

# TECHNICAL PRODUCT SUBMITTAL

## AMICUS LAHP-1654HTS STANDARD AIR SOURCE HEAT PUMP

| Data                                                  | Unit              | Model               |
|-------------------------------------------------------|-------------------|---------------------|
|                                                       |                   | <b>LAHP-1654HTS</b> |
| <b>Heating Data</b>                                   |                   |                     |
| Heating Capacity (EN14511) <sup>1</sup>               | kW                | 164                 |
| Total Power input (EN14511) <sup>1</sup>              | kW                | 39.1                |
| COP (EN14511) <sup>1</sup>                            | W/W               | 4.19                |
| Nominal flow rate                                     | m <sup>3</sup> /h | 28.23               |
| Pressure drop across the heat pump                    | kPa               | 43.8                |
| Design air flow rate                                  | m <sup>3</sup> /h | 54037               |
| <b>EcoDesign data <sup>2</sup></b>                    |                   |                     |
| Energy Label Rating Low temperature                   |                   | A++                 |
| SCOP Low Temperature                                  |                   | 3.88                |
| Seasonal Efficiency Low temperature                   | %                 | 152                 |
| Energy Label Rating High temperature                  |                   | A+                  |
| SCOP High Temperature                                 |                   | 3.15                |
| Seasonal Efficiency High temperature                  | %                 | 125                 |
| <b>Cooling Data</b>                                   |                   |                     |
| Cooling Capacity (EN14511) <sup>3</sup>               | kW                | 143                 |
| Total Power input (EN14511) <sup>3</sup>              | kW                | 50.4                |
| EER (EN14511) <sup>3</sup>                            | W/W               | 2.84                |
| Nominal flow rate                                     | m <sup>3</sup> /h | 24.63               |
| Pressure drop across the heat pump                    | kPa               | 32.1                |
| Design air flow rate                                  | m <sup>3</sup> /h | 57079               |
| <b>General data</b>                                   |                   |                     |
| Refrigerant                                           |                   | R410A               |
| Compressor Type                                       |                   | E.V.I. Scroll       |
| Number of Compressors                                 |                   | 4                   |
| Number of Circuits                                    |                   | 2                   |
| Capacity steps                                        |                   | 4                   |
| Minimum capacity step                                 | %                 | 25                  |
| Sound power level                                     | dB(A)             | 89                  |
| Sound pressure level (10m)                            | dB(A)             | 57                  |
| Minimum water content in the user circuit             | litre             | 820                 |
| <b>Electrical Data</b>                                |                   |                     |
| Power supply                                          | V/Ph/Hz           | 400/3+N/50          |
| Maximum input power                                   | kW                | 80                  |
| Maximum input current standard unit                   | A                 | 140                 |
| Peak input current standard unit                      | A                 | 281                 |
| Peak input current unit with soft start option fitted | A                 | 212                 |
| Fuse rating (delayed)                                 | A                 | 200                 |
| <b>Fans</b>                                           |                   |                     |
| Type                                                  |                   | Axial EC            |
| Number of fans (standard unit)                        | n°                | 3                   |

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| LAHP-1654HTS               |     |                  | Heating OUT |       |       |       |       |       |       | Max<br>Outlet |
|----------------------------|-----|------------------|-------------|-------|-------|-------|-------|-------|-------|---------------|
| Water Delivery Temperature |     |                  | 35C         | 40C   | 45C   | 50C   | 55C   | 60C   | 63C   |               |
| Source air temperature     | -10 | Heat Output (KW) | 93.4        | 93.5  | 94.1  | 94.8  | 95.8  | 104   | 99    | 63°C          |
|                            |     | Efficiency COP   | 2.4         | 2.2   | 2.0   | 1.8   | 1.7   | 1.52  | 1.46  |               |
|                            | -8  | Heat Output (KW) | 98.6        | 98.9  | 99.1  | 99.7  | 101.0 | 103   | 104   | 63°C          |
|                            |     | Efficiency COP   | 2.5         | 2.3   | 2.1   | 1.9   | 1.7   | 1.61  | 1.52  |               |
|                            | -6  | Heat Output (KW) | 104.0       | 104.0 | 104.0 | 104.0 | 105.0 | 106.0 | 108   | 63°C          |
|                            |     | Efficiency COP   | 2.6         | 2.4   | 2.2   | 2.0   | 1.8   | 1.6   | 1.58  |               |
|                            | -4  | Heat Output (KW) | 109.0       | 109.0 | 109.0 | 109.0 | 110.0 | 111.0 | 113   | 63°C          |
|                            |     | Efficiency COP   | 2.7         | 2.5   | 2.3   | 2.1   | 1.9   | 1.7   | 1.64  |               |
|                            | -2  | Heat Output (KW) | 116.0       | 117.0 | 117.0 | 118.0 | 119.0 | 120.0 | 121.0 | 63°C          |
|                            |     | Efficiency COP   | 2.9         | 2.7   | 2.4   | 2.2   | 2.0   | 1.8   | 1.7   |               |
|                            | 0   | Heat Output (KW) | 127.0       | 127.0 | 128.0 | 129.0 | 130.0 | 132.0 | 133.0 | 63°C          |
|                            |     | Efficiency COP   | 3.1         | 2.9   | 2.6   | 2.4   | 2.2   | 2.0   | 1.9   |               |
|                            | 2   | Heat Output (KW) | 137.0       | 138.0 | 138.0 | 139.0 | 141.0 | 143.0 | 145.0 | 63°C          |
|                            |     | Efficiency COP   | 3.3         | 3.1   | 2.8   | 2.6   | 2.3   | 2.1   | 2.0   |               |
|                            | 4   | Heat Output (KW) | 148.0       | 148.0 | 149.0 | 151.0 | 153.0 | 156.0 | 157.0 | 63°C          |
|                            |     | Efficiency COP   | 3.6         | 3.3   | 3.0   | 2.7   | 2.5   | 2.3   | 2.2   |               |
|                            | 6   | Heat Output (KW) | 158.0       | 160.0 | 160.0 | 162.0 | 164.0 | 166.0 | 168.0 | 63°C          |
|                            |     | Efficiency COP   | 3.8         | 3.5   | 3.2   | 2.9   | 2.7   | 2.4   | 2.3   |               |
|                            | 7   | Heat Output (KW) | 163.0       | 165.0 | 166.0 | 167.0 | 169.0 | 171.0 | 173.0 | 63°C          |
|                            |     | Efficiency COP   | 4.0         | 3.6   | 3.3   | 3.0   | 2.7   | 2.5   | 2.4   |               |
|                            | 8   | Heat Output (KW) | 166.0       | 168.0 | 169.0 | 170.0 | 172.0 | 174.0 | 176.0 | 63°C          |
|                            |     | Efficiency COP   | 4.0         | 3.7   | 3.4   | 3.1   | 2.8   | 2.5   | 2.4   |               |
|                            | 10  | Heat Output (KW) | 173.0       | 174.0 | 175.0 | 177.0 | 179.0 | 180.0 | 182.0 | 63°C          |
|                            |     | Efficiency COP   | 4.2         | 3.9   | 3.5   | 3.2   | 2.9   | 2.6   | 2.5   |               |
|                            | 15  | Heat Output (KW) | 189.0       | 190.0 | 191.0 | 193.0 | 194.0 | 196.0 | 197.0 | 63°C          |
|                            |     | Efficiency COP   | 4.7         | 4.2   | 3.8   | 3.5   | 3.1   | 2.8   | 2.7   |               |
|                            | 20  | Heat Output (KW) | 205.0       | 207.0 | 208.0 | 209.0 | 210.0 | 212.0 | 213.0 | 63°C          |
|                            |     | Efficiency COP   | 5.2         | 4.7   | 4.2   | 3.8   | 3.4   | 3.1   | 2.9   |               |
|                            | 25  | Heat Output (KW) | 221.0       | 222.0 | 223.0 | 224.0 | 226.0 | 228.0 | 229.0 | 63°C          |
|                            |     | Efficiency COP   | 5.7         | 5.0   | 4.5   | 4.0   | 3.6   | 3.3   | 3.1   |               |

**Amicus air to water heat pumps** must be installed and maintained in line with the Installation Commissioning and Maintenance Instructions which are available on the Literature & Downloads section of [www.lochinvar.ltd.uk](http://www.lochinvar.ltd.uk)

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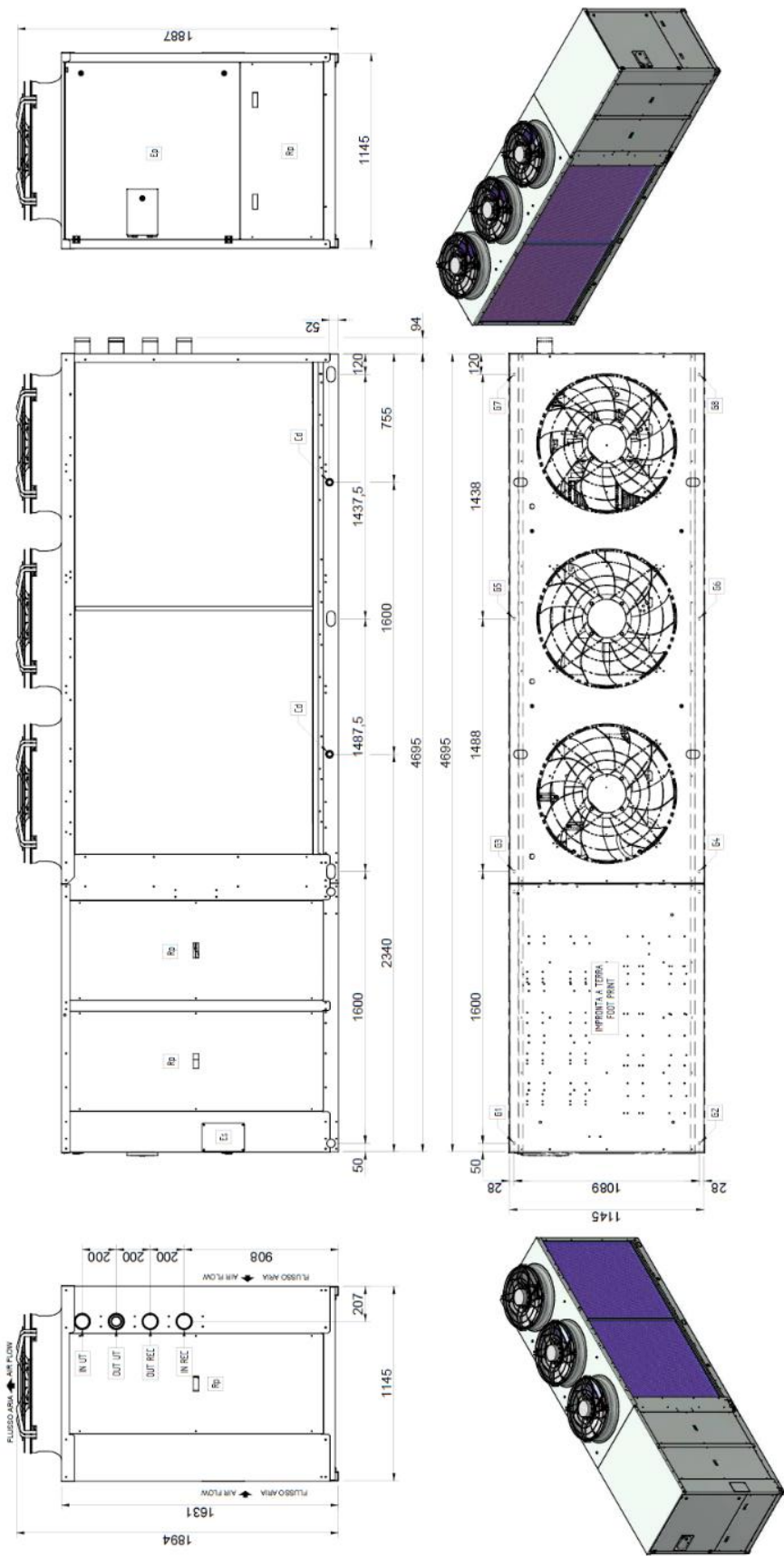


## AMICUS LAHP-1654HTS STANDARD AIR SOURCE HEAT PUMP

| model   | octave bands (hz) |      |      |      |      |      |      |      | lw    |    | lp |
|---------|-------------------|------|------|------|------|------|------|------|-------|----|----|
|         | 63                | 125  | 250  | 500  | 1k   | 2k   | 4k   | 8k   |       |    |    |
|         | db                | db   | db   | db   | db   | db   | db   | db   | db    | db | db |
| 252HTS  | 91.1              | 82.3 | 76.2 | 74.7 | 73.6 | 68.2 | 64.8 | 55.7 | 91.9  | 82 | 50 |
| 302HTS  | 91.1              | 82.3 | 76.2 | 74.7 | 73.6 | 68.2 | 64.8 | 55.7 | 91.9  | 83 | 51 |
| 432HTS  | 92.1              | 83.3 | 77.2 | 75.7 | 74.6 | 69.2 | 65.8 | 56.7 | 92.9  | 84 | 52 |
| 492HTS  | 93.1              | 84.3 | 79.2 | 76.7 | 75.6 | 70.2 | 66.8 | 57.7 | 93.9  | 84 | 52 |
| 602HTS  | 93.1              | 84.3 | 79.2 | 76.7 | 75.6 | 70.2 | 66.8 | 57.7 | 93.9  | 83 | 51 |
| 752HTS  | 93.1              | 84.3 | 79.2 | 76.7 | 75.6 | 70.2 | 66.8 | 57.7 | 93.9  | 84 | 52 |
| 852HTS  | 93.1              | 84.3 | 79.2 | 76.7 | 75.6 | 70.2 | 66.8 | 57.7 | 93.9  | 84 | 52 |
| 1002HTS | 93.1              | 84.3 | 79.2 | 76.7 | 75.6 | 70.2 | 66.8 | 57.7 | 93.9  | 84 | 52 |
| 1202HTS | 93.1              | 84.3 | 79.2 | 76.7 | 75.6 | 70.2 | 66.8 | 57.7 | 93.9  | 87 | 55 |
| 1454HTS | 100.1             | 91.3 | 85.2 | 83.7 | 82.6 | 77.2 | 73.8 | 64.7 | 100.9 | 88 | 56 |
| 1654HTS | 100.1             | 91.3 | 85.2 | 83.7 | 82.6 | 77.2 | 73.8 | 64.7 | 100.9 | 89 | 57 |
| 1854HTS | 101.1             | 92.3 | 86.2 | 84.7 | 83.6 | 78.2 | 74.8 | 65.7 | 101.9 | 88 | 56 |
| 2154HTS | 102.1             | 93.3 | 87.2 | 85.7 | 84.6 | 79.2 | 75.8 | 66.7 | 102.9 | 89 | 57 |

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|         |                                                       |                |
|---------|-------------------------------------------------------|----------------|
| Rp      | PANNELLO ASPORTABILE - REMOVABLE PANEL                |                |
| Ep      | QUADRO ELETTRICO - ELECTRICAL PANEL                   |                |
| Es      | INGRESSO ALIMENTAZIONE ELETTRICA - POWER SUPPLY INLET |                |
| Cd      | SCARICO CONDENSA - CONDENSATE DRAIN                   | Ø 1" GAS F     |
| IN UT   | INGRESSO ACQUA UTENTE - USER WATER INLET              | Ø 3" VICTAULIC |
| OUT UT  | USCITA ACQUA UTENTE - USER WATER OUTLET               | Ø 3" VICTAULIC |
| IN REC  | INGRESSO ACQUA RECUPERO - RECOVERY WATER INLET        | Ø 3" VICTAULIC |
| OUT REC | USCITA ACQUA RECUPERO - RECOVERY WATER OUTLET         | Ø 3" VICTAULIC |