

### COMPRESSOR DEFINITION

|                           |                 |
|---------------------------|-----------------|
| Designation               | EM IS30HHR      |
| Nominal Voltage/Frequency | 115-127 V 60 Hz |
| Engineering Number        | 513305034       |

### 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-High Back Pressure     |                                   |              |
| 4.1 Evaporating temperature range          | -35°C to 15°C                     | (-31°F to 59°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                            | -                                 | 103 to 140 V |
| 8.2 LBP (43°C Ambient temperature)         | Static                            | -                                 | 103 to 140 V |
| 8.3 HBP (32°C Ambient temperature)         | Fan                               | -                                 | 103 to 140 V |
| 8.4 HBP (43°C Ambient temperature)         | Fan                               | -                                 | 103 to 140 V |
| 9 Maximum condensing pressures/temperature |                                   |                                   |              |
| 9.1 Operating (gauge)                      | 16.2                              | [kgf/cm <sup>2</sup> ] (230 psig) | / °C - °F    |
| 9.2 Peak (gauge)                           | 20.6                              | [kgf/cm <sup>2</sup> ] (293 psig) | / °C - °F    |
| 10 Maximum winding temperature             | 130                               | [ °C ]                            |              |

### B - MECHANICAL DATA

|                               |               |  |
|-------------------------------|---------------|--|
| 1 Commercial designation      | 1/10          | [hp]                                       |
| 2 Displacement                | 3.00          | [cm <sup>3</sup> ] (0.183 cu.in)           |
| 2.1 Bore [mm]                 | 19.000        |  |
| 2.2 Stroke [mm]               | 10.600        |  |
| 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)    | 6.77          | [kg] (14.93 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                          | 213514091/213515003                |                                    |
| 3 Start capacitor                            | 88-108(150)                        | [µF(VAC minimum)]                  |
| 4 Run capacitor                              | -                                  | [µF(VAC minimum)]                  |
| 5 Motor protection                           | MRA58130-5590                      |                                    |
| 6 Start winding resistance                   | 14.15                              | [Ω at 25°C (77°F)] +/- 8%          |
| 7 Run winding resistance                     | 6.55                               | [Ω at 25°C (77°F)] +/- 8%          |
| 8 LRA - Locked rotor amperage (60 Hz)        | 16.00                              | [A] - Measured according to UL 984 |
| 9 FLA - Full load amperage L/MBP (60 Hz)     | 1.99                               | [A] - Measured according to UL 984 |
| 10 FLA - Full Load Amperage HBP (60 Hz)      | 2.23                               | [A] - Measured according to UL 984 |
| 11 Approval boards certification             | TUV - UL                           |                                    |

### D - PERFORMANCE - CHECK POINT DATA

|                               |          |     |                             |                               |   |                           |                                      |       |  |
|-------------------------------|----------|-----|-----------------------------|-------------------------------|---|---------------------------|--------------------------------------|-------|--|
| TEST CONDITIONS:<br>@127V60Hz |          |     | ASHRAEHBP32<br>Fan          |                               | Evaporating temperature<br>(Condensing temperature) |                           | 7.2°C (44.96°F)<br>54.4°C (129.92°F) |       |  |
| Cooling capacity<br>+/- 5%    |          |     | Power consumption<br>+/- 5% | Current consumption<br>+/- 5% | Gas flow rate<br>+/- 5%                             | EFFICIENCY RATE<br>+/- 7% |                                      |       |  |
| [Btu/h]                       | [kcal/h] | [W] | [W]                         | [A]                           | [kg/h]  | [Btu/Wh]                  | [kcal/Wh]                            | [W/W] |  |
| 1480                          | 373      | 434 | 164                         | 1.83                          |   | 9.03                      | 2.28                                 | 2.65  |  |

|                               |          |     |                             |                               |   |                           |  |       |  |
|-------------------------------|----------|-----|-----------------------------|-------------------------------|---|---------------------------|--|-------|--|
| 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 consumption<br>+/- 5% | Current consumption<br>+/- 5% | Gas flow rate<br>+/- 5%                             | EFFICIENCY RATE<br>+/- 7% |  |       |  |
| [Btu/h]                       | [kcal/h] | [W] | [W]                         | [A]                           | [kg/h]  | [Btu/Wh]                  | [kcal/Wh]                              | [W/W] |  |
| 340                           | 86       | 100 | 97                          | 1.50                          | 1.93  | 3.51                      | 0.88                                   | 1.03  |  |

### E - PERFORMANCE - CURVES

|                               |                            |          |                    |                             |                                       |                         |                           |           |       |
|-------------------------------|----------------------------|----------|--------------------|-----------------------------|---------------------------------------|-------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@127V60Hz |                            |          | ASHRAE32<br>Static |                             | (Condensing temperature 35°C (+95°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)                     | 191                        | 48       | 56                 | 64                          | 1.27                                  | 1.08                    | 2.98                      | 0.75      | 0.87  |
| -30 (-22)                     | 260                        | 65       | 76                 | 72                          | 1.30                                  | 1.48                    | 3.57                      | 0.90      | 1.04  |
| -25 (-13)                     | 345                        | 87       | 101                | 82                          | 1.34                                  | 1.96                    | 4.21                      | 1.06      | 1.23  |
| -20 (- 4)                     | 451                        | 114      | 132                | 91                          | 1.39                                  | 2.57                    | 4.93                      | 1.24      | 1.44  |
| -15 (+ 5)                     | 581                        | 146      | 170                | 101                         | 1.44                                  | 3.31                    | 5.74                      | 1.45      | 1.68  |
| -10 (+14)                     | 737                        | 186      | 216                | 111                         | 1.49                                  | 4.22                    | 6.66                      | 1.68      | 1.95  |
| -5 (+23)                      | 922                        | 232      | 270                | 120                         | 1.54                                  | 5.30                    | 7.69                      | 1.94      | 2.25  |
| 0 (+32)                       | 1141                       | 288      | 334                | 129                         | 1.60                                  | 6.60                    | 8.86                      | 2.23      | 2.60  |
| +5 (+41)                      | 1396                       | 352      | 409                | 138                         | 1.65                                  | 8.13                    | 10.19                     | 2.57      | 2.99  |
| +10 (+50)                     | 1690                       | 426      | 495                | 145                         | 1.70                                  | 9.91                    | 11.68                     | 2.94      | 3.42  |
| +15 (+59)                     | 2027                       | 511      | 594                | 151                         | 1.75                                  | 11.96                   | 13.35                     | 3.36      | 3.91  |

|                               |                            |          |                    |                             |  |                         |                           |           |       |
|-------------------------------|----------------------------|----------|--------------------|-----------------------------|--|-------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@127V60Hz |                            |          | ASHRAE32<br>Static |                             | (Condensing temperature 45°C (+113°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)                     | 158                        | 40       | 46                 | 64                          | 1.28                                   | 0.89                    | 2.52                      | 0.64      | 0.74  |
| -30 (-22)                     | 226                        | 57       | 66                 | 72                          | 1.31                                   | 1.29                    | 3.14                      | 0.79      | 0.92  |
| -25 (-13)                     | 311                        | 78       | 91                 | 82                          | 1.35                                   | 1.77                    | 3.77                      | 0.95      | 1.11  |
| -20 (- 4)                     | 415                        | 105      | 122                | 93                          | 1.39                                   | 2.36                    | 4.45                      | 1.12      | 1.30  |
| -15 (+ 5)                     | 542                        | 137      | 159                | 104                         | 1.45                                   | 3.09                    | 5.17                      | 1.30      | 1.52  |
| -10 (+14)                     | 696                        | 175      | 204                | 116                         | 1.51                                   | 3.98                    | 5.97                      | 1.50      | 1.75  |
| -5 (+23)                      | 878                        | 221      | 257                | 127                         | 1.58                                   | 5.05                    | 6.85                      | 1.73      | 2.01  |
| 0 (+32)                       | 1092                       | 275      | 320                | 139                         | 1.65                                   | 6.32                    | 7.83                      | 1.97      | 2.29  |
| +5 (+41)                      | 1342                       | 338      | 393                | 151                         | 1.73                                   | 7.81                    | 8.92                      | 2.25      | 2.61  |
| +10 (+50)                     | 1630                       | 411      | 478                | 161                         | 1.81                                   | 9.56                    | 10.14                     | 2.55      | 2.97  |
| +15 (+59)                     | 1961                       | 494      | 575                | 171                         | 1.89                                   | 11.57                   | 11.50                     | 2.90      | 3.37  |

### E - PERFORMANCE - CURVES

| TEST CONDITIONS:<br>@127V60Hz |       | ASHRAE32<br>Static         |          |     | (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) | 116                        | 29       | 34  | 60                                     | 1.28                          | 0.65                    | 1.99                      | 0.50      | 0.58  |
| -30                           | (-22) | 182                        | 46       | 53  | 70                                     | 1.30                          | 1.03                    | 2.64                      | 0.67      | 0.77  |
| -25                           | (-13) | 263                        | 66       | 77  | 80                                     | 1.34                          | 1.50                    | 3.28                      | 0.83      | 0.96  |
| -20                           | (- 4) | 363                        | 92       | 106 | 93                                     | 1.39                          | 2.07                    | 3.92                      | 0.99      | 1.15  |
| -15                           | (+ 5) | 485                        | 122      | 142 | 106                                    | 1.45                          | 2.77                    | 4.58                      | 1.15      | 1.34  |
| -10                           | (+14) | 633                        | 159      | 185 | 120                                    | 1.53                          | 3.62                    | 5.27                      | 1.33      | 1.54  |
| -5                            | (+23) | 809                        | 204      | 237 | 134                                    | 1.62                          | 4.65                    | 6.00                      | 1.51      | 1.76  |
| 0                             | (+32) | 1016                       | 256      | 298 | 149                                    | 1.71                          | 5.87                    | 6.80                      | 1.71      | 1.99  |
| +5                            | (+41) | 1258                       | 317      | 369 | 164                                    | 1.82                          | 7.32                    | 7.67                      | 1.93      | 2.25  |
| +10                           | (+50) | 1538                       | 388      | 451 | 178                                    | 1.93                          | 9.02                    | 8.63                      | 2.17      | 2.53  |
| +15                           | (+59) | 1859                       | 469      | 545 | 192                                    | 2.05                          | 10.98                   | 9.70                      | 2.44      | 2.84  |

| TEST CONDITIONS:<br>@127V60Hz |       | 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) | 89                         | 22       | 26  | 56                                     | 1.26                          | 0.50                    | 1.48                      | 0.37      | 0.43  |
| -30                           | (-22) | 149                        | 37       | 44  | 66                                     | 1.28                          | 0.85                    | 2.18                      | 0.55      | 0.64  |
| -25                           | (-13) | 224                        | 56       | 66  | 78                                     | 1.32                          | 1.28                    | 2.84                      | 0.72      | 0.83  |
| -20                           | (- 4) | 317                        | 80       | 93  | 92                                     | 1.38                          | 1.80                    | 3.46                      | 0.87      | 1.01  |
| -15                           | (+ 5) | 431                        | 109      | 126 | 108                                    | 1.46                          | 2.46                    | 4.06                      | 1.02      | 1.19  |
| -10                           | (+14) | 570                        | 144      | 167 | 124                                    | 1.56                          | 3.26                    | 4.65                      | 1.17      | 1.36  |
| -5                            | (+23) | 737                        | 186      | 216 | 142                                    | 1.66                          | 4.23                    | 5.25                      | 1.32      | 1.54  |
| 0                             | (+32) | 935                        | 235      | 274 | 160                                    | 1.79                          | 5.40                    | 5.87                      | 1.48      | 1.72  |
| +5                            | (+41) | 1166                       | 294      | 342 | 179                                    | 1.92                          | 6.78                    | 6.53                      | 1.65      | 1.91  |
| +10                           | (+50) | 1435                       | 362      | 421 | 198                                    | 2.07                          | 8.41                    | 7.25                      | 1.83      | 2.12  |
| +15                           | (+59) | 1744                       | 440      | 511 | 217                                    | 2.23                          | 10.30                   | 8.03                      | 2.02      | 2.35  |

### F - EXTERNAL CHARACTERISTICS

|                         |                               |      |                          |
|-------------------------|-------------------------------|------|--------------------------|
| 1 Base plate            | Universal EG/F/AMEM version 2 |      |                          |
| 2 Tray holder           | Yes                           |      |                          |
| 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             | Slanted                       |      |                          |
| 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                  |      |                          |