

### COMPRESSOR DEFINITION

|                           |                 |
|---------------------------|-----------------|
| Designation               | EM 3U60HLP      |
| Nominal Voltage/Frequency | 115-127 V 60 Hz |
| Engineering Number        | 513300578       |

### 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 Back Pressure                 |                                   |              |
| 4.1 Evaporating temperature range  | -35°C to -10°C                    | (-31°F to 14°F)                   |              |
| 5 Motor type                       | RSCR                              |                                   |              |
| 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) | Static                            | -                                 | 103 to 140 V |
| 8.2 LBP (43°C Ambient temperature) | -                                 | -                                 | -            |
| 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      |               | [hp]                                       |
| 2 Displacement                | 6.78          | [cm <sup>3</sup> ] (0.414 cu.in)           |
| 2.1 Bore [mm]                 | 24.000        |  |
| 2.2 Stroke [mm]               | 15.000        |  |
| 3 Lubricant charge            | 150           | [ml] (5.07 fl.oz.)                         |
| 3.1 Lubricants approved       |               |  |
| 3.2 Lubricants type/viscosity | ESTER / ISO10 |  |
| 4 Weight (with oil charge)    | 6.8           | [kg] (14.99 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                       | PTC                                |                                    |
| 2.1 Starting device                          | 8EA14B3/8EA14C3/QPS2-A4R7MD3       |                                    |
| 3 Start capacitor                            | -                                  | [µF(VAC minimum)]                  |
| 4 Run capacitor                              | 12(180)/15(180)                    | [µF(VAC minimum)]                  |
| 5 Motor protection                           | 4TM427KFBYY-53                     |                                    |
| 6 Start winding resistance                   | 9.73                               | [Ω at 25°C (77°F)] +/- 8%          |
| 7 Run winding resistance                     | 4.44                               | [Ω at 25°C (77°F)] +/- 8%          |
| 8 LRA - Locked rotor amperage (60 Hz)        | 11.71                              | [A] - Measured according to UL 984 |
| 9 FLA - Full load amperage L/MBP (60 Hz)     | 2.02                               | [A] - Measured according to UL 984 |
| 10 FLA - Full Load Amperage HBP (60 Hz)      | 2.68                               | [A] - Measured according to UL 984 |
| 11 Approval boards certification             |                                    |                                    |

### D - PERFORMANCE - CHECK POINT DATA

|                               |          |     |                                |                                  |  |                           |  |       |
|-------------------------------|----------|-----|--------------------------------|----------------------------------|--|---------------------------|--|-------|
| TEST CONDITIONS:<br>@115V60Hz |          |     | 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] |
| 648                           | 163      | 190 | 115                            | 1.04                             | 3.68   | 5.63                      | 1.42                                   | 1.65  |

### E - PERFORMANCE - CURVES

|                               |                            |                    |     |                                |                                  |                                       |                           |           |       |
|-------------------------------|----------------------------|--------------------|-----|--------------------------------|----------------------------------|---------------------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@115V60Hz |                            | ASHRAE32<br>Static |     |                                |                                  | (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)                     | 507                        | 128                | 149 | 88                             | 1.29                             | 2.88                                  | 5.11                      | 1.29      | 1.50  |
| -30 (-22)                     | 466                        | 117                | 137 | 76                             | 0.89                             | 2.64                                  | 5.81                      | 1.46      | 1.70  |
| -25 (-13)                     | 596                        | 150                | 175 | 86                             | 0.83                             | 3.39                                  | 6.77                      | 1.71      | 1.98  |
| -20 (- 4)                     | 833                        | 210                | 244 | 106                            | 0.96                             | 4.74                                  | 7.89                      | 1.99      | 2.31  |
| -15 (+ 5)                     | 1111                       | 280                | 325 | 128                            | 1.16                             | 6.34                                  | 9.08                      | 2.29      | 2.66  |
| -10 (+14)                     | 1365                       | 344                | 400 | 140                            | 1.29                             | 7.81                                  | 10.24                     | 2.58      | 3.00  |

|                               |                            |                    |     |                                |                                  |  |                           |           |       |
|-------------------------------|----------------------------|--------------------|-----|--------------------------------|----------------------------------|--|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@115V60Hz |                            | ASHRAE32<br>Static |     |                                |                                  | (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)                     | 97                         | 24                 | 28  | 70                             | 1.08                             | 0.53                                   | 3.61                      | 0.91      | 1.06  |
| -30 (-22)                     | 160                        | 40                 | 47  | 62                             | 0.75                             | 0.89                                   | 4.53                      | 1.14      | 1.33  |
| -25 (-13)                     | 404                        | 102                | 118 | 79                             | 0.76                             | 2.28                                   | 5.68                      | 1.43      | 1.66  |
| -20 (- 4)                     | 764                        | 192                | 224 | 109                            | 0.99                             | 4.34                                   | 6.97                      | 1.76      | 2.04  |
| -15 (+ 5)                     | 1175                       | 296                | 344 | 142                            | 1.31                             | 6.70                                   | 8.29                      | 2.09      | 2.43  |
| -10 (+14)                     | 1572                       | 396                | 461 | 169                            | 1.57                             | 9.00                                   | 9.56                      | 2.41      | 2.80  |

|                               |                            |                    |     |                                |                                  |  |                           |           |       |
|-------------------------------|----------------------------|--------------------|-----|--------------------------------|----------------------------------|--|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@115V60Hz |                            | ASHRAE32<br>Static |     |                                |                                  | (Condensing temperature 55°C (+131°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)                     | 431                        | 109                | 126 | 114                            | 1.44                             | 2.45                                   | 3.13                      | 0.79      | 0.92  |
| -30 (-22)                     | 482                        | 121                | 141 | 103                            | 1.08                             | 2.74                                   | 4.03                      | 1.02      | 1.18  |
| -25 (-13)                     | 723                        | 182                | 212 | 119                            | 1.10                             | 4.12                                   | 5.13                      | 1.29      | 1.50  |
| -20 (- 4)                     | 1091                       | 275                | 320 | 150                            | 1.36                             | 6.22                                   | 6.34                      | 1.60      | 1.86  |
| -15 (+ 5)                     | 1519                       | 383                | 445 | 188                            | 1.71                             | 8.68                                   | 7.56                      | 1.90      | 2.21  |
| -10 (+14)                     | 1943                       | 490                | 569 | 221                            | 2.03                             | 11.13                                  | 8.68                      | 2.19      | 2.54  |

### E - PERFORMANCE - CURVES

| TEST CONDITIONS:<br>@115V60Hz |       | ASHRAE32<br>Static         |          |     | (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) | 326                        | 82       | 95  | 105                                     | 1.34                          | 1.84                    | 3.28                      | 0.83      | 0.96  |
| -30                           | (-22) | 249                        | 63       | 73  | 83                                      | 0.90                          | 1.40                    | 3.92                      | 0.99      | 1.15  |
| -25                           | (-13) | 372                        | 94       | 109 | 90                                      | 0.84                          | 2.11                    | 4.73                      | 1.19      | 1.39  |
| -20                           | (- 4) | 631                        | 159      | 185 | 115                                     | 1.04                          | 3.59                    | 5.61                      | 1.41      | 1.65  |
| -15                           | (+ 5) | 961                        | 242      | 282 | 148                                     | 1.36                          | 5.48                    | 6.48                      | 1.63      | 1.90  |
| -10                           | (+14) | 1295                       | 326      | 380 | 180                                     | 1.66                          | 7.42                    | 7.22                      | 1.82      | 2.12  |

### F - EXTERNAL CHARACTERISTICS

|                         |                  |      |                          |
|-------------------------|------------------|------|--------------------------|
| 1 Base plate            | Universal        |      |                          |
| 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           | 4.94 +0.08/-0.08 | [mm] | (0.194" +0.003"/-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     |      |                          |