

### COMPRESSOR DEFINITION

|                           |                 |
|---------------------------|-----------------|
| Designation               | EM 45HNR        |
| Nominal Voltage/Frequency | 115-127 V 60 Hz |
| Engineering Number        | 513307078       |

### 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                       | RSIR-CSIR                         |                                   |             |
| 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/Fan                        | -                                 | 98 to 140 V |
| 8.2 LBP (43°C Ambient temperature) | Static/Fan                        | -                                 | 98 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      | 1/8           | [hp]                                       |
| 2 Displacement                | 3.77          | [cm <sup>3</sup> ] (0.230 cu.in)           |
| 2.1 Bore [mm]                 | 19.000        |  |
| 2.2 Stroke [mm]               | 13.300        |  |
| 3 Lubricant charge            | 160           | [ml] (5.41 fl.oz.)                         |
| 3.1 Lubricants approved       |               |  |
| 3.2 Lubricants type/viscosity | ESTER / ISO22 |  |
| 4 Weight (with oil charge)    | 7.29          | [kg] (16.07 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                          | 213514105/213515292                |                                    |
| 3 Start capacitor                            | 145-175(110)                       | [µF(VAC minimum)]                  |
| 4 Run capacitor                              | -                                  | [µF(VAC minimum)]                  |
| 5 Motor protection                           | 4TM757MFBYY-53                     |                                    |
| 6 Start winding resistance                   | 12.95                              | [Ω at 25°C (77°F)] +/- 8%          |
| 7 Run winding resistance                     | 4.80                               | [Ω at 25°C (77°F)] +/- 8%          |
| 8 LRA - Locked rotor amperage (60 Hz)        | 17.00                              | [A] - Measured according to UL 984 |
| 9 FLA - Full load amperage L/MBP (60 Hz)     | 2.10                               | [A] - Measured according to UL 984 |
| 10 FLA - Full Load Amperage HBP (60 Hz)      | -                                  | [A] - Measured according to UL 984 |
| 11 Approval boards certification             | CE - TUV - UKCA - 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] |
| 420                           | 106      | 123 | 108                            | 1.59                             | 2.39   | 3.90                      | 0.98                                   | 1.14  |

### E - PERFORMANCE - CURVES

|                               |                            |          |                    |                                |  |                            |                           |           |       |
|-------------------------------|----------------------------|----------|--------------------|--------------------------------|--|----------------------------|---------------------------|-----------|-------|
| 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)                     | 219                        | 55       | 64                 | 79                             | 1.42                                   | 1.24                       | 2.79                      | 0.70      | 0.82  |
| -30 (-22)                     | 316                        | 80       | 93                 | 89                             | 1.45                                   | 1.79                       | 3.56                      | 0.90      | 1.04  |
| -25 (-13)                     | 434                        | 109      | 127                | 100                            | 1.51                                   | 2.47                       | 4.33                      | 1.09      | 1.27  |
| -20 (- 4)                     | 574                        | 145      | 168                | 112                            | 1.58                                   | 3.26                       | 5.10                      | 1.28      | 1.49  |
| -15 (+ 5)                     | 733                        | 185      | 215                | 125                            | 1.66                                   | 4.19                       | 5.87                      | 1.48      | 1.72  |
| -10 (+14)                     | 913                        | 230      | 268                | 138                            | 1.74                                   | 5.23                       | 6.63                      | 1.67      | 1.94  |

|                               |                            |          |                    |                                |  |                            |                           |           |       |
|-------------------------------|----------------------------|----------|--------------------|--------------------------------|--|----------------------------|---------------------------|-----------|-------|
| 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)                     | 161                        | 41       | 47                 | 76                             | 1.41                                   | 0.91                       | 2.12                      | 0.53      | 0.62  |
| -30 (-22)                     | 255                        | 64       | 75                 | 88                             | 1.45                                   | 1.45                       | 2.92                      | 0.74      | 0.86  |
| -25 (-13)                     | 371                        | 93       | 109                | 100                            | 1.51                                   | 2.10                       | 3.69                      | 0.93      | 1.08  |
| -20 (- 4)                     | 507                        | 128      | 149                | 115                            | 1.59                                   | 2.89                       | 4.43                      | 1.12      | 1.30  |
| -15 (+ 5)                     | 664                        | 167      | 195                | 130                            | 1.69                                   | 3.79                       | 5.12                      | 1.29      | 1.50  |
| -10 (+14)                     | 841                        | 212      | 246                | 145                            | 1.79                                   | 4.82                       | 5.78                      | 1.46      | 1.69  |

|                               |                            |          |                    |                                |  |                            |                           |           |       |
|-------------------------------|----------------------------|----------|--------------------|--------------------------------|--|----------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@115V60Hz |                            |          | ASHRAE32<br>Static |                                | (Condensing temperature 65°C (+149°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)                     | 108                        | 27       | 32                 | 72                             | 1.40                                   | 0.61                       | 1.50                      | 0.38      | 0.44  |
| -30 (-22)                     | 200                        | 50       | 59                 | 84                             | 1.43                                   | 1.13                       | 2.36                      | 0.60      | 0.69  |
| -25 (-13)                     | 313                        | 79       | 92                 | 99                             | 1.50                                   | 1.78                       | 3.16                      | 0.80      | 0.93  |
| -20 (- 4)                     | 448                        | 113      | 131                | 115                            | 1.60                                   | 2.55                       | 3.88                      | 0.98      | 1.14  |
| -15 (+ 5)                     | 602                        | 152      | 177                | 133                            | 1.71                                   | 3.44                       | 4.54                      | 1.14      | 1.33  |
| -10 (+14)                     | 777                        | 196      | 228                | 152                            | 1.84                                   | 4.45                       | 5.12                      | 1.29      | 1.50  |

### F - EXTERNAL CHARACTERISTICS

|                         |                               |      |                          |
|-------------------------|-------------------------------|------|--------------------------|
| 1 Base plate            | Universal EG/F/AMEM version 2 |      |                          |
| 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                  |      |                          |