

COMPRESSOR DEFINITION

| | |
|---------------------------|---------------------------|
| Designation | F GS90HA |
| Nominal Voltage/Frequency | 220-240 V 50-60 Hz |
| Engineering Number | 513200066 |

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 | 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 | 198 to 255 V | 198 to 242 V |
| 8.2 LBP (43°C Ambient temperature) | Static | 198 to 255 V | 198 to 242 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 ²] (230 psig) | / °C - °F |
| 9.2 Peak (gauge) | 20.6 | [kgf/cm ²] (293 psig) | / °C - °F |
| 10 Maximum winding temperature | 130 | [°C] | |

B - MECHANICAL DATA

| | | |
|-------------------------------|---------------|--|
| 1 Commercial designation | 1/4+ | [hp] |
| 2 Displacement | 7.95 | [cm ³] (0.485 cu.in) |
| 2.1 Bore [mm] | 22.500 | |
| 2.2 Stroke [mm] | 20.000 | |
| 3 Lubricant charge | 350 | [ml] (11.84 fl.oz.) |
| 3.1 Lubricants approved | | |
| 3.2 Lubricants type/viscosity | ESTER / ISO10 | |
| 4 Weight (with oil charge) | 11.2 | [kg] (24.69 lb.) |
| 5 Nitrogen charge | 0.2 to 0.3 | [kgf/cm ²] (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 | 7M220MD3/8EA17C3/8EA5B3 | |
| 3 Start capacitor | - | [µF(VAC minimum)] |
| 4 Run capacitor | 5(330) | [µF(VAC minimum)] |
| 5 Motor protection | 4TM283KFBYY-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 (50/60 Hz) | 8.50/7.00 | [A] - Measured according to UL 984 |
| 9 FLA - Full load amperage L/MBP (50/60 Hz) | 1.26/1.30 | [A] - Measured according to UL 984 |
| 10 FLA - Full Load Amperage HBP (50/60 Hz) | - | [A] - Measured according to UL 984 |
| 11 Approval boards certification | CCC - IRAM - UL | |

D - PERFORMANCE - CHECK POINT DATA

| | | | | | | | | | |
|-------------------------------|----------|-----|--------------------------------|----------------------------------|--|---------------------------|--|-------|--|
| TEST CONDITIONS: @220V50Hz | | | ASHRAELBP32 Static | | Evaporating temperature (Condensing temperature | | -23.3°C (-9.94°F) 54.4°C (129.92°F) | | |
| Cooling capacity +/- 5% | | | Power consumption +/- 5% | Current consumption +/- 5% | Gas flow rate +/- 5% | EFFICIENCY RATE +/- 7% | | | |
| [Btu/h] | [kcal/h] | [W] | [W] | [A] | [kg/h] | [Btu/Wh] | [kcal/Wh] | [W/W] | |
| 800 | 202 | 234 | 152 | 0.78 | 4.55 | 5.26 | 1.33 | 1.54 | |

| | | | | | | | | | |
|-------------------------------|----------|-----|--------------------------------|----------------------------------|--|---------------------------|--|-------|--|
| TEST CONDITIONS: @220V60Hz | | | ASHRAELBP32 Static | | Evaporating temperature (Condensing temperature | | -23.3°C (-9.94°F) 54.4°C (129.92°F) | | |
| Cooling capacity +/- 5% | | | Power consumption +/- 5% | Current consumption +/- 5% | Gas flow rate +/- 5% | EFFICIENCY RATE +/- 7% | | | |
| [Btu/h] | [kcal/h] | [W] | [W] | [A] | [kg/h] | [Btu/Wh] | [kcal/Wh] | [W/W] | |
| 940 | 237 | 275 | 177 | 0.82 | 5.34 | 5.31 | 1.34 | 1.56 | |

E - PERFORMANCE - CURVES

| | | | | | | | | | |
|-------------------------------|----------------------------|----------|--------------------|--------------------------------|--|----------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS: @220V50Hz | | | ASHRAE32 Static | | (Condensing temperature 45°C (+113°F)) | | | | |
| Evaporating temperature | Cooling capacity +/- 5% | | | Power consumption +/- 5% | Current consumption +/- 5% | Gas flow rate +/- 5% | EFFICIENCY RATE +/- 7% | | |
| °C (°F) | [Btu/h] | [kcal/h] | [W] | [W] | [A] | [kg/h] | [Btu/Wh] | [kcal/Wh] | [W/W] |
| -35 (-31) | 390 | 98 | 114 | 98 | 0.51 | 2.21 | 3.98 | 1.00 | 1.17 |
| -30 (-22) | 551 | 139 | 162 | 116 | 0.61 | 3.12 | 4.76 | 1.20 | 1.39 |
| -25 (-13) | 750 | 189 | 220 | 136 | 0.72 | 4.26 | 5.52 | 1.39 | 1.62 |
| -20 (- 4) | 991 | 250 | 290 | 157 | 0.83 | 5.64 | 6.30 | 1.59 | 1.84 |
| -15 (+ 5) | 1279 | 322 | 375 | 179 | 0.93 | 7.30 | 7.13 | 1.80 | 2.09 |
| -10 (+14) | 1618 | 408 | 474 | 201 | 1.05 | 9.27 | 8.05 | 2.03 | 2.36 |

| | | | | | | | | | |
|-------------------------------|----------------------------|----------|--------------------|--------------------------------|--|----------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS: @220V50Hz | | | ASHRAE32 Static | | (Condensing temperature 55°C (+131°F)) | | | | |
| Evaporating temperature | Cooling capacity +/- 5% | | | Power consumption +/- 5% | Current consumption +/- 5% | Gas flow rate +/- 5% | EFFICIENCY RATE +/- 7% | | |
| °C (°F) | [Btu/h] | [kcal/h] | [W] | [W] | [A] | [kg/h] | [Btu/Wh] | [kcal/Wh] | [W/W] |
| -35 (-31) | 355 | 89 | 104 | 97 | 0.51 | 2.01 | 3.62 | 0.91 | 1.06 |
| -30 (-22) | 500 | 126 | 146 | 115 | 0.64 | 2.83 | 4.35 | 1.10 | 1.27 |
| -25 (-13) | 682 | 172 | 200 | 136 | 0.76 | 3.87 | 5.03 | 1.27 | 1.47 |
| -20 (- 4) | 907 | 229 | 266 | 160 | 0.89 | 5.16 | 5.69 | 1.43 | 1.67 |
| -15 (+ 5) | 1178 | 297 | 345 | 186 | 1.01 | 6.73 | 6.36 | 1.60 | 1.86 |
| -10 (+14) | 1501 | 378 | 440 | 211 | 1.14 | 8.60 | 7.10 | 1.79 | 2.08 |

E - PERFORMANCE - CURVES

| TEST CONDITIONS: | | ASHRAE32 | | | (Condensing temperature 65°C (+149°F)) | | | | | |
|-------------------------|------------------|----------|-----|-------------------|--|---------------|-----------------|-----------|-------|--|
| @220V50Hz | | Static | | | | | | | | |
| Evaporating temperature | Cooling capacity | | | Power consumption | Current consumption | Gas flow rate | EFFICIENCY RATE | | | |
| | +/- 5% | | | | | | +/- 7% | | | |
| °C (°F) | [Btu/h] | [kcal/h] | [W] | [W] | [A] | [kg/h] | [Btu/Wh] | [kcal/Wh] | [W/W] | |
| -35 (-31) | 264 | 67 | 77 | 90 | 0.47 | 1.49 | 2.96 | 0.74 | 0.87 | |
| -30 (-22) | 411 | 104 | 121 | 110 | 0.60 | 2.33 | 3.74 | 0.94 | 1.10 | |
| -25 (-13) | 596 | 150 | 175 | 134 | 0.74 | 3.38 | 4.44 | 1.12 | 1.30 | |
| -20 (- 4) | 822 | 207 | 241 | 162 | 0.88 | 4.68 | 5.08 | 1.28 | 1.49 | |
| -15 (+ 5) | 1095 | 276 | 321 | 192 | 1.02 | 6.25 | 5.71 | 1.44 | 1.67 | |
| -10 (+14) | 1419 | 358 | 416 | 223 | 1.16 | 8.13 | 6.36 | 1.60 | 1.86 | |

| TEST CONDITIONS: | | ASHRAE32 | | | (Condensing temperature 45°C (+113°F)) | | | | | |
|-------------------------|------------------|----------|-----|-------------------|--|---------------|-----------------|-----------|-------|--|
| @220V60Hz | | Static | | | | | | | | |
| Evaporating temperature | Cooling capacity | | | Power consumption | Current consumption | Gas flow rate | EFFICIENCY RATE | | | |
| | +/- 5% | | | | | | +/- 7% | | | |
| °C (°F) | [Btu/h] | [kcal/h] | [W] | [W] | [A] | [kg/h] | [Btu/Wh] | [kcal/Wh] | [W/W] | |
| -35 (-31) | 474 | 119 | 139 | 117 | 0.53 | 2.68 | 4.03 | 1.02 | 1.18 | |
| -30 (-22) | 684 | 172 | 200 | 137 | 0.63 | 3.88 | 4.98 | 1.25 | 1.46 | |
| -25 (-13) | 922 | 232 | 270 | 160 | 0.73 | 5.24 | 5.77 | 1.45 | 1.69 | |
| -20 (- 4) | 1202 | 303 | 352 | 186 | 0.84 | 6.84 | 6.49 | 1.64 | 1.90 | |
| -15 (+ 5) | 1536 | 387 | 450 | 213 | 0.95 | 8.77 | 7.23 | 1.82 | 2.12 | |
| -10 (+14) | 1937 | 488 | 568 | 240 | 1.08 | 11.10 | 8.07 | 2.03 | 2.36 | |

| TEST CONDITIONS: | | ASHRAE32 | | | (Condensing temperature 55°C (+131°F)) | | | | | |
|-------------------------|------------------|----------|-----|-------------------|--|---------------|-----------------|-----------|-------|--|
| @220V60Hz | | Static | | | | | | | | |
| Evaporating temperature | Cooling capacity | | | Power consumption | Current consumption | Gas flow rate | EFFICIENCY RATE | | | |
| | +/- 5% | | | | | | +/- 7% | | | |
| °C (°F) | [Btu/h] | [kcal/h] | [W] | [W] | [A] | [kg/h] | [Btu/Wh] | [kcal/Wh] | [W/W] | |
| -35 (-31) | 394 | 99 | 115 | 117 | 0.54 | 2.23 | 3.38 | 0.85 | 0.99 | |
| -30 (-22) | 593 | 150 | 174 | 138 | 0.64 | 3.36 | 4.28 | 1.08 | 1.25 | |
| -25 (-13) | 824 | 208 | 241 | 164 | 0.75 | 4.68 | 5.02 | 1.26 | 1.47 | |
| -20 (- 4) | 1097 | 276 | 321 | 193 | 0.87 | 6.24 | 5.68 | 1.43 | 1.66 | |
| -15 (+ 5) | 1426 | 359 | 418 | 225 | 1.00 | 8.14 | 6.33 | 1.60 | 1.86 | |
| -10 (+14) | 1824 | 460 | 535 | 257 | 1.15 | 10.45 | 7.08 | 1.78 | 2.07 | |

| TEST CONDITIONS: | | ASHRAE32 | | | (Condensing temperature 65°C (+149°F)) | | | | | |
|-------------------------|------------------|----------|-----|-------------------|--|---------------|-----------------|-----------|-------|--|
| @220V60Hz | | Static | | | | | | | | |
| Evaporating temperature | Cooling capacity | | | Power consumption | Current consumption | Gas flow rate | EFFICIENCY RATE | | | |
| | +/- 5% | | | | | | +/- 7% | | | |
| °C (°F) | [Btu/h] | [kcal/h] | [W] | [W] | [A] | [kg/h] | [Btu/Wh] | [kcal/Wh] | [W/W] | |
| -35 (-31) | 318 | 80 | 93 | 108 | 0.49 | 1.80 | 2.94 | 0.74 | 0.86 | |
| -30 (-22) | 502 | 127 | 147 | 132 | 0.60 | 2.85 | 3.80 | 0.96 | 1.11 | |
| -25 (-13) | 719 | 181 | 211 | 161 | 0.73 | 4.08 | 4.48 | 1.13 | 1.31 | |
| -20 (- 4) | 981 | 247 | 288 | 194 | 0.86 | 5.58 | 5.06 | 1.28 | 1.48 | |
| -15 (+ 5) | 1301 | 328 | 381 | 230 | 1.02 | 7.43 | 5.64 | 1.42 | 1.65 | |
| -10 (+14) | 1691 | 426 | 496 | 268 | 1.20 | 9.69 | 6.29 | 1.59 | 1.84 | |

F - EXTERNAL CHARACTERISTICS

| | | | |
|-------------------------|-----------------|------|--------------------------|
| 1 Base plate | Universal EG/F | | |
| 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 | 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 | | |