

### COMPRESSOR DEFINITION

|                           |                           |
|---------------------------|---------------------------|
| Designation               | <b>F GS90HA</b>           |
| Nominal Voltage/Frequency | <b>220-240 V 50-60 Hz</b> |
| Engineering Number        | <b>513200379</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 / ISO10 |  |
| 4 Weight (with oil charge)    | 11.49         | [kg] (25.33 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<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] |
| 800                           | 202      | 234 | 162                            | 0.00                             | 4.55   | 4.94                      | 1.24                                   | 1.45  |

### E - PERFORMANCE - CURVES

|                               |                            |          |                    |                                |  |                            |                           |           |       |
|-------------------------------|----------------------------|----------|--------------------|--------------------------------|--|----------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@220V50Hz |                            |          | 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)                     | 440                        | 111      | 129                | 108                            | 0.91                                   | 2.49                       | 4.06                      | 1.02      | 1.19  |
| -30 (-22)                     | 594                        | 150      | 174                | 126                            | 0.97                                   | 3.37                       | 4.71                      | 1.19      | 1.38  |
| -25 (-13)                     | 782                        | 197      | 229                | 145                            | 1.04                                   | 4.44                       | 5.40                      | 1.36      | 1.58  |
| -20 (- 4)                     | 1010                       | 255      | 296                | 165                            | 1.10                                   | 5.75                       | 6.13                      | 1.54      | 1.80  |
| -15 (+ 5)                     | 1287                       | 324      | 377                | 186                            | 1.17                                   | 7.35                       | 6.93                      | 1.75      | 2.03  |
| -10 (+14)                     | 1619                       | 408      | 474                | 207                            | 1.25                                   | 9.28                       | 7.81                      | 1.97      | 2.29  |

|                               |                            |          |                    |                                |  |                            |                           |           |       |
|-------------------------------|----------------------------|----------|--------------------|--------------------------------|--|----------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@220V50Hz |                            |          | 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)                     | 379                        | 95       | 111                | 106                            | 0.91                                   | 2.14                       | 3.56                      | 0.90      | 1.04  |
| -30 (-22)                     | 528                        | 133      | 155                | 127                            | 0.98                                   | 2.99                       | 4.15                      | 1.05      | 1.22  |
| -25 (-13)                     | 708                        | 179      | 208                | 150                            | 1.05                                   | 4.02                       | 4.73                      | 1.19      | 1.39  |
| -20 (- 4)                     | 928                        | 234      | 272                | 174                            | 1.13                                   | 5.28                       | 5.33                      | 1.34      | 1.56  |
| -15 (+ 5)                     | 1195                       | 301      | 350                | 200                            | 1.22                                   | 6.82                       | 5.98                      | 1.51      | 1.75  |
| -10 (+14)                     | 1517                       | 382      | 444                | 227                            | 1.33                                   | 8.69                       | 6.68                      | 1.68      | 1.96  |

|                               |                            |          |                    |                                |  |                            |                           |           |       |
|-------------------------------|----------------------------|----------|--------------------|--------------------------------|--|----------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@220V50Hz |                            |          | 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)                     | 309                        | 78       | 90                 | 102                            | 0.91                                   | 1.75                       | 3.04                      | 0.77      | 0.89  |
| -30 (-22)                     | 456                        | 115      | 134                | 126                            | 0.98                                   | 2.59                       | 3.61                      | 0.91      | 1.06  |
| -25 (-13)                     | 634                        | 160      | 186                | 152                            | 1.06                                   | 3.60                       | 4.16                      | 1.05      | 1.22  |
| -20 (- 4)                     | 850                        | 214      | 249                | 181                            | 1.15                                   | 4.83                       | 4.70                      | 1.18      | 1.38  |
| -15 (+ 5)                     | 1111                       | 280      | 325                | 212                            | 1.26                                   | 6.34                       | 5.26                      | 1.32      | 1.54  |
| -10 (+14)                     | 1425                       | 359      | 418                | 244                            | 1.39                                   | 8.16                       | 5.84                      | 1.47      | 1.71  |

### 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                        |      |                          |
| 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                  |      |                          |