |

| | | |
|--|-------------|-------------|
| WTOL | 70 °C | 70 °C |
| Poff | 15 W | 15 W |
| PTO | 15 W | 15 W |
| PSB | 15 W | 15 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 2.05 kW | 1.81 kW |
| Annual energy consumption Qhe | 3237 kWh | 3852 kWh |

Model alpha innotec LWD 90A-HTD

| | |
|-------------------------------------|---------------------------|
| Model name | alpha innotec LWD 90A-HTD |
| Application | Heating (medium temp) |
| Units | Outdoor |
| Climate zone (for heating) | n/a |
| Cooling mode application (optional) | n/a |
| Any additional heat sources | n/a |

General data

| | |
|------------------|-------------|
| Power supply | 3x400V 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 | 10.10 kW | 9.40 kW |
| El input | 2.50 kW | 3.13 kW |
| COP | 4.12 | 3.00 |

EN 12102-1 | Average Climate

| | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 62 dB(A) | 62 dB(A) |

EN 14825 | Average Climate

| | Low temperature | Medium temperature |
|----------------|-----------------|--------------------|
| η_s | 150 % | 126 % |
| Prated | 10.45 kW | 10.21 kW |
| SCOP | 3.84 | 3.22 |
| Tbiv | -4 °C | -4 °C |
| TOL | -10 °C | -10 °C |
| Pdh Tj = -7°C | 7.50 kW | 7.20 kW |
| COP Tj = -7°C | 3.18 | 2.35 |
| Cdh Tj = -7 °C | 1.00 | 1.00 |
| Pdh Tj = +2°C | 9.00 kW | 9.00 kW |
| COP Tj = +2°C | 3.83 | 3.21 |
| Cdh Tj = +2 °C | 0.99 | 1.00 |
| Pdh Tj = +7°C | 10.30 kW | 10.10 kW |
| COP Tj = +7°C | 4.69 | 4.03 |
| Cdh Tj = +7 °C | 0.99 | 0.99 |

| | | |
|---|-------------|-------------|
| Pdh Tj = 12°C | 12.00 kW | 12.00 kW |
| COP Tj = 12°C | 5.42 | 5.30 |
| Cdh Tj = +12 °C | 0.99 | 0.99 |
| Pdh Tj = Tbiv | 8.10 kW | 7.80 kW |
| COP Tj = Tbiv | 3.43 | 2.63 |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 7.00 kW | 6.60 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.93 | 2.11 |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 0.90 | 0.90 |
| WTOL | 70 °C | 70 °C |
| Poff | 15 W | 15 W |
| PTO | 15 W | 15 W |
| PSB | 15 W | 15 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 3.45 kW | 3.61 kW |
| Annual energy consumption Qhe | 5628 kWh | 6557 kWh |

EN 12102-1 | Colder Climate

| | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 62 dB(A) | 62 dB(A) |

EN 14825 | Colder Climate

| | Low temperature | Medium temperature |
|-----------------|-----------------|--------------------|
| ηs | 139 % | 117 % |
| Prated | 7.66 kW | 7.03 kW |
| SCOP | 3.55 | 3.00 |
| Tbiv | -15 °C | -15 °C |
| TOL | -20 °C | -20 °C |
| Pdh Tj = -7°C | 7.60 kW | 7.30 kW |
| COP Tj = -7°C | 3.33 | 2.67 |
| Cdh Tj = -7 °C | 0.990 | 0.990 |
| Pdh Tj = +2°C | 9.10 kW | 9.00 kW |
| COP Tj = +2°C | 3.95 | 3.49 |
| Cdh Tj = +2 °C | 0.990 | 0.990 |
| Pdh Tj = +7°C | 10.30 kW | 10.20 kW |
| COP Tj = +7°C | 4.84 | 4.47 |
| Cdh Tj = +7 °C | 0.990 | 0.990 |
| Pdh Tj = 12°C | 12.00 kW | 12.00 kW |
| COP Tj = 12°C | 5.36 | 5.58 |
| Cdh Tj = +12 °C | 0.990 | 0.990 |
| Pdh Tj = Tbiv | 6.20 kW | 5.70 kW |
| COP Tj = Tbiv | 2.72 | 2.02 |

| | | |
|---|-------------|-------------|
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 5.40 kW | 4.70 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.31 | 1.64 |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 0.900 | 0.900 |
| WTOL | 70 °C | 70 °C |
| Poff | 15 W | 15 W |
| PTO | 15 W | 15 W |
| PSB | 15 W | 15 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 7.66 kW | 7.03 kW |
| Annual energy consumption Qhe | 5325 kWh | 5770 kWh |
| Pdh Tj = -15°C (if TOL | 6.20 | 5.70 |
| COP Tj = -15°C (if TOL | 2.72 | 2.02 |
| Cdh Tj = -15 °C | 1.000 | 1.000 |

EN 12102-1 | Warmer Climate

| | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 62 dB(A) | 62 dB(A) |

EN 14825 | Warmer Climate

| | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| ηs | 179 % | 146 % |
| Prated | 11.05 kW | 10.71 kW |
| SCOP | 4.56 | 3.72 |
| Tbiv | 4 °C | 4 °C |
| TOL | 2 °C | 2 °C |
| Pdh Tj = +2°C | 9.00 kW | 8.90 kW |
| COP Tj = +2°C | 3.61 | 2.66 |
| Cdh Tj = +2 °C | 1.00 | 1.00 |
| Pdh Tj = +7°C | 10.20 kW | 9.70 kW |
| COP Tj = +7°C | 4.41 | 3.19 |
| Cdh Tj = +7 °C | 0.99 | 1.00 |
| Pdh Tj = 12°C | 12.00 kW | 11.90 kW |
| COP Tj = 12°C | 5.25 | 4.80 |
| Cdh Tj = +12 °C | 0.99 | 0.99 |
| Pdh Tj = Tbiv | 9.50 kW | 9.20 kW |
| COP Tj = Tbiv | 3.95 | 2.82 |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 9.00 kW | 8.90 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.61 | 2.66 |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 0.90 | 0.90 |

| | | |
|--|-------------|-------------|
| WTOL | 70 °C | 70 °C |
| Poff | 15 W | 15 W |
| PTO | 15 W | 15 W |
| PSB | 15 W | 15 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 2.05 kW | 1.81 kW |
| Annual energy consumption Qhe | 3237 kWh | 3852 kWh |

Model NOVELAN LAD 9 - CSD

| | |
|-------------------------------------|-----------------------|
| Model name | NOVELAN LAD 9 - CSD |
| Application | Heating (medium temp) |
| Units | Outdoor |
| Climate zone (for heating) | n/a |
| Cooling mode application (optional) | n/a |
| Any additional heat sources | n/a |

General data

| | |
|------------------|-------------|
| Power supply | 3x400V 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 | 10.10 kW | 9.40 kW |
| El input | 2.50 kW | 3.13 kW |
| COP | 4.12 | 3.00 |

EN 12102-1 | Average Climate

| | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 62 dB(A) | 62 dB(A) |

EN 14825 | Average Climate

| | Low temperature | Medium temperature |
|----------------|-----------------|--------------------|
| η_s | 150 % | 126 % |
| Prated | 10.45 kW | 10.21 kW |
| SCOP | 3.84 | 3.22 |
| Tbiv | -4 °C | -4 °C |
| TOL | -10 °C | -10 °C |
| Pdh Tj = -7°C | 7.50 kW | 7.20 kW |
| COP Tj = -7°C | 3.18 | 2.35 |
| Cdh Tj = -7 °C | 1.00 | 1.00 |
| Pdh Tj = +2°C | 9.00 kW | 9.00 kW |
| COP Tj = +2°C | 3.83 | 3.21 |
| Cdh Tj = +2 °C | 0.99 | 1.00 |
| Pdh Tj = +7°C | 10.30 kW | 10.10 kW |
| COP Tj = +7°C | 4.69 | 4.03 |
| Cdh Tj = +7 °C | 0.99 | 0.99 |

| | | |
|---|-------------|-------------|
| Pdh Tj = 12°C | 12.00 kW | 12.00 kW |
| COP Tj = 12°C | 5.42 | 5.30 |
| Cdh Tj = +12 °C | 0.99 | 0.99 |
| Pdh Tj = Tbiv | 8.10 kW | 7.80 kW |
| COP Tj = Tbiv | 3.43 | 2.63 |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 7.00 kW | 6.60 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.93 | 2.11 |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 0.90 | 0.90 |
| WTOL | 70 °C | 70 °C |
| Poff | 15 W | 15 W |
| PTO | 15 W | 15 W |
| PSB | 15 W | 15 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 3.45 kW | 3.61 kW |
| Annual energy consumption Qhe | 5628 kWh | 6557 kWh |

EN 12102-1 | Colder Climate

| | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 62 dB(A) | 62 dB(A) |

EN 14825 | Colder Climate

| | Low temperature | Medium temperature |
|-----------------|-----------------|--------------------|
| ηs | 139 % | 117 % |
| Prated | 7.66 kW | 7.03 kW |
| SCOP | 3.55 | 3.00 |
| Tbiv | -15 °C | -15 °C |
| TOL | -20 °C | -20 °C |
| Pdh Tj = -7°C | 7.60 kW | 7.30 kW |
| COP Tj = -7°C | 3.33 | 2.67 |
| Cdh Tj = -7 °C | 0.990 | 0.990 |
| Pdh Tj = +2°C | 9.10 kW | 9.00 kW |
| COP Tj = +2°C | 3.95 | 3.49 |
| Cdh Tj = +2 °C | 0.990 | 0.990 |
| Pdh Tj = +7°C | 10.30 kW | 10.20 kW |
| COP Tj = +7°C | 4.84 | 4.47 |
| Cdh Tj = +7 °C | 0.990 | 0.990 |
| Pdh Tj = 12°C | 12.00 kW | 12.00 kW |
| COP Tj = 12°C | 5.36 | 5.58 |
| Cdh Tj = +12 °C | 0.990 | 0.990 |
| Pdh Tj = Tbiv | 6.20 kW | 5.70 kW |
| COP Tj = Tbiv | 2.72 | 2.02 |

| | | |
|---|-------------|-------------|
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 5.40 kW | 4.70 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.31 | 1.64 |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 0.900 | 0.900 |
| WTOL | 70 °C | 70 °C |
| Poff | 15 W | 15 W |
| PTO | 15 W | 15 W |
| PSB | 15 W | 15 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 7.66 kW | 7.03 kW |
| Annual energy consumption Qhe | 5325 kWh | 5770 kWh |
| Pdh Tj = -15°C (if TOL | 6.20 | 5.70 |
| COP Tj = -15°C (if TOL | 2.72 | 2.02 |
| Cdh Tj = -15 °C | 1.000 | 1.000 |

EN 12102-1 | Warmer Climate

| | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 62 dB(A) | 62 dB(A) |

EN 14825 | Warmer Climate

| | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| ηs | 179 % | 146 % |
| Prated | 11.05 kW | 10.71 kW |
| SCOP | 4.56 | 3.72 |
| Tbiv | 4 °C | 4 °C |
| TOL | 2 °C | 2 °C |
| Pdh Tj = +2°C | 9.00 kW | 8.90 kW |
| COP Tj = +2°C | 3.61 | 2.66 |
| Cdh Tj = +2 °C | 1.00 | 1.00 |
| Pdh Tj = +7°C | 10.20 kW | 9.70 kW |
| COP Tj = +7°C | 4.41 | 3.19 |
| Cdh Tj = +7 °C | 0.99 | 1.00 |
| Pdh Tj = 12°C | 12.00 kW | 11.90 kW |
| COP Tj = 12°C | 5.25 | 4.80 |
| Cdh Tj = +12 °C | 0.99 | 0.99 |
| Pdh Tj = Tbiv | 9.50 kW | 9.20 kW |
| COP Tj = Tbiv | 3.95 | 2.82 |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 9.00 kW | 8.90 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.61 | 2.66 |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 0.90 | 0.90 |

| | | |
|--|-------------|-------------|
| WTOL | 70 °C | 70 °C |
| Poff | 15 W | 15 W |
| PTO | 15 W | 15 W |
| PSB | 15 W | 15 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 2.05 kW | 1.81 kW |
| Annual energy consumption Qhe | 3237 kWh | 3852 kWh |

Model NOVELAN LAD 9 - HID

| | |
|-------------------------------------|-----------------------|
| Model name | NOVELAN LAD 9 - HID |
| Application | Heating (medium temp) |
| Units | Outdoor |
| Climate zone (for heating) | n/a |
| Cooling mode application (optional) | n/a |
| Any additional heat sources | n/a |

General data

| | |
|------------------|-------------|
| Power supply | 3x400V 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 | 10.10 kW | 9.40 kW |
| El input | 2.50 kW | 3.13 kW |
| COP | 4.12 | 3.00 |

EN 12102-1 | Average Climate

| | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 62 dB(A) | 62 dB(A) |

EN 14825 | Average Climate

| | Low temperature | Medium temperature |
|----------------|-----------------|--------------------|
| η_s | 150 % | 126 % |
| Prated | 10.45 kW | 10.21 kW |
| SCOP | 3.84 | 3.22 |
| Tbiv | -4 °C | -4 °C |
| TOL | -10 °C | -10 °C |
| Pdh Tj = -7°C | 7.50 kW | 7.20 kW |
| COP Tj = -7°C | 3.18 | 2.35 |
| Cdh Tj = -7 °C | 1.00 | 1.00 |
| Pdh Tj = +2°C | 9.00 kW | 9.00 kW |
| COP Tj = +2°C | 3.83 | 3.21 |
| Cdh Tj = +2 °C | 0.99 | 1.00 |
| Pdh Tj = +7°C | 10.30 kW | 10.10 kW |
| COP Tj = +7°C | 4.69 | 4.03 |
| Cdh Tj = +7 °C | 0.99 | 0.99 |

| | | |
|---|-------------|-------------|
| Pdh Tj = 12°C | 12.00 kW | 12.00 kW |
| COP Tj = 12°C | 5.42 | 5.30 |
| Cdh Tj = +12 °C | 0.99 | 0.99 |
| Pdh Tj = Tbiv | 8.10 kW | 7.80 kW |
| COP Tj = Tbiv | 3.43 | 2.63 |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 7.00 kW | 6.60 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.93 | 2.11 |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 0.90 | 0.90 |
| WTOL | 70 °C | 70 °C |
| Poff | 15 W | 15 W |
| PTO | 15 W | 15 W |
| PSB | 15 W | 15 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 3.45 kW | 3.61 kW |
| Annual energy consumption Qhe | 5628 kWh | 6557 kWh |

EN 12102-1 | Colder Climate

| | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 62 dB(A) | 62 dB(A) |

EN 14825 | Colder Climate

| | Low temperature | Medium temperature |
|-----------------|-----------------|--------------------|
| ηs | 139 % | 117 % |
| Prated | 7.66 kW | 7.03 kW |
| SCOP | 3.55 | 3.00 |
| Tbiv | -15 °C | -15 °C |
| TOL | -20 °C | -20 °C |
| Pdh Tj = -7°C | 7.60 kW | 7.30 kW |
| COP Tj = -7°C | 3.33 | 2.67 |
| Cdh Tj = -7 °C | 0.990 | 0.990 |
| Pdh Tj = +2°C | 9.10 kW | 9.00 kW |
| COP Tj = +2°C | 3.95 | 3.49 |
| Cdh Tj = +2 °C | 0.990 | 0.990 |
| Pdh Tj = +7°C | 10.30 kW | 10.20 kW |
| COP Tj = +7°C | 4.84 | 4.47 |
| Cdh Tj = +7 °C | 0.990 | 0.990 |
| Pdh Tj = 12°C | 12.00 kW | 12.00 kW |
| COP Tj = 12°C | 5.36 | 5.58 |
| Cdh Tj = +12 °C | 0.990 | 0.990 |
| Pdh Tj = Tbiv | 6.20 kW | 5.70 kW |
| COP Tj = Tbiv | 2.72 | 2.02 |

| | | |
|---|-------------|-------------|
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 5.40 kW | 4.70 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.31 | 1.64 |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 0.900 | 0.900 |
| WTOL | 70 °C | 70 °C |
| Poff | 15 W | 15 W |
| PTO | 15 W | 15 W |
| PSB | 15 W | 15 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 7.66 kW | 7.03 kW |
| Annual energy consumption Qhe | 5325 kWh | 5770 kWh |
| Pdh Tj = -15°C (if TOL | 6.20 | 5.70 |
| COP Tj = -15°C (if TOL | 2.72 | 2.02 |
| Cdh Tj = -15 °C | 1.000 | 1.000 |

EN 12102-1 | Warmer Climate

| | Low temperature | Medium temperature |
|---------------------------|-----------------|--------------------|
| Sound power level outdoor | 62 dB(A) | 62 dB(A) |

EN 14825 | Warmer Climate

| | Low temperature | Medium temperature |
|---|-----------------|--------------------|
| ηs | 179 % | 146 % |
| Prated | 11.05 kW | 10.71 kW |
| SCOP | 4.56 | 3.72 |
| Tbiv | 4 °C | 4 °C |
| TOL | 2 °C | 2 °C |
| Pdh Tj = +2°C | 9.00 kW | 8.90 kW |
| COP Tj = +2°C | 3.61 | 2.66 |
| Cdh Tj = +2 °C | 1.00 | 1.00 |
| Pdh Tj = +7°C | 10.20 kW | 9.70 kW |
| COP Tj = +7°C | 4.41 | 3.19 |
| Cdh Tj = +7 °C | 0.99 | 1.00 |
| Pdh Tj = 12°C | 12.00 kW | 11.90 kW |
| COP Tj = 12°C | 5.25 | 4.80 |
| Cdh Tj = +12 °C | 0.99 | 0.99 |
| Pdh Tj = Tbiv | 9.50 kW | 9.20 kW |
| COP Tj = Tbiv | 3.95 | 2.82 |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 9.00 kW | 8.90 kW |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 3.61 | 2.66 |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 0.90 | 0.90 |

| | | |
|--|-------------|-------------|
| WTOL | 70 °C | 70 °C |
| Poff | 15 W | 15 W |
| PTO | 15 W | 15 W |
| PSB | 15 W | 15 W |
| PCK | 0 W | 0 W |
| Supplementary Heater: Type of energy input | Electricity | Electricity |
| Supplementary Heater: PSUP | 2.05 kW | 1.81 kW |
| Annual energy consumption Qhe | 3237 kWh | 3852 kWh |