

### COMPRESSOR DEFINITION

|                           |                 |
|---------------------------|-----------------|
| Designation               | EM 2U3111Z      |
| Nominal Voltage/Frequency | 115-127 V 60 Hz |
| Engineering Number        | 513305602       |

### 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 - 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                          | 213514083                          |                                    |
| 3 Start capacitor                            | -                                  | [µF(VAC minimum)]                  |
| 4 Run capacitor                              | -                                  | [µF(VAC minimum)]                  |
| 5 Motor protection                           | 4TM762NFBZZ-53                     |                                    |
| 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)        | 24.35                              | [A] - Measured according to UL 984 |
| 9 FLA - Full load amperage L/MBP (60 Hz)     | 2.20                               | [A] - Measured according to UL 984 |
| 10 FLA - Full Load Amperage HBP (60 Hz)      | 2.87                               | [A] - Measured according to UL 984 |
| 11 Approval boards certification             | 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<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] |
| 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<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] |
| 679                           | 171      | 199 | 129                            | 1.80                             | 3.86   | 5.26                      | 1.33                                   | 1.54  |

### E - PERFORMANCE - CURVES

| TEST CONDITIONS:<br>@127V60Hz |       | 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) | 383                        | 96       | 112 | 90                             | 1.70                                  | 2.16                       | 4.26                      | 1.07      | 1.25  |
| -30                           | (-22) | 524                        | 132      | 154 | 101                            | 1.73                                  | 2.97                       | 5.18                      | 1.31      | 1.52  |
| -25                           | (-13) | 701                        | 177      | 205 | 114                            | 1.78                                  | 3.98                       | 6.15                      | 1.55      | 1.80  |
| -20                           | (- 4) | 918                        | 231      | 269 | 127                            | 1.84                                  | 5.23                       | 7.19                      | 1.81      | 2.11  |
| -15                           | (+ 5) | 1183                       | 298      | 347 | 142                            | 1.91                                  | 6.75                       | 8.33                      | 2.10      | 2.44  |
| -10                           | (+14) | 1502                       | 378      | 440 | 156                            | 1.99                                  | 8.60                       | 9.58                      | 2.41      | 2.81  |
| -5                            | (+23) | 1880                       | 474      | 551 | 171                            | 2.06                                  | 10.82                      | 10.97                     | 2.76      | 3.21  |
| 0                             | (+32) | 2324                       | 586      | 681 | 186                            | 2.14                                  | 13.44                      | 12.52                     | 3.15      | 3.67  |

| TEST CONDITIONS:<br>@127V60Hz |       | 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) | 346                        | 87       | 101 | 89                             | 1.70                                   | 1.96                       | 3.88                      | 0.98      | 1.14  |
| -30                           | (-22) | 485                        | 122      | 142 | 104                            | 1.75                                   | 2.75                       | 4.67                      | 1.18      | 1.37  |
| -25                           | (-13) | 656                        | 165      | 192 | 120                            | 1.80                                   | 3.72                       | 5.48                      | 1.38      | 1.60  |
| -20                           | (- 4) | 866                        | 218      | 254 | 137                            | 1.88                                   | 4.93                       | 6.34                      | 1.60      | 1.86  |
| -15                           | (+ 5) | 1121                       | 282      | 328 | 154                            | 1.96                                   | 6.39                       | 7.27                      | 1.83      | 2.13  |
| -10                           | (+14) | 1426                       | 359      | 418 | 172                            | 2.06                                   | 8.17                       | 8.30                      | 2.09      | 2.43  |
| -5                            | (+23) | 1790                       | 451      | 524 | 189                            | 2.16                                   | 10.30                      | 9.44                      | 2.38      | 2.77  |
| 0                             | (+32) | 2217                       | 559      | 650 | 207                            | 2.26                                   | 12.82                      | 10.72                     | 2.70      | 3.14  |

### 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) | 296                        | 75       | 87  | 85                                      | 1.70                          | 1.67                    | 3.47                      | 0.87      | 1.02  |
| -30                           | (-22) | 434                        | 109      | 127 | 104                                     | 1.75                          | 2.46                    | 4.17                      | 1.05      | 1.22  |
| -25                           | (-13) | 602                        | 152      | 176 | 124                                     | 1.82                          | 3.42                    | 4.87                      | 1.23      | 1.43  |
| -20                           | (- 4) | 807                        | 203      | 236 | 145                                     | 1.91                          | 4.59                    | 5.60                      | 1.41      | 1.64  |
| -15                           | (+ 5) | 1054                       | 266      | 309 | 166                                     | 2.01                          | 6.01                    | 6.39                      | 1.61      | 1.87  |
| -10                           | (+14) | 1350                       | 340      | 395 | 187                                     | 2.13                          | 7.73                    | 7.25                      | 1.83      | 2.12  |
| -5                            | (+23) | 1700                       | 428      | 498 | 207                                     | 2.26                          | 9.78                    | 8.21                      | 2.07      | 2.40  |
| 0                             | (+32) | 2112                       | 532      | 619 | 227                                     | 2.40                          | 12.21                   | 9.28                      | 2.34      | 2.72  |

| 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) | 228                        | 58       | 67  | 81                                      | 1.68                          | 1.29                    | 2.83                      | 0.71      | 0.83  |
| -30                           | (-22) | 368                        | 93       | 108 | 105                                     | 1.73                          | 2.09                    | 3.50                      | 0.88      | 1.02  |
| -25                           | (-13) | 536                        | 135      | 157 | 130                                     | 1.81                          | 3.04                    | 4.15                      | 1.05      | 1.22  |
| -20                           | (- 4) | 737                        | 186      | 216 | 154                                     | 1.92                          | 4.20                    | 4.81                      | 1.21      | 1.41  |
| -15                           | (+ 5) | 979                        | 247      | 287 | 179                                     | 2.04                          | 5.58                    | 5.50                      | 1.39      | 1.61  |
| -10                           | (+14) | 1267                       | 319      | 371 | 204                                     | 2.18                          | 7.25                    | 6.25                      | 1.58      | 1.83  |
| -5                            | (+23) | 1607                       | 405      | 471 | 228                                     | 2.34                          | 9.25                    | 7.08                      | 1.78      | 2.07  |
| 0                             | (+32) | 2007                       | 506      | 588 | 251                                     | 2.51                          | 11.60                   | 8.00                      | 2.02      | 2.34  |

### 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    |      |                          |