

### COMPRESSOR DEFINITION

|                           |                 |
|---------------------------|-----------------|
| Designation               | EM R70HLR       |
| Nominal Voltage/Frequency | 115-127 V 60 Hz |
| Engineering Number        | 513400004       |

### A - APPLICATION / LIMIT WORKING CONDITIONS

|                                    |                                   |                                   |              |
|------------------------------------|-----------------------------------|-----------------------------------|--------------|
| 1 Type                             | Hermetic reciprocating compressor |                                   |              |
| 2 Refrigerant                      | R-134a                            |                                   |              |
| 3 Nominal voltage and frequency    | 115-127 / 60                      | [ V / Hz ]                        |              |
| 4 Application type                 | Low-Medium (Plus) Back Pressure   |                                   |              |
| 4.1 Evaporating temperature range  | -35°C to 0°C                      | (-31°F to 32°F)                   |              |
| 5 Motor type                       | RSIR                              |                                   |              |
| 6 Starting torque                  | LST - Low Starting Torque         |                                   |              |
| 7 Expansion device                 | Capillary tube                    |                                   |              |
| 8 Compressor cooling               | Operating voltage range           |                                   |              |
|                                    |                                   | 50 Hz                             | 60 Hz        |
| 8.1 LBP (32°C Ambient temperature) | -                                 | -                                 | -            |
| 8.2 LBP (43°C Ambient temperature) | Static                            | -                                 | 103 to 140 V |
| 8.3 HBP (32°C Ambient temperature) | -                                 | -                                 | -            |
| 8.4 HBP (43°C Ambient temperature) | -                                 | -                                 | -            |
| 9 Maximum condensing temperature   |                                   |                                   |              |
| 9.1 Operating                      | 14.2                              | [kgf/cm <sup>2</sup> ] (202 psig) | / °C - °F    |
| 9.2 Peak                           | 15.9                              | [kgf/cm <sup>2</sup> ] (226 psig) | / °C - °F    |
| 10 Maximum winding temperature     | 130                               | [ °C ]                            |              |

### B - MECHANICAL DATA

|                               |               |  |
|-------------------------------|---------------|--|
| 1 Commercial designation      | 1/5           | [hp]                                       |
| 2 Displacement                | 5.75          | [cm <sup>3</sup> ] (0.351 cu.in)           |
| 2.1 Bore [mm]                 | 21.000        |  |
| 2.2 Stroke [mm]               | 16.600        |  |
| 3 Lubricant charge            | 180           | [ml] (6.09 fl.oz.)                         |
| 3.1 Lubricants approved       |               |  |
| 3.2 Lubricants type/viscosity | ESTER / ISO10 |  |
| 4 Weight (with oil charge)    | 7.46          | [kg] (16.45 lb.)                           |
| 5 Nitrogen charge             | 0.2 to 0.3    | [kgf/cm <sup>2</sup> ] (2.84 to 4.27 psig) |

### C - ELECTRICAL DATA

|  |                                    |                                    |
|--|------------------------------------|------------------------------------|
| 1 Nominal Voltage/Frequency/Number of Phases | 115-127 V 60 Hz 1 ~ (Single phase) |                                    |
| 2 Starting device type                       | Current Relay                      |                                    |
| 2.1 Starting device                          | 213514083                          |                                    |
| 3 Start capacitor                            | -                                  | [µF(VAC minimum)]                  |
| 4 Run capacitor                              | -                                  | [µF(VAC minimum)]                  |
| 5 Motor protection                           | DRB230M61B*F                       |                                    |
| 6 Start winding resistance                   | 8.12                               | [Ω at 25°C (77°F)] +/- 8%          |
| 7 Run winding resistance                     | 3.61                               | [Ω at 25°C (77°F)] +/- 8%          |
| 8 LRA - Locked rotor amperage (60 Hz)        | 25.00                              | [A] - Measured according to UL 984 |
| 9 FLA - Full load amperage L/MBP (60 Hz)     | -                                  | [A] - Measured according to UL 984 |
| 10 FLA - Full Load Amperage HBP (60 Hz)      | -                                  | [A] - Measured according to UL 984 |
| 11 Approval boards certification             | CE - IMTRO - TUV - UKCA            |                                    |

### D - PERFORMANCE - CHECK POINT DATA

| TEST CONDITIONS:<br>@127V60Hz   |          |     | ASHRAELBP32<br>Static      |                            | Evaporating temperature<br>(Condensing temperature |                                | -23.3°C (-9.94°F)<br>54.4°C (129.92°F) |       |
|---------------------------------|----------|-----|----------------------------|----------------------------|--|--------------------------------|--|-------|
| Cooling capacity (Qe)<br>+/- 5% |          |     | Input power (We)<br>+/- 5% | Electric current<br>+/- 5% | Mass flow rate<br>+/- 5%                           | Efficiency EER & COP<br>+/- 7% |  |       |
| [Btu/h]                         | [kcal/h] | [W] | [W]                        | [A]                        | [kg/h]   | [Btu/Wh]                       | [kcal/Wh]                              | [W/W] |
| 665                             | 168      | 195 | 129                        | 1.80                       | 3.78   | 5.16                           | 1.30                                   | 1.51  |

| TEST CONDITIONS:<br>@127V60Hz   |          |     | ASHRAELBP32<br>Fan         |                            | Evaporating temperature<br>(Condensing temperature |                                | -23.3°C (-9.94°F)<br>54.4°C (129.92°F) |       |
|---------------------------------|----------|-----|----------------------------|----------------------------|--|--------------------------------|--|-------|
| Cooling capacity (Qe)<br>+/- 5% |          |     | Input power (We)<br>+/- 5% | Electric current<br>+/- 5% | Mass flow rate<br>+/- 5%                           | Efficiency EER & COP<br>+/- 7% |  |       |
| [Btu/h]                         | [kcal/h] | [W] | [W]                        | [A]                        | [kg/h]   | [Btu/Wh]                       | [kcal/Wh]                              | [W/W] |
| 679                             | 171      | 199 | 129                        | 1.80                       | 3.86   | 5.26                           | 1.33                                   | 1.54  |

### E - PERFORMANCE - CURVES

| TEST CONDITIONS:<br>@127V60Hz |       | ASHRAE32<br>Static              |          |     | (Condensing temperature 35°C (+95°F)) |                            |                          |                                |           |       |
|-------------------------------|-------|---------------------------------|----------|-----|---------------------------------------|----------------------------|--------------------------|--------------------------------|-----------|-------|
| Evaporating temperature       |       | Cooling capacity (Qe)<br>+/- 5% |          |     | Input power (We)<br>+/- 5%            | Electric current<br>+/- 5% | Mass flow rate<br>+/- 5% | Efficiency EER & COP<br>+/- 7% |           |       |
| °C                            | (°F)  | [Btu/h]                         | [kcal/h] | [W] | [W]                                   | [A]                        | [kg/h]                   | [Btu/Wh]                       | [kcal/Wh] | [W/W] |
| -35                           | (-31) | 367                             | 92       | 107 | 87                                    | 1.69                       | 2.08                     | 4.21                           | 1.06      | 1.23  |
| -30                           | (-22) | 514                             | 129      | 151 | 100                                   | 1.73                       | 2.91                     | 5.13                           | 1.29      | 1.50  |
| -25                           | (-13) | 689                             | 174      | 202 | 114                                   | 1.78                       | 3.91                     | 6.06                           | 1.53      | 1.77  |
| -20                           | (- 4) | 901                             | 227      | 264 | 128                                   | 1.84                       | 5.13                     | 7.04                           | 1.78      | 2.06  |
| -15                           | (+ 5) | 1159                            | 292      | 340 | 143                                   | 1.90                       | 6.62                     | 8.13                           | 2.05      | 2.38  |
| -10                           | (+14) | 1472                            | 371      | 431 | 157                                   | 1.97                       | 8.44                     | 9.37                           | 2.36      | 2.75  |
| -5                            | (+23) | 1850                            | 466      | 542 | 171                                   | 2.06                       | 10.64                    | 10.80                          | 2.72      | 3.16  |
| 0                             | (+32) | 2300                            | 580      | 674 | 185                                   | 2.16                       | 13.28                    | 12.46                          | 3.14      | 3.65  |

| TEST CONDITIONS:<br>@127V60Hz |       | ASHRAE32<br>Static              |          |     | (Condensing temperature 45°C (+113°F)) |                            |                          |                                |           |       |
|-------------------------------|-------|---------------------------------|----------|-----|--|----------------------------|--------------------------|--------------------------------|-----------|-------|
| Evaporating temperature       |       | Cooling capacity (Qe)<br>+/- 5% |          |     | Input power (We)<br>+/- 5%             | Electric current<br>+/- 5% | Mass flow rate<br>+/- 5% | Efficiency EER & COP<br>+/- 7% |           |       |
| °C                            | (°F)  | [Btu/h]                         | [kcal/h] | [W] | [W]                                    | [A]                        | [kg/h]                   | [Btu/Wh]                       | [kcal/Wh] | [W/W] |
| -35                           | (-31) | 336                             | 85       | 99  | 89                                     | 1.70                       | 1.90                     | 3.76                           | 0.95      | 1.10  |
| -30                           | (-22) | 479                             | 121      | 140 | 104                                    | 1.74                       | 2.72                     | 4.62                           | 1.16      | 1.35  |
| -25                           | (-13) | 648                             | 163      | 190 | 119                                    | 1.80                       | 3.68                     | 5.44                           | 1.37      | 1.60  |
| -20                           | (- 4) | 852                             | 215      | 250 | 136                                    | 1.87                       | 4.85                     | 6.28                           | 1.58      | 1.84  |
| -15                           | (+ 5) | 1100                            | 277      | 322 | 153                                    | 1.95                       | 6.28                     | 7.18                           | 1.81      | 2.10  |
| -10                           | (+14) | 1401                            | 353      | 411 | 171                                    | 2.05                       | 8.03                     | 8.18                           | 2.06      | 2.40  |
| -5                            | (+23) | 1764                            | 444      | 517 | 189                                    | 2.16                       | 10.15                    | 9.33                           | 2.35      | 2.73  |
| 0                             | (+32) | 2197                            | 554      | 644 | 208                                    | 2.29                       | 12.69                    | 10.66                          | 2.69      | 3.12  |

### E - PERFORMANCE - CURVES

| TEST CONDITIONS:<br>@127V60Hz |       | ASHRAE32<br>Static              |          |     | (Condensing temperature 55°C (+131°F) ) |                            |                          |                                |           |       |
|-------------------------------|-------|---------------------------------|----------|-----|---|----------------------------|--------------------------|--------------------------------|-----------|-------|
| Evaporating temperature       |       | Cooling capacity (Qe)<br>+/- 5% |          |     | Input power (We)<br>+/- 5%              | Electric current<br>+/- 5% | Mass flow rate<br>+/- 5% | Efficiency EER & COP<br>+/- 7% |           |       |
| °C                            | (°F)  | [Btu/h]                         | [kcal/h] | [W] | [W]                                     | [A]                        | [kg/h]                   | [Btu/Wh]                       | [kcal/Wh] | [W/W] |
| -35                           | (-31) | 288                             | 73       | 85  | 90                                      | 1.70                       | 1.63                     | 3.20                           | 0.81      | 0.94  |
| -30                           | (-22) | 430                             | 108      | 126 | 106                                     | 1.75                       | 2.44                     | 4.06                           | 1.02      | 1.19  |
| -25                           | (-13) | 595                             | 150      | 174 | 123                                     | 1.82                       | 3.38                     | 4.85                           | 1.22      | 1.42  |
| -20                           | (- 4) | 793                             | 200      | 232 | 142                                     | 1.90                       | 4.51                     | 5.60                           | 1.41      | 1.64  |
| -15                           | (+ 5) | 1033                            | 260      | 303 | 162                                     | 2.00                       | 5.90                     | 6.37                           | 1.61      | 1.87  |
| -10                           | (+14) | 1323                            | 333      | 388 | 183                                     | 2.11                       | 7.58                     | 7.20                           | 1.81      | 2.11  |
| -5                            | (+23) | 1674                            | 422      | 490 | 206                                     | 2.25                       | 9.63                     | 8.13                           | 2.05      | 2.38  |
| 0                             | (+32) | 2093                            | 527      | 613 | 229                                     | 2.41                       | 12.09                    | 9.20                           | 2.32      | 2.70  |

| TEST CONDITIONS:<br>@127V60Hz |       | ASHRAE32<br>Static              |          |     | (Condensing temperature 65°C (+149°F) ) |                            |                          |                                |           |       |
|-------------------------------|-------|---------------------------------|----------|-----|---|----------------------------|--------------------------|--------------------------------|-----------|-------|
| Evaporating temperature       |       | Cooling capacity (Qe)<br>+/- 5% |          |     | Input power (We)<br>+/- 5%              | Electric current<br>+/- 5% | Mass flow rate<br>+/- 5% | Efficiency EER & COP<br>+/- 7% |           |       |
| °C                            | (°F)  | [Btu/h]                         | [kcal/h] | [W] | [W]                                     | [A]                        | [kg/h]                   | [Btu/Wh]                       | [kcal/Wh] | [W/W] |
| -35                           | (-31) | 223                             | 56       | 65  | 89                                      | 1.70                       | 1.26                     | 2.49                           | 0.63      | 0.73  |
| -30                           | (-22) | 365                             | 92       | 107 | 106                                     | 1.75                       | 2.07                     | 3.42                           | 0.86      | 1.00  |
| -25                           | (-13) | 528                             | 133      | 155 | 125                                     | 1.82                       | 3.00                     | 4.23                           | 1.07      | 1.24  |
| -20                           | (- 4) | 723                             | 182      | 212 | 146                                     | 1.92                       | 4.11                     | 4.96                           | 1.25      | 1.45  |
| -15                           | (+ 5) | 956                             | 241      | 280 | 169                                     | 2.03                       | 5.46                     | 5.67                           | 1.43      | 1.66  |
| -10                           | (+14) | 1239                            | 312      | 363 | 194                                     | 2.17                       | 7.10                     | 6.39                           | 1.61      | 1.87  |
| -5                            | (+23) | 1579                            | 398      | 463 | 220                                     | 2.34                       | 9.08                     | 7.16                           | 1.80      | 2.10  |
| 0                             | (+32) | 1986                            | 500      | 582 | 248                                     | 2.53                       | 11.47                    | 8.04                           | 2.03      | 2.36  |

### F - EXTERNAL CHARACTERISTICS

|                         |                 |      |                          |
|-------------------------|-----------------|------|--------------------------|
| 1 Base plate            | Universal AMEM  |      |                          |
| 2 Tray holder           | No              |      |                          |
| 3 Connectors            |                 |      |                          |
| 3.1 SUCTION             | 6.5 +0.12/-0.08 | [mm] | (0.256" +0.005"/-0.003") |
| 3.1.1 Material          | Copper          |      |                          |
| 3.1.2 Shape             | Straight        |      |                          |
| 3.2 DISCHARGE           | 6.5 +0.12/-0.08 | [mm] | (0.256" +0.005"/-0.003") |
| 3.2.1 Material          | Copper          |      |                          |
| 3.2.2 Shape             | Straight        |      |                          |
| 3.3 PROCESS             | 6.5 +0.12/-0.08 | [mm] | (0.256" +0.005"/-0.003") |
| 3.3.1 Material          | Copper          |      |                          |
| 3.3.2 Shape             | Straight        |      |                          |
| 3.4 Oil cooler (Copper) | No              | [mm] |                          |
| 3.5 Connector sealing   | Rubber Plugs    |      |                          |