

### COMPRESSOR DEFINITION

|                           |             |
|---------------------------|-------------|
| Designation               | EM R80HLR   |
| Nominal Voltage/Frequency | 220 V 60 Hz |
| Engineering Number        | 513400001   |

### A - APPLICATION / LIMIT WORKING CONDITIONS

|                                    |                                   |                                   |              |
|------------------------------------|-----------------------------------|-----------------------------------|--------------|
| 1 Type                             | Hermetic reciprocating compressor |                                   |              |
| 2 Refrigerant                      | R-134a                            |                                   |              |
| 3 Nominal voltage and frequency    | 220 / 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                            | -                                 | 198 to 242 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 | 220 V 60 Hz 1 ~ (Single phase) |                                    |
| 2 Starting device type                       | Current Relay                  |                                    |
| 2.1 Starting device                          | 213514148                      |                                    |
| 3 Start capacitor                            | -                              | [µF(VAC minimum)]                  |
| 4 Run capacitor                              | -                              | [µF(VAC minimum)]                  |
| 5 Motor protection                           | 4TM743KDBYY-53                 |                                    |
| 6 Start winding resistance                   | 26.40                          | [Ω at 25°C (77°F)] +/- 8%          |
| 7 Run winding resistance                     | 13.50                          | [Ω at 25°C (77°F)] +/- 8%          |
| 8 LRA - Locked rotor amperage (60 Hz)        | 12.12                          | [A] - Measured according to UL 984 |
| 9 FLA - Full load amperage L/MBP (60 Hz)     | 1.20                           | [A] - Measured according to UL 984 |
| 10 FLA - Full Load Amperage HBP (60 Hz)      | 1.32                           | [A] - Measured according to UL 984 |
| 11 Approval boards certification             | CE - IMTRO - TUV - UKCA        |                                    |

### D - PERFORMANCE - CHECK POINT DATA

| TEST CONDITIONS:<br>@220V60Hz |          |     | 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<br>consumption<br>+/- 5% | Current<br>consumption<br>+/- 5% | Gas flow<br>rate<br>+/- 5%                         | EFFICIENCY RATE<br>+/- 7% |  |       |
| [Btu/h]                       | [kcal/h] | [W] | [W]                            | [A]                              | [kg/h]   | [Btu/Wh]                  | [kcal/Wh]                              | [W/W] |
| 757                           | 191      | 222 | 148                            | 1.05                             | 4.30   | 5.11                      | 1.29                                   | 1.50  |

| TEST CONDITIONS:<br>@220V60Hz |          |     | 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<br>consumption<br>+/- 5% | Current<br>consumption<br>+/- 5% | Gas flow<br>rate<br>+/- 5%                         | EFFICIENCY RATE<br>+/- 7% |  |       |
| [Btu/h]                       | [kcal/h] | [W] | [W]                            | [A]                              | [kg/h]   | [Btu/Wh]                  | [kcal/Wh]                              | [W/W] |
| 781                           | 197      | 229 | 148                            | 1.05                             | 4.44   | 5.27                      | 1.33                                   | 1.54  |

### E - PERFORMANCE - CURVES

| TEST CONDITIONS:<br>@220V60Hz |       | ASHRAE32<br>Fan            |          |     | (Condensing temperature 35°C (+95°F)) |                                  |                            |                           |           |       |
|-------------------------------|-------|----------------------------|----------|-----|---------------------------------------|----------------------------------|----------------------------|---------------------------|-----------|-------|
| Evaporating<br>temperature    |       | Cooling capacity<br>+/- 5% |          |     | Power<br>consumption<br>+/- 5%        | Current<br>consumption<br>+/- 5% | Gas flow<br>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) | 455                        | 115      | 133 | 100                                   | 0.92                             | 2.57                       | 4.54                      | 1.14      | 1.33  |
| -30                           | (-22) | 621                        | 157      | 182 | 113                                   | 0.96                             | 3.52                       | 5.48                      | 1.38      | 1.60  |
| -25                           | (-13) | 822                        | 207      | 241 | 129                                   | 1.00                             | 4.67                       | 6.39                      | 1.61      | 1.87  |
| -20                           | (- 4) | 1065                       | 268      | 312 | 146                                   | 1.05                             | 6.06                       | 7.34                      | 1.85      | 2.15  |
| -15                           | (+ 5) | 1358                       | 342      | 398 | 163                                   | 1.10                             | 7.75                       | 8.34                      | 2.10      | 2.44  |
| -10                           | (+14) | 1709                       | 431      | 501 | 181                                   | 1.16                             | 9.79                       | 9.45                      | 2.38      | 2.77  |
| -5                            | (+23) | 2126                       | 536      | 623 | 198                                   | 1.22                             | 12.23                      | 10.70                     | 2.70      | 3.14  |
| 0                             | (+32) | 2618                       | 660      | 767 | 215                                   | 1.28                             | 15.12                      | 12.14                     | 3.06      | 3.56  |

| TEST CONDITIONS:<br>@220V60Hz |       | ASHRAE32<br>Fan            |          |     | (Condensing temperature 45°C (+113°F)) |                                  |                            |                           |           |       |
|-------------------------------|-------|----------------------------|----------|-----|--|----------------------------------|----------------------------|---------------------------|-----------|-------|
| Evaporating<br>temperature    |       | Cooling capacity<br>+/- 5% |          |     | Power<br>consumption<br>+/- 5%         | Current<br>consumption<br>+/- 5% | Gas flow<br>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) | 408                        | 103      | 120 | 107                                    | 0.94                             | 2.31                       | 3.83                      | 0.96      | 1.12  |
| -30                           | (-22) | 573                        | 144      | 168 | 120                                    | 0.97                             | 3.25                       | 4.77                      | 1.20      | 1.40  |
| -25                           | (-13) | 770                        | 194      | 226 | 136                                    | 1.02                             | 4.37                       | 5.64                      | 1.42      | 1.65  |
| -20                           | (- 4) | 1006                       | 253      | 295 | 155                                    | 1.07                             | 5.72                       | 6.49                      | 1.64      | 1.90  |
| -15                           | (+ 5) | 1290                       | 325      | 378 | 175                                    | 1.14                             | 7.36                       | 7.36                      | 1.85      | 2.16  |
| -10                           | (+14) | 1629                       | 411      | 477 | 197                                    | 1.22                             | 9.33                       | 8.27                      | 2.08      | 2.42  |
| -5                            | (+23) | 2032                       | 512      | 596 | 219                                    | 1.30                             | 11.69                      | 9.28                      | 2.34      | 2.72  |
| 0                             | (+32) | 2507                       | 632      | 735 | 242                                    | 1.39                             | 14.49                      | 10.42                     | 2.63      | 3.05  |

### E - PERFORMANCE - CURVES

| TEST CONDITIONS:<br>@220V60Hz |       | 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) | 348                        | 88       | 102 | 113                                     | 0.96                          | 1.97                    | 3.10                      | 0.78      | 0.91  |
| -30                           | (-22) | 512                        | 129      | 150 | 125                                     | 0.99                          | 2.90                    | 4.09                      | 1.03      | 1.20  |
| -25                           | (-13) | 705                        | 178      | 207 | 142                                     | 1.03                          | 4.00                    | 4.96                      | 1.25      | 1.45  |
| -20                           | (- 4) | 936                        | 236      | 274 | 162                                     | 1.10                          | 5.32                    | 5.75                      | 1.45      | 1.68  |
| -15                           | (+ 5) | 1211                       | 305      | 355 | 186                                     | 1.18                          | 6.91                    | 6.51                      | 1.64      | 1.91  |
| -10                           | (+14) | 1540                       | 388      | 451 | 212                                     | 1.27                          | 8.82                    | 7.26                      | 1.83      | 2.13  |
| -5                            | (+23) | 1931                       | 487      | 566 | 240                                     | 1.38                          | 11.11                   | 8.07                      | 2.03      | 2.36  |
| 0                             | (+32) | 2390                       | 602      | 700 | 269                                     | 1.50                          | 13.81                   | 8.95                      | 2.26      | 2.62  |

| TEST CONDITIONS:<br>@220V60Hz |       | 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) | 273                        | 69       | 80  | 117                                     | 0.98                          | 1.55                    | 2.32                      | 0.59      | 0.68  |
| -30                           | (-22) | 438                        | 110      | 128 | 129                                     | 1.00                          | 2.48                    | 3.39                      | 0.85      | 0.99  |
| -25                           | (-13) | 629                        | 158      | 184 | 147                                     | 1.05                          | 3.57                    | 4.29                      | 1.08      | 1.26  |
| -20                           | (- 4) | 855                        | 215      | 250 | 169                                     | 1.12                          | 4.86                    | 5.06                      | 1.28      | 1.48  |
| -15                           | (+ 5) | 1123                       | 283      | 329 | 196                                     | 1.21                          | 6.41                    | 5.75                      | 1.45      | 1.68  |
| -10                           | (+14) | 1443                       | 364      | 423 | 226                                     | 1.33                          | 8.26                    | 6.39                      | 1.61      | 1.87  |
| -5                            | (+23) | 1821                       | 459      | 534 | 259                                     | 1.46                          | 10.47                   | 7.02                      | 1.77      | 2.06  |
| 0                             | (+32) | 2266                       | 571      | 664 | 295                                     | 1.61                          | 13.09                   | 7.68                      | 1.94      | 2.25  |

### 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    |      |                          |