

### COMPRESSOR DEFINITION

|                           |                           |
|---------------------------|---------------------------|
| Designation               | <b>F GS90HAW</b>          |
| Nominal Voltage/Frequency | <b>220-240 V 50-60 Hz</b> |
| Engineering Number        | <b>513200209</b>          |

### A - APPLICATION / LIMIT WORKING CONDITIONS

|  |                                   |                                   |           |
|--|-----------------------------------|-----------------------------------|-----------|
| 1 Type                                     | Hermetic reciprocating compressor |                                   |           |
| 2 Refrigerant                              | R-134a                            |                                   |           |
| 3 Nominal voltage and frequency            | 220-240 / 50-60                   | [ 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                              |                                   |           |
| 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                            | 198 to 255 V                      | -         |
| 8.2 LBP (43°C Ambient temperature)         | Static                            | 198 to 255 V                      | -         |
| 8.3 HBP (32°C Ambient temperature)         | -                                 | -                                 | -         |
| 8.4 HBP (43°C Ambient temperature)         | -                                 | -                                 | -         |
| 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      | 1/4+          | [hp]                                       |
| 2 Displacement                | 7.95          | [cm <sup>3</sup> ] (0.485 cu.in)           |
| 2.1 Bore [mm]                 | 22.500        |  |
| 2.2 Stroke [mm]               | 20.000        |  |
| 3 Lubricant charge            | 280           | [ml] (9.47 fl.oz.)                         |
| 3.1 Lubricants approved       |               |  |
| 3.2 Lubricants type/viscosity | ESTER / ISO22 |  |
| 4 Weight (with oil charge)    | 11.54         | [kg] (25.44 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 | 220-240 V 50-60 Hz 1 ~ (Single phase) |                                    |
| 2 Starting device type                       | PTC                                   |                                    |
| 2.1 Starting device                          | 7M220MC1/8EA17C1/8EA5B1               |                                    |
| 3 Start capacitor                            | -                                     | [µF(VAC minimum)]                  |
| 4 Run capacitor                              | -                                     | [µF(VAC minimum)]                  |
| 5 Motor protection                           | 4TM283NFBYY-53                        |                                    |
| 6 Start winding resistance                   | 14.60                                 | [Ω at 25°C (77°F)] +/- 8%          |
| 7 Run winding resistance                     | 9.70                                  | [Ω at 25°C (77°F)] +/- 8%          |
| 8 LRA - Locked rotor amperage (50 Hz)        | -                                     | [A] - Measured according to UL 984 |
| 9 FLA - Full load amperage L/MBP (50 Hz)     | -                                     | [A] - Measured according to UL 984 |
| 10 FLA - Full Load Amperage HBP (50 Hz)      | -                                     | [A] - Measured according to UL 984 |
| 11 Approval boards certification             | CCC                                   |                                    |

### D - PERFORMANCE - CHECK POINT DATA

|                               |          |     |                             |                               |  |                           |  |       |
|-------------------------------|----------|-----|-----------------------------|-------------------------------|--|---------------------------|--|-------|
| TEST CONDITIONS:<br>@220V50Hz |          |     | 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] |
| 800                           | 202      | 234 | 165                         | 1.08                          | 4.55   | 4.85                      | 1.22                                   | 1.42  |

### E - PERFORMANCE - CURVES

|                               |                            |          |                    |                             |  |                         |                           |           |       |
|-------------------------------|----------------------------|----------|--------------------|-----------------------------|--|-------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@220V50Hz |                            |          | 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)                     | 421                        | 106      | 123                | 111                         | 0.93                                   | 2.38                    | 3.79                      | 0.96      | 1.11  |
| -30 (-22)                     | 581                        | 146      | 170                | 131                         | 0.98                                   | 3.29                    | 4.46                      | 1.12      | 1.31  |
| -25 (-13)                     | 774                        | 195      | 227                | 150                         | 1.04                                   | 4.39                    | 5.17                      | 1.30      | 1.52  |
| -20 (- 4)                     | 1010                       | 255      | 296                | 170                         | 1.11                                   | 5.75                    | 5.94                      | 1.50      | 1.74  |
| -15 (+ 5)                     | 1297                       | 327      | 380                | 191                         | 1.18                                   | 7.40                    | 6.78                      | 1.71      | 1.99  |
| -10 (+14)                     | 1643                       | 414      | 481                | 212                         | 1.26                                   | 9.41                    | 7.72                      | 1.94      | 2.26  |

|                               |                            |          |                    |                             |  |                         |                           |           |       |
|-------------------------------|----------------------------|----------|--------------------|-----------------------------|--|-------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@220V50Hz |                            |          | 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)                     | 369                        | 93       | 108                | 108                         | 0.92                                   | 2.09                    | 3.42                      | 0.86      | 1.00  |
| -30 (-22)                     | 531                        | 134      | 156                | 131                         | 0.98                                   | 3.01                    | 4.06                      | 1.02      | 1.19  |
| -25 (-13)                     | 721                        | 182      | 211                | 154                         | 1.05                                   | 4.10                    | 4.69                      | 1.18      | 1.37  |
| -20 (- 4)                     | 950                        | 239      | 278                | 178                         | 1.13                                   | 5.40                    | 5.33                      | 1.34      | 1.56  |
| -15 (+ 5)                     | 1224                       | 308      | 359                | 204                         | 1.22                                   | 6.98                    | 6.00                      | 1.51      | 1.76  |
| -10 (+14)                     | 1552                       | 391      | 455                | 230                         | 1.32                                   | 8.89                    | 6.73                      | 1.69      | 1.97  |

|                               |                            |          |                    |                             |  |                         |                           |           |       |
|-------------------------------|----------------------------|----------|--------------------|-----------------------------|--|-------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@220V50Hz |                            |          | 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)                     | 305                        | 77       | 89                 | 105                         | 0.91                                   | 1.73                    | 2.91                      | 0.73      | 0.85  |
| -30 (-22)                     | 472                        | 119      | 138                | 130                         | 0.98                                   | 2.67                    | 3.59                      | 0.91      | 1.05  |
| -25 (-13)                     | 662                        | 167      | 194                | 157                         | 1.06                                   | 3.76                    | 4.22                      | 1.06      | 1.24  |
| -20 (- 4)                     | 886                        | 223      | 259                | 185                         | 1.15                                   | 5.04                    | 4.80                      | 1.21      | 1.41  |
| -15 (+ 5)                     | 1150                       | 290      | 337                | 214                         | 1.26                                   | 6.56                    | 5.38                      | 1.35      | 1.58  |
| -10 (+14)                     | 1463                       | 369      | 429                | 246                         | 1.38                                   | 8.38                    | 5.95                      | 1.50      | 1.74  |

### F - EXTERNAL CHARACTERISTICS

|                         |                               |      |                          |
|-------------------------|-------------------------------|------|--------------------------|
| 1 Base plate            | Universal EG/F/AMEM version 2 |      |                          |
| 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 plated steel           |      |                          |
| 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 plated steel           |      |                          |
| 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 plated steel           |      |                          |
| 3.3.2 Shape             | Straight                      |      |                          |
| 3.4 Oil cooler (Copper) | 4.9 +0.02/-0.05               | [mm] | (0.193" +0.001"/-0.002") |
| 3.5 Connector sealing   | Rubber Plugs                  |      |                          |