

### COMPRESSOR DEFINITION

|                           |                 |
|---------------------------|-----------------|
| Designation               | EM R80HLR       |
| Nominal Voltage/Frequency | 115-127 V 60 Hz |
| Engineering Number        | 513400000       |

### 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                       | CSIR                              |                                   |              |
| 6 Starting torque                  | LST - Low Starting Torque         |                                   |              |
| 7 Expantion 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      | 1/4+          | [hp]                                       |
| 2 Displacement                | 6.60          | [cm <sup>3</sup> ] (0.403 cu.in)           |
| 2.1 Bore [mm]                 | 22.500        |  |
| 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)    | 7.44          | [kg] (16.40 lb.)                           |
| 5 Nitrogen charge             | 0.2 to 0.3    | [kgf/cm <sup>2</sup> ] (2.84 to 4.27 psig) |

### C - ELETRICAL 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                          | 213515007                          |                                    |
| 3 Start capacitor                            | 233-280(111)                       | [µF(VAC minimum)]                  |
| 4 Run capacitor                              | -                                  | [µF(VAC minimum)]                  |
| 5 Motor protection                           | 4TM762NFBZZ-53                     |                                    |
| 6 Start winding resistance                   | 8.12                               | [Ωat 25°C (77°F)] +/- 8%           |
| 7 Run winding resistance                     | 3.61                               | [Ωat 25°C (77°F)] +/- 8%           |
| 8 LRA - Locked rotor amperage (60 Hz)        | 20.20                              | [A] - Measured according to UL 984 |
| 9 FLA - Full load amperage L/MBP (60 Hz)     | 2.45                               | [A] - Measured according to UL 984 |
| 10 FLA - Full Load Amperage HBP (60 Hz)      | 2.83                               | [A] - Measured according to UL 984 |
| 11 Approval boards certification             | IMTRO - TUV                        |                                    |

### 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<br>+/- 5%    |          |     | Power consumption<br>+/- 5% | Current consumption<br>+/- 5% | Gas flow rate<br>+/- 5%                            | EFFICIENCY RATE<br>+/- 7% |  |       |  |
| [Btu/h]                       | [kcal/h] | [W] | [W]                         | [A]                           | [kg/h]   | [Btu/Wh]                  | [kcal/Wh]                              | [W/W] |  |
| 779                           | 196      | 228 | 150                         | 1.96                          | 4.43   | 5.21                      | 1.31                                   | 1.53  |  |

| 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<br>+/- 5%    |          |     | Power consumption<br>+/- 5% | Current consumption<br>+/- 5% | Gas flow rate<br>+/- 5%                            | EFFICIENCY RATE<br>+/- 7% |  |       |  |
| [Btu/h]                       | [kcal/h] | [W] | [W]                         | [A]                           | [kg/h]   | [Btu/Wh]                  | [kcal/Wh]                              | [W/W] |  |
| 808                           | 204      | 237 | 150                         | 1.97                          | 4.59   | 5.40                      | 1.36                                   | 1.58  |  |

### E - PERFORMANCE - CURVES

| TEST CONDITIONS:<br>@127V60Hz |       | ASHRAE32<br>Fan            |          |     | (Condensing temperature 35°C (+95°F)) |                               |                         |                           |           |       |
|-------------------------------|-------|----------------------------|----------|-----|---------------------------------------|-------------------------------|-------------------------|---------------------------|-----------|-------|
| Evaporating temperature       |       | Cooling capacity<br>+/- 5% |          |     | Power consumption<br>+/- 5%           | Current consumption<br>+/- 5% | Gas flow rate<br>+/- 5% | EFFICIENCY RATE<br>+/- 7% |           |       |
| °C                            | (°F)  | [Btu/h]                    | [kcal/h] | [W] | [W]                                   | [A]                           | [kg/h]                  | [Btu/Wh]                  | [kcal/Wh] | [W/W] |
| -35                           | (-31) | 469                        | 118      | 137 | 103                                   | 1.80                          | 2.65                    | 4.55                      | 1.15      | 1.33  |
| -30                           | (-22) | 635                        | 160      | 186 | 116                                   | 1.83                          | 3.60                    | 5.45                      | 1.37      | 1.60  |
| -25                           | (-13) | 834                        | 210      | 244 | 131                                   | 1.89                          | 4.74                    | 6.36                      | 1.60      | 1.86  |
| -20                           | (- 4) | 1076                       | 271      | 315 | 148                                   | 1.97                          | 6.12                    | 7.32                      | 1.84      | 2.14  |
| -15                           | (+ 5) | 1370                       | 345      | 401 | 165                                   | 2.06                          | 7.82                    | 8.35                      | 2.10      | 2.45  |
| -10                           | (+14) | 1724                       | 434      | 505 | 182                                   | 2.16                          | 9.88                    | 9.49                      | 2.39      | 2.78  |
| -5                            | (+23) | 2147                       | 541      | 629 | 199                                   | 2.26                          | 12.36                   | 10.77                     | 2.72      | 3.16  |
| 0                             | (+32) | 2648                       | 667      | 776 | 216                                   | 2.36                          | 15.32                   | 12.23                     | 3.08      | 3.58  |

| TEST CONDITIONS:<br>@127V60Hz |       | ASHRAE32<br>Fan            |          |     | (Condensing temperature 45°C (+113°F)) |                               |                         |                           |           |       |
|-------------------------------|-------|----------------------------|----------|-----|--|-------------------------------|-------------------------|---------------------------|-----------|-------|
| Evaporating temperature       |       | Cooling capacity<br>+/- 5% |          |     | Power consumption<br>+/- 5%            | Current consumption<br>+/- 5% | Gas flow rate<br>+/- 5% | EFFICIENCY RATE<br>+/- 7% |           |       |
| °C                            | (°F)  | [Btu/h]                    | [kcal/h] | [W] | [W]                                    | [A]                           | [kg/h]                  | [Btu/Wh]                  | [kcal/Wh] | [W/W] |
| -35                           | (-31) | 426                        | 107      | 125 | 105                                    | 1.83                          | 2.41                    | 4.08                      | 1.03      | 1.20  |
| -30                           | (-22) | 593                        | 149      | 174 | 120                                    | 1.86                          | 3.36                    | 4.92                      | 1.24      | 1.44  |
| -25                           | (-13) | 790                        | 199      | 232 | 137                                    | 1.92                          | 4.49                    | 5.74                      | 1.45      | 1.68  |
| -20                           | (- 4) | 1027                       | 259      | 301 | 156                                    | 2.00                          | 5.84                    | 6.55                      | 1.65      | 1.92  |
| -15                           | (+ 5) | 1312                       | 331      | 384 | 177                                    | 2.11                          | 7.48                    | 7.41                      | 1.87      | 2.17  |
| -10                           | (+14) | 1653                       | 417      | 484 | 198                                    | 2.24                          | 9.47                    | 8.33                      | 2.10      | 2.44  |
| -5                            | (+23) | 2060                       | 519      | 604 | 220                                    | 2.38                          | 11.86                   | 9.34                      | 2.35      | 2.74  |
| 0                             | (+32) | 2542                       | 641      | 745 | 242                                    | 2.52                          | 14.70                   | 10.49                     | 2.64      | 3.07  |

### E - PERFORMANCE - CURVES

| TEST CONDITIONS:<br>@127V60Hz |                            | ASHRAE32<br>Fan |          |                             | (Condensing temperature 55°C (+131°F)) |                         |                           |          |           |       |
|-------------------------------|----------------------------|-----------------|----------|-----------------------------|--|-------------------------|---------------------------|----------|-----------|-------|
| Evaporating temperature       | Cooling capacity<br>+/- 5% |                 |          | Power consumption<br>+/- 5% | Current consumption<br>+/- 5%          | Gas flow rate<br>+/- 5% | EFFICIENCY RATE<br>+/- 7% |          |           |       |
|                               | °C (°F)                    | [Btu/h]         | [kcal/h] | [W]                         | [W]                                    | [A]                     | [kg/h]                    | [Btu/Wh] | [kcal/Wh] | [W/W] |
| -35 (-31)                     | 367                        | 93              | 108      | 107                         | 1.87                                   | 2.08                    | 3.47                      | 0.88     | 1.02      |       |
| -30 (-22)                     | 536                        | 135             | 157      | 123                         | 1.89                                   | 3.04                    | 4.32                      | 1.09     | 1.27      |       |
| -25 (-13)                     | 731                        | 184             | 214      | 143                         | 1.95                                   | 4.15                    | 5.10                      | 1.29     | 1.50      |       |
| -20 (- 4)                     | 962                        | 242             | 282      | 165                         | 2.04                                   | 5.48                    | 5.84                      | 1.47     | 1.71      |       |
| -15 (+ 5)                     | 1238                       | 312             | 363      | 188                         | 2.17                                   | 7.06                    | 6.58                      | 1.66     | 1.93      |       |
| -10 (+14)                     | 1567                       | 395             | 459      | 213                         | 2.32                                   | 8.98                    | 7.33                      | 1.85     | 2.15      |       |
| -5 (+23)                      | 1959                       | 494             | 574      | 240                         | 2.49                                   | 11.27                   | 8.15                      | 2.05     | 2.39      |       |
| 0 (+32)                       | 2421                       | 610             | 709      | 267                         | 2.68                                   | 14.00                   | 9.05                      | 2.28     | 2.65      |       |

| TEST CONDITIONS:<br>@127V60Hz |                            | ASHRAE32<br>Fan |          |                             | (Condensing temperature 65°C (+149°F)) |                         |                           |          |           |       |
|-------------------------------|----------------------------|-----------------|----------|-----------------------------|--|-------------------------|---------------------------|----------|-----------|-------|
| Evaporating temperature       | Cooling capacity<br>+/- 5% |                 |          | Power consumption<br>+/- 5% | Current consumption<br>+/- 5%          | Gas flow rate<br>+/- 5% | EFFICIENCY RATE<br>+/- 7% |          |           |       |
|                               | °C (°F)                    | [Btu/h]         | [kcal/h] | [W]                         | [W]                                    | [A]                     | [kg/h]                    | [Btu/Wh] | [kcal/Wh] | [W/W] |
| -35 (-31)                     | 294                        | 74              | 86       | 109                         | 1.91                                   | 1.66                    | 2.69                      | 0.68     | 0.79      |       |
| -30 (-22)                     | 464                        | 117             | 136      | 127                         | 1.92                                   | 2.63                    | 3.61                      | 0.91     | 1.06      |       |
| -25 (-13)                     | 657                        | 166             | 193      | 148                         | 1.98                                   | 3.73                    | 4.42                      | 1.11     | 1.29      |       |
| -20 (- 4)                     | 883                        | 223             | 259      | 172                         | 2.09                                   | 5.02                    | 5.14                      | 1.30     | 1.51      |       |
| -15 (+ 5)                     | 1150                       | 290             | 337      | 199                         | 2.23                                   | 6.56                    | 5.82                      | 1.47     | 1.70      |       |
| -10 (+14)                     | 1467                       | 370             | 430      | 228                         | 2.41                                   | 8.40                    | 6.48                      | 1.63     | 1.90      |       |
| -5 (+23)                      | 1843                       | 464             | 540      | 258                         | 2.61                                   | 10.60                   | 7.15                      | 1.80     | 2.09      |       |
| 0 (+32)                       | 2286                       | 576             | 670      | 290                         | 2.84                                   | 13.22                   | 7.87                      | 1.98     | 2.31      |       |

### F - EXTERNAL CHARACTERISTICS

|                         |                 |      |                          |
|-------------------------|-----------------|------|--------------------------|
| 1 Base plate            | Universal AMEM  |      |                          |
| 2 Tray holder           | No              |      |                          |
| 3 Connectors            |                 |      |                          |
| 3.1 SUCTION             | 8.2 +0.12/-0.08 | [mm] | (0.323" +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    |      |                          |

