

### COMPRESSOR DEFINITION

|                           |                 |
|---------------------------|-----------------|
| Designation               | EM 3Z60HLT      |
| Nominal Voltage/Frequency | 115-127 V 60 Hz |
| Engineering Number        | 513301645       |

### 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 Back Pressure          |                                   |              |
| 4.1 Evaporating temperature range  | -35°C to -5°C                     | (-31°F to 23°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) | 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                | 5.19          | [cm <sup>3</sup> ] (0.317 cu.in)           |
| 2.1 Bore [mm]                 | 21.000        |  |
| 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)    | 7.6           | [kg] (16.75 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                          | 37X4R7X                            |                                    |
| 3 Start capacitor                            | -                                  | [µF(VAC minimum)]                  |
| 4 Run capacitor                              | 12(180)/15(180)                    | [µF(VAC minimum)]                  |
| 5 Motor protection                           | SMP427KFX                          |                                    |
| 6 Start winding resistance                   | 9.32                               | [Ω at 25°C (77°F)] +/- 8%          |
| 7 Run winding resistance                     | 5.55                               | [Ω at 25°C (77°F)] +/- 8%          |
| 8 LRA - Locked rotor amperage (60 Hz)        | -                                  | [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             | UL                                 |                                    |

### 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 | 110                            | 0.97                             | 3.68   | 5.92                      | 1.49                                   | 1.73  |  |

### 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) | 367                        | 93       | 108 | 73                             | 0.65                                   | 2.08                       | 5.13                      | 1.29      | 1.50  |
| -30                           | (-22) | 547                        | 138      | 160 | 84                             | 0.76                                   | 3.10                       | 6.42                      | 1.62      | 1.88  |
| -25                           | (-13) | 696                        | 175      | 204 | 94                             | 0.85                                   | 3.95                       | 7.31                      | 1.84      | 2.14  |
| -20                           | (- 4) | 850                        | 214      | 249 | 105                            | 0.93                                   | 4.83                       | 8.06                      | 2.03      | 2.36  |
| -15                           | (+ 5) | 1043                       | 263      | 306 | 117                            | 1.02                                   | 5.95                       | 8.93                      | 2.25      | 2.62  |
| -10                           | (+14) | 1310                       | 330      | 384 | 128                            | 1.12                                   | 7.51                       | 10.17                     | 2.56      | 2.98  |
| -5                            | (+23) | 1687                       | 425      | 494 | 141                            | 1.24                                   | 9.70                       | 12.02                     | 3.03      | 3.52  |

| 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) | 353                        | 89       | 103 | 73                             | 0.66                                    | 2.00                       | 4.71                      | 1.19      | 1.38  |
| -30                           | (-22) | 519                        | 131      | 152 | 86                             | 0.79                                    | 2.95                       | 5.85                      | 1.47      | 1.71  |
| -25                           | (-13) | 656                        | 165      | 192 | 100                            | 0.90                                    | 3.72                       | 6.56                      | 1.65      | 1.92  |
| -20                           | (- 4) | 798                        | 201      | 234 | 113                            | 1.01                                    | 4.54                       | 7.11                      | 1.79      | 2.08  |
| -15                           | (+ 5) | 979                        | 247      | 287 | 127                            | 1.13                                    | 5.59                       | 7.73                      | 1.95      | 2.27  |
| -10                           | (+14) | 1236                       | 311      | 362 | 141                            | 1.25                                    | 7.08                       | 8.69                      | 2.19      | 2.55  |
| -5                            | (+23) | 1603                       | 404      | 470 | 156                            | 1.39                                    | 9.22                       | 10.23                     | 2.58      | 3.00  |

| 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) | 222                        | 56       | 65  | 67                             | 0.62                                    | 1.25                       | 3.51                      | 0.88      | 1.03  |
| -30                           | (-22) | 386                        | 97       | 113 | 84                             | 0.77                                    | 2.19                       | 4.63                      | 1.17      | 1.36  |
| -25                           | (-13) | 521                        | 131      | 153 | 101                            | 0.92                                    | 2.95                       | 5.28                      | 1.33      | 1.55  |
| -20                           | (- 4) | 661                        | 167      | 194 | 118                            | 1.06                                    | 3.76                       | 5.74                      | 1.45      | 1.68  |
| -15                           | (+ 5) | 842                        | 212      | 247 | 136                            | 1.20                                    | 4.81                       | 6.24                      | 1.57      | 1.83  |
| -10                           | (+14) | 1099                       | 277      | 322 | 154                            | 1.36                                    | 6.30                       | 7.04                      | 1.77      | 2.06  |
| -5                            | (+23) | 1466                       | 369      | 430 | 172                            | 1.53                                    | 8.43                       | 8.39                      | 2.12      | 2.46  |

### 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) | 179                        | 45       | 52  | 57                                      | 0.52                          | 1.01                    | 2.96                      | 0.74      | 0.87  |
| -30                           | (-22) | 352                        | 89       | 103 | 78                                      | 0.72                          | 2.00                    | 4.17                      | 1.05      | 1.22  |
| -25                           | (-13) | 496                        | 125      | 145 | 100                                     | 0.90                          | 2.81                    | 4.89                      | 1.23      | 1.43  |
| -20                           | (- 4) | 646                        | 163      | 189 | 121                                     | 1.08                          | 3.67                    | 5.37                      | 1.35      | 1.57  |
| -15                           | (+ 5) | 837                        | 211      | 245 | 143                                     | 1.26                          | 4.78                    | 5.87                      | 1.48      | 1.72  |
| -10                           | (+14) | 1104                       | 278      | 324 | 165                                     | 1.45                          | 6.33                    | 6.63                      | 1.67      | 1.94  |
| -5                            | (+23) | 1482                       | 374      | 434 | 189                                     | 1.66                          | 8.53                    | 7.92                      | 2.00      | 2.32  |

### F - EXTERNAL CHARACTERISTICS

|                         |                  |      |                          |
|-------------------------|------------------|------|--------------------------|
| 1 Base plate            | Universal        |      |                          |
| 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           | 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     |      |                          |