

This information was generated by the HP KEYMARK database on 9 Sep 2021

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|                     |  |          |             |
|---------------------|--|----------|-------------|
| Summary of          | R32 monobloc(2nd) 12 14 16 kW 1&3 phase                | Reg. No. | 011-1W0470  |
| Certificate Holder  |  |          |             |
| Name                | LG Electronics Inc.                                    |          |             |
| Address             | 84, Wanam-ro, seongsan-gu                              | Zip      | 51554       |
| City                | Changwon-si  | Country  | South Korea |
| Certification Body  | DIN CERTCO Gesellschaft für Konformitätsbewertung mbH  |          |             |
| Subtype title       | R32 monobloc(2nd) 12 14 16 kW 1&3 phase                |          |             |
| Heat Pump Type      | Outdoor Air/Water                                      |          |             |
| Refrigerant         | R32  |          |             |
| Mass of Refrigerant | 2 kg   |          |             |
| Certification Date  | 05.07.2021   |          |             |
| Testing basis       | European KEYMARK Scheme for Heat Pumps Rev.8 (2020-09) |          |             |

## Model: HM121MR U34

| <b>Configure model</b>              |                       |
|-------------------------------------|-----------------------|
| Model name                          | HM121MR U34           |
| Application                         | Heating (medium temp) |
| Units                               | Outdoor               |
| Climate Zone                        | n/a                   |
| Reversibility                       | No                    |
| Cooling mode application (optional) | n/a                   |

| <b>General Data</b> |             |
|---------------------|-------------|
| Power supply        | 1x230V 50Hz |

### Heating

| <b>EN 14511-2</b> |                        |                           |
|-------------------|------------------------|---------------------------|
|                   | <b>Low temperature</b> | <b>Medium temperature</b> |
| Heat output       | 12.00 kW               | 11.00 kW                  |
| El input          | 2.45 kW                | 3.79 kW                   |
| COP               | 4.90                   | 2.90                      |

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

### Average Climate

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| <b>EN 12102-1</b>         |                        |                           |
|---------------------------|------------------------|---------------------------|
|                           | <b>Low temperature</b> | <b>Medium temperature</b> |
| Sound power level outdoor | 60 dB(A)               | 60 dB(A)                  |

| <b>EN 14825</b> |                        |                           |
|-----------------|------------------------|---------------------------|
|                 | <b>Low temperature</b> | <b>Medium temperature</b> |
| $\eta_s$        | 184 %                  | 136 %                     |
| Prated          | 12.00 kW               | 12.00 kW                  |
| SCOP            | 4.67                   | 3.47                      |
| Tbiv            | -10 °C                 | -7 °C                     |
| TOL             | -10 °C                 | -10 °C                    |
| Pdh Tj = -7°C   | 10.20 kW               | 10.20 kW                  |
| COP Tj = -7°C   | 3.10                   | 2.07                      |
| Cdh Tj = -7 °C  | 0.900                  | 0.900                     |
| Pdh Tj = +2°C   | 6.20 kW                | 6.30 kW                   |
| COP Tj = +2°C   | 4.39                   | 3.38                      |
| Cdh Tj = +2 °C  | 0.900                  | 0.900                     |
| Pdh Tj = +7°C   | 4.50 kW                | 4.60 kW                   |
| COP Tj = +7°C   | 6.40                   | 4.64                      |
| Cdh Tj = +7 °C  | 0.900                  | 0.900                     |
| Pdh Tj = 12°C   | 5.20 kW                | 4.60 kW                   |

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|   |             |             |
|---|-------------|-------------|
| COP Tj = 12°C                                       | 8.50        | 6.79        |
| Cdh Tj = +12 °C                                     | 0.900       | 0.900       |
| Pdh Tj = Tbiv                                       | 11.50 kW    | 10.20 kW    |
| COP Tj = Tbiv                                       | 2.55        | 2.07        |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 11.50 kW    | 10.80 kW    |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.55        | 1.92        |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 0.900       | 0.900       |
| WTOL  | 65 °C       | 65 °C       |
| Poff  | 10 W        | 10 W        |
| PTO   | 30 W        | 30 W        |
| PSB   | 10 W        | 10 W        |
| PCK   | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input          | Electricity | Electricity |
| Supplementary Heater: PSUP                          | 0.50 kW     | 1.20 kW     |
| Annual energy consumption Qhe                       | 5086 kWh    | 6882 kWh    |

## Model: HM123MR U34

| <b>Configure model</b>              |                       |
|-------------------------------------|-----------------------|
| Model name                          | HM123MR U34           |
| Application                         | Heating (medium temp) |
| Units                               | Outdoor               |
| Climate Zone                        | n/a                   |
| Reversibility                       | No                    |
| Cooling mode application (optional) | n/a                   |

| <b>General Data</b> |             |
|---------------------|-------------|
| Power supply        | 3x400V 50Hz |

### Heating

| <b>EN 14511-2</b> |                        |                           |
|-------------------|------------------------|---------------------------|
|                   | <b>Low temperature</b> | <b>Medium temperature</b> |
| Heat output       | 12.00 kW               | 11.00 kW                  |
| El input          | 2.45 kW                | 3.79 kW                   |
| COP               | 4.90                   | 2.90                      |

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

### Average Climate

This information was generated by the HP KEYMARK database on 9 Sep 2021

| <b>EN 12102-1</b>         |                        |                           |
|---------------------------|------------------------|---------------------------|
|                           | <b>Low temperature</b> | <b>Medium temperature</b> |
| Sound power level outdoor | 60 dB(A)               | 60 dB(A)                  |

| <b>EN 14825</b> |                        |                           |
|-----------------|------------------------|---------------------------|
|                 | <b>Low temperature</b> | <b>Medium temperature</b> |
| $\eta_s$        | 184 %                  | 136 %                     |
| Prated          | 12.00 kW               | 12.00 kW                  |
| SCOP            | 4.67                   | 3.47                      |
| Tbiv            | -10 °C                 | -7 °C                     |
| TOL             | -10 °C                 | -10 °C                    |
| Pdh Tj = -7°C   | 10.20 kW               | 10.20 kW                  |
| COP Tj = -7°C   | 3.10                   | 2.07                      |
| Cdh Tj = -7 °C  | 0.900                  | 0.900                     |
| Pdh Tj = +2°C   | 6.20 kW                | 6.30 kW                   |
| COP Tj = +2°C   | 4.39                   | 3.38                      |
| Cdh Tj = +2 °C  | 0.900                  | 0.900                     |
| Pdh Tj = +7°C   | 4.50 kW                | 4.60 kW                   |
| COP Tj = +7°C   | 6.40                   | 4.64                      |
| Cdh Tj = +7 °C  | 0.900                  | 0.900                     |
| Pdh Tj = 12°C   | 5.20 kW                | 4.60 kW                   |

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|   |             |             |
|---|-------------|-------------|
| COP Tj = 12°C                                       | 8.50        | 6.79        |
| Cdh Tj = +12 °C                                     | 0.900       | 0.900       |
| Pdh Tj = Tbiv                                       | 11.50 kW    | 10.20 kW    |
| COP Tj = Tbiv                                       | 2.55        | 2.07        |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 11.50 kW    | 10.80 kW    |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.55        | 1.92        |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 0.900       | 0.900       |
| WTOL  | 65 °C       | 65 °C       |
| Poff  | 10 W        | 10 W        |
| PTO   | 30 W        | 30 W        |
| PSB   | 10 W        | 10 W        |
| PCK   | 0 W         | 0 W         |
| Supplementary Heater: Type of energy input          | Electricity | Electricity |
| Supplementary Heater: PSUP                          | 0.50 kW     | 1.20 kW     |
| Annual energy consumption Qhe                       | 5086 kWh    | 6882 kWh    |

## Model: HM141MR U34

| <b>Configure model</b>              |                       |
|-------------------------------------|-----------------------|
| Model name                          | HM141MR U34           |
| Application                         | Heating (medium temp) |
| Units                               | Outdoor               |
| Climate Zone                        | n/a                   |
| Reversibility                       | No                    |
| Cooling mode application (optional) | n/a                   |

| <b>General Data</b> |             |
|---------------------|-------------|
| Power supply        | 1x230V 50Hz |

### Heating

| <b>EN 14511-2</b> |                        |                           |
|-------------------|------------------------|---------------------------|
|                   | <b>Low temperature</b> | <b>Medium temperature</b> |
| Heat output       | 14.00 kW               | 11.50 kW                  |
| El input          | 2.92 kW                | 4.04 kW                   |
| COP               | 4.80                   | 2.85                      |

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

### Average Climate



This information was generated by the HP KEYMARK database on 9 Sep 2021

| <b>EN 12102-1</b>         |                        |                           |
|---------------------------|------------------------|---------------------------|
|                           | <b>Low temperature</b> | <b>Medium temperature</b> |
| Sound power level outdoor | 61 dB(A)               | 61 dB(A)                  |

| <b>EN 14825</b> |                        |                           |
|-----------------|------------------------|---------------------------|
|                 | <b>Low temperature</b> | <b>Medium temperature</b> |
| $\eta_s$        | 182 %                  | 135 %                     |
| Prated          | 12.00 kW               | 12.00 kW                  |
| SCOP            | 4.62                   | 3.46                      |
| Tbiv            | -10 °C                 | -7 °C                     |
| TOL             | -10 °C                 | -10 °C                    |
| Pdh Tj = -7°C   | 10.60 kW               | 10.40 kW                  |
| COP Tj = -7°C   | 3.10                   | 2.11                      |
| Cdh Tj = -7 °C  | 0.900                  | 0.900                     |
| Pdh Tj = +2°C   | 6.50 kW                | 6.30 kW                   |
| COP Tj = +2°C   | 4.40                   | 3.35                      |
| Cdh Tj = +2 °C  | 0.900                  | 0.900                     |
| Pdh Tj = +7°C   | 4.60 kW                | 4.70 kW                   |
| COP Tj = +7°C   | 6.10                   | 4.66                      |
| Cdh Tj = +7 °C  | 0.900                  | 0.900                     |
| Pdh Tj = 12°C   | 5.30 kW                | 4.60 kW                   |

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|   |          |             |
|---|----------|-------------|
| COP Tj = 12°C                                       | 8.40     | 6.62        |
| Cdh Tj = +12 °C                                     | 0.900    | 0.900       |
| Pdh Tj = Tbiv                                       | 12.00 kW | 10.40 kW    |
| COP Tj = Tbiv                                       | 2.50     | 2.11        |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 12.00 kW | 10.90 kW    |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.50     | 1.86        |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 0.900    | 0.900       |
| WTOL  | 65 °C    | 65 °C       |
| Poff  | 10 W     | 10 W        |
| PTO   | 30 W     | 30 W        |
| PSB   | 10 W     | 10 W        |
| PCK   | 0 W      | 0 W         |
| Supplementary Heater: Type of energy input          | n/a      | Electricity |
| Supplementary Heater: PSUP                          | 0.00 kW  | 1.10 kW     |
| Annual energy consumption Qhe                       | 5362 kWh | 7016 kWh    |

## Model: HM143MR U34

| <b>Configure model</b>              |                       |
|-------------------------------------|-----------------------|
| Model name                          | HM143MR U34           |
| Application                         | Heating (medium temp) |
| Units                               | Outdoor               |
| Climate Zone                        | n/a                   |
| Reversibility                       | No                    |
| Cooling mode application (optional) | n/a                   |

| <b>General Data</b> |             |
|---------------------|-------------|
| Power supply        | 3x400V 50Hz |

### Heating

| <b>EN 14511-2</b> |                        |                           |
|-------------------|------------------------|---------------------------|
|                   | <b>Low temperature</b> | <b>Medium temperature</b> |
| Heat output       | 14.00 kW               | 11.50 kW                  |
| El input          | 2.92 kW                | 4.04 kW                   |
| COP               | 4.80                   | 2.85                      |

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

### Average Climate

This information was generated by the HP KEYMARK database on 9 Sep 2021

| <b>EN 12102-1</b>         |                        |                           |
|---------------------------|------------------------|---------------------------|
|                           | <b>Low temperature</b> | <b>Medium temperature</b> |
| Sound power level outdoor | 61 dB(A)               | 61 dB(A)                  |

| <b>EN 14825</b> |                        |                           |
|-----------------|------------------------|---------------------------|
|                 | <b>Low temperature</b> | <b>Medium temperature</b> |
| $\eta_s$        | 182 %                  | 135 %                     |
| Prated          | 12.00 kW               | 12.00 kW                  |
| SCOP            | 4.62                   | 3.46                      |
| Tbiv            | -10 °C                 | -7 °C                     |
| TOL             | -10 °C                 | -10 °C                    |
| Pdh Tj = -7°C   | 10.60 kW               | 10.40 kW                  |
| COP Tj = -7°C   | 3.10                   | 2.11                      |
| Cdh Tj = -7 °C  | 0.900                  | 0.900                     |
| Pdh Tj = +2°C   | 6.50 kW                | 6.30 kW                   |
| COP Tj = +2°C   | 4.40                   | 3.35                      |
| Cdh Tj = +2 °C  | 0.900                  | 0.900                     |
| Pdh Tj = +7°C   | 4.60 kW                | 4.70 kW                   |
| COP Tj = +7°C   | 6.10                   | 4.66                      |
| Cdh Tj = +7 °C  | 0.900                  | 0.900                     |
| Pdh Tj = 12°C   | 5.30 kW                | 4.60 kW                   |

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|   |          |             |
|---|----------|-------------|
| COP Tj = 12°C                                       | 8.40     | 6.62        |
| Cdh Tj = +12 °C                                     | 0.900    | 0.900       |
| Pdh Tj = Tbiv                                       | 12.00 kW | 10.40 kW    |
| COP Tj = Tbiv                                       | 2.50     | 2.11        |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 12.00 kW | 10.90 kW    |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.50     | 1.86        |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 0.900    | 0.900       |
| WTOL  | 65 °C    | 65 °C       |
| Poff  | 10 W     | 10 W        |
| PTO   | 30 W     | 30 W        |
| PSB   | 10 W     | 10 W        |
| PCK   | 0 W      | 0 W         |
| Supplementary Heater: Type of energy input          | n/a      | Electricity |
| Supplementary Heater: PSUP                          | 0.00 kW  | 1.10 kW     |
| Annual energy consumption Qhe                       | 5362 kWh | 7016 kWh    |

## Model: HM163MR U34

| Configure model                     |                       |
|-------------------------------------|-----------------------|
| Model name                          | HM163MR U34           |
| Application                         | Heating (medium temp) |
| Units                               | Outdoor               |
| Climate Zone                        | n/a                   |
| Reversibility                       | No                    |
| Cooling mode application (optional) | n/a                   |

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

### Heating

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

| EN 14511-2  |                 |                    |
|-------------|-----------------|--------------------|
|             | Low temperature | Medium temperature |
| Heat output | 16.00 kW        | 12.00 kW           |
| El input    | 3.40 kW         | 4.29 kW            |
| COP         | 4.70            | 2.80               |

### Average Climate

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| <b>EN 12102-1</b>         |                        |                           |
|---------------------------|------------------------|---------------------------|
|                           | <b>Low temperature</b> | <b>Medium temperature</b> |
| Sound power level outdoor | 61 dB(A)               | 61 dB(A)                  |

| <b>EN 14825</b> |                        |                           |
|-----------------|------------------------|---------------------------|
|                 | <b>Low temperature</b> | <b>Medium temperature</b> |
| $\eta_s$        | 178 %                  | 135 %                     |
| Prated          | 12.00 kW               | 12.00 kW                  |
| SCOP            | 4.53                   | 3.45                      |
| Tbiv            | -10 °C                 | -7 °C                     |
| TOL             | -10 °C                 | -10 °C                    |
| Pdh Tj = -7°C   | 10.90 kW               | 10.70 kW                  |
| COP Tj = -7°C   | 3.09                   | 2.13                      |
| Cdh Tj = -7 °C  | 0.900                  | 0.900                     |
| Pdh Tj = +2°C   | 6.60 kW                | 6.50 kW                   |
| COP Tj = +2°C   | 4.33                   | 3.34                      |
| Cdh Tj = +2 °C  | 0.900                  | 0.900                     |
| Pdh Tj = +7°C   | 5.00 kW                | 5.20 kW                   |
| COP Tj = +7°C   | 5.90                   | 4.65                      |
| Cdh Tj = +7 °C  | 0.900                  | 0.900                     |
| Pdh Tj = 12°C   | 5.30 kW                | 4.60 kW                   |

This information was generated by the HP KEYMARK database on 9 Sep 2021

|   |          |             |
|---|----------|-------------|
| COP Tj = 12°C                                       | 8.15     | 6.58        |
| Cdh Tj = +12 °C                                     | 0.900    | 0.900       |
| Pdh Tj = Tbiv                                       | 12.30 kW | 10.60 kW    |
| COP Tj = Tbiv                                       | 2.50     | 2.13        |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 12.30 kW | 11.10 kW    |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.50     | 1.85        |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 0.900    | 0.900       |
| WTOL  | 65 °C    | 65 °C       |
| Poff  | 10 W     | 10 W        |
| PTO   | 30 W     | 30 W        |
| PSB   | 10 W     | 10 W        |
| PCK   | 0 W      | 0 W         |
| Supplementary Heater: Type of energy input          | n/a      | Electricity |
| Supplementary Heater: PSUP                          | 0.00 kW  | 0.90 kW     |
| Annual energy consumption Qhe                       | 5604 kWh | 7213 kWh    |



## Model: HM161MR U34

| <b>Configure model</b>              |                       |
|-------------------------------------|-----------------------|
| Model name                          | HM161MR U34           |
| Application                         | Heating (medium temp) |
| Units                               | Outdoor               |
| Climate Zone                        | n/a                   |
| Reversibility                       | No                    |
| Cooling mode application (optional) | n/a                   |

| <b>General Data</b> |             |
|---------------------|-------------|
| Power supply        | 1x230V 50Hz |

### Heating

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

| <b>EN 14511-2</b> |                        |                           |
|-------------------|------------------------|---------------------------|
|                   | <b>Low temperature</b> | <b>Medium temperature</b> |
| Heat output       | 16.00 kW               | 12.00 kW                  |
| El input          | 3.40 kW                | 4.29 kW                   |
| COP               | 4.70                   | 2.80                      |

### Average Climate

This information was generated by the HP KEYMARK database on 9 Sep 2021

| <b>EN 12102-1</b>         |                        |                           |
|---------------------------|------------------------|---------------------------|
|                           | <b>Low temperature</b> | <b>Medium temperature</b> |
| Sound power level outdoor | 61 dB(A)               | 61 dB(A)                  |

| <b>EN 14825</b> |                        |                           |
|-----------------|------------------------|---------------------------|
|                 | <b>Low temperature</b> | <b>Medium temperature</b> |
| $\eta_s$        | 178 %                  | 135 %                     |
| Prated          | 12.00 kW               | 12.00 kW                  |
| SCOP            | 4.53                   | 3.45                      |
| Tbiv            | -10 °C                 | -7 °C                     |
| TOL             | -10 °C                 | -10 °C                    |
| Pdh Tj = -7°C   | 10.90 kW               | 10.70 kW                  |
| COP Tj = -7°C   | 3.09                   | 2.13                      |
| Cdh Tj = -7 °C  | 0.900                  | 0.900                     |
| Pdh Tj = +2°C   | 6.60 kW                | 6.50 kW                   |
| COP Tj = +2°C   | 4.33                   | 3.34                      |
| Cdh Tj = +2 °C  | 0.900                  | 0.900                     |
| Pdh Tj = +7°C   | 5.00 kW                | 5.20 kW                   |
| COP Tj = +7°C   | 5.90                   | 4.65                      |
| Cdh Tj = +7 °C  | 0.900                  | 0.900                     |
| Pdh Tj = 12°C   | 5.30 kW                | 4.60 kW                   |

This information was generated by the HP KEYMARK database on 9 Sep 2021

|   |          |             |
|---|----------|-------------|
| COP Tj = 12°C                                       | 8.15     | 6.58        |
| Cdh Tj = +12 °C                                     | 0.900    | 0.900       |
| Pdh Tj = Tbiv                                       | 12.30 kW | 10.60 kW    |
| COP Tj = Tbiv                                       | 2.50     | 2.13        |
| Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 12.30 kW | 11.10 kW    |
| COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh | 2.50     | 1.85        |
| Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh | 0.900    | 0.900       |
| WTOL  | 65 °C    | 65 °C       |
| Poff  | 10 W     | 10 W        |
| PTO   | 30 W     | 30 W        |
| PSB   | 10 W     | 10 W        |
| PCK   | 0 W      | 0 W         |
| Supplementary Heater: Type of energy input          | n/a      | Electricity |
| Supplementary Heater: PSUP                          | 0.00 kW  | 0.90 kW     |
| Annual energy consumption Qhe                       | 5604 kWh | 7213 kWh    |