

COMPRESSOR DEFINITION

| | |
|---------------------------|-----------------------|
| Designation | EM I40HNP |
| Nominal Voltage/Frequency | 100 V 50-60 Hz |
| Engineering Number | 513302005 |

A - APPLICATION / LIMIT WORKING CONDITIONS

| | | | |
|--|-----------------------------------|-----------------------------------|-------------|
| 1 Type | Hermetic reciprocating compressor | | |
| 2 Refrigerant | R-134a | | |
| 3 Nominal voltage and frequency | 100 / 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 | 85 to 110 V | 85 to 110 V |
| 8.2 LBP (43°C Ambient temperature) | Static | 85 to 110 V | 85 to 110 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 | 1/8 | [hp] |
| 2 Displacement | 3.77 | [cm ³] (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) | 7.05 | [kg] (15.54 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 | 100 V 50-60 Hz 1 ~ (Single phase) | |
| 2 Starting device type | PTC | |
| 2.1 Starting device | 490C814R7/7M4R7MC1/8EA14C1/8EA4B1 | |
| 3 Start capacitor | - | [µF(VAC minimum)] |
| 4 Run capacitor | - | [µF(VAC minimum)] |
| 5 Motor protection | 4TM319RFBYY-53 | |
| 6 Start winding resistance | 10.60 | [Ω at 25°C (77°F)] +/- 8% |
| 7 Run winding resistance | 4.65 | [Ω at 25°C (77°F)] +/- 8% |
| 8 LRA - Locked rotor amperage (50/60 Hz) | 10.50/10.00 | [A] - Measured according to UL 984 |
| 9 FLA - Full load amperage L/MBP (50/60 Hz) | 2.20/1.20 | [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 | | |

D - PERFORMANCE - CHECK POINT DATA

| | | | | | | | | |
|-------------------------------|----------|-----|--------------------------------|----------------------------------|--|---------------------------|--|-------|
| TEST CONDITIONS: @100V50Hz | | | 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] |
| 320 | 81 | 94 | 98 | 1.80 | 1.82 | 3.27 | 0.82 | 0.96 |

| | | | | | | | | |
|-------------------------------|----------|-----|--------------------------------|----------------------------------|--|---------------------------|--|-------|
| TEST CONDITIONS: @100V60Hz | | | 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] |
| 380 | 96 | 111 | 104 | 1.60 | 2.16 | 3.65 | 0.92 | 1.07 |

E - PERFORMANCE - CURVES

| | | | | | | | | | |
|-------------------------------|----------------------------|----------|--------------------|--------------------------------|--|----------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS: @100V50Hz | | | 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) | 160 | 40 | 47 | 75 | 1.75 | 0.90 | 2.14 | 0.54 | 0.63 |
| -30 (-22) | 236 | 59 | 69 | 85 | 1.77 | 1.34 | 2.79 | 0.70 | 0.82 |
| -25 (-13) | 328 | 83 | 96 | 94 | 1.79 | 1.86 | 3.50 | 0.88 | 1.03 |
| -20 (- 4) | 440 | 111 | 129 | 103 | 1.82 | 2.50 | 4.28 | 1.08 | 1.25 |
| -15 (+ 5) | 575 | 145 | 168 | 112 | 1.85 | 3.28 | 5.12 | 1.29 | 1.50 |
| -10 (+14) | 736 | 186 | 216 | 122 | 1.89 | 4.22 | 6.03 | 1.52 | 1.77 |

| | | | | | | | | | |
|-------------------------------|----------------------------|----------|--------------------|--------------------------------|--|----------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS: @100V50Hz | | | 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) | 123 | 31 | 36 | 72 | 1.74 | 0.69 | 1.69 | 0.43 | 0.50 |
| -30 (-22) | 197 | 50 | 58 | 83 | 1.78 | 1.12 | 2.37 | 0.60 | 0.69 |
| -25 (-13) | 287 | 72 | 84 | 94 | 1.81 | 1.63 | 3.07 | 0.77 | 0.90 |
| -20 (- 4) | 396 | 100 | 116 | 105 | 1.85 | 2.25 | 3.80 | 0.96 | 1.11 |
| -15 (+ 5) | 528 | 133 | 155 | 116 | 1.90 | 3.01 | 4.56 | 1.15 | 1.34 |
| -10 (+14) | 686 | 173 | 201 | 128 | 1.96 | 3.93 | 5.35 | 1.35 | 1.57 |

E - PERFORMANCE - CURVES

| TEST CONDITIONS: @100V50Hz | | ASHRAE32 Static | | | (Condensing temperature 65°C (+149°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) | 57 | 14 | 17 | 64 | 1.70 | 0.32 | 0.91 | 0.23 | 0.27 | |
| -30 (-22) | 134 | 34 | 39 | 77 | 1.75 | 0.76 | 1.71 | 0.43 | 0.50 | |
| -25 (-13) | 225 | 57 | 66 | 89 | 1.79 | 1.28 | 2.50 | 0.63 | 0.73 | |
| -20 (- 4) | 335 | 84 | 98 | 102 | 1.84 | 1.91 | 3.29 | 0.83 | 0.96 | |
| -15 (+ 5) | 467 | 118 | 137 | 115 | 1.90 | 2.67 | 4.06 | 1.02 | 1.19 | |
| -10 (+14) | 624 | 157 | 183 | 129 | 1.97 | 3.58 | 4.83 | 1.22 | 1.41 | |

| TEST CONDITIONS: @100V60Hz | | 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) | 196 | 49 | 58 | 75 | 1.40 | 1.11 | 2.61 | 0.66 | 0.76 | |
| -30 (-22) | 289 | 73 | 85 | 86 | 1.44 | 1.64 | 3.38 | 0.85 | 0.99 | |
| -25 (-13) | 398 | 100 | 117 | 98 | 1.50 | 2.26 | 4.07 | 1.03 | 1.19 | |
| -20 (- 4) | 528 | 133 | 155 | 111 | 1.59 | 3.01 | 4.75 | 1.20 | 1.39 | |
| -15 (+ 5) | 686 | 173 | 201 | 125 | 1.69 | 3.91 | 5.48 | 1.38 | 1.61 | |
| -10 (+14) | 875 | 220 | 256 | 138 | 1.82 | 5.01 | 6.32 | 1.59 | 1.85 | |

| TEST CONDITIONS: @100V60Hz | | 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) | 142 | 36 | 42 | 73 | 1.40 | 0.80 | 1.95 | 0.49 | 0.57 | |
| -30 (-22) | 241 | 61 | 71 | 85 | 1.46 | 1.37 | 2.86 | 0.72 | 0.84 | |
| -25 (-13) | 355 | 89 | 104 | 99 | 1.54 | 2.01 | 3.61 | 0.91 | 1.06 | |
| -20 (- 4) | 487 | 123 | 143 | 114 | 1.64 | 2.77 | 4.27 | 1.08 | 1.25 | |
| -15 (+ 5) | 644 | 162 | 189 | 131 | 1.76 | 3.67 | 4.91 | 1.24 | 1.44 | |
| -10 (+14) | 829 | 209 | 243 | 148 | 1.90 | 4.75 | 5.59 | 1.41 | 1.64 | |

| TEST CONDITIONS: @100V60Hz | | ASHRAE32 Static | | | (Condensing temperature 65°C (+149°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) | 71 | 18 | 21 | 60 | 1.35 | 0.40 | 1.19 | 0.30 | 0.35 | |
| -30 (-22) | 174 | 44 | 51 | 74 | 1.42 | 0.98 | 2.29 | 0.58 | 0.67 | |
| -25 (-13) | 288 | 72 | 84 | 90 | 1.50 | 1.63 | 3.16 | 0.80 | 0.93 | |
| -20 (- 4) | 418 | 105 | 123 | 109 | 1.62 | 2.38 | 3.86 | 0.97 | 1.13 | |
| -15 (+ 5) | 571 | 144 | 167 | 128 | 1.74 | 3.26 | 4.47 | 1.13 | 1.31 | |
| -10 (+14) | 750 | 189 | 220 | 149 | 1.89 | 4.29 | 5.04 | 1.27 | 1.48 | |

F - EXTERNAL CHARACTERISTICS

| | | | |
|-------------------------|--------------------------------|------|--------------------------|
| 1 Base plate | European Standard | | |
| 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 | Slanted parallel to Base Plate | | |
| 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 parallel to Base Plate | | |
| 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 | Slanted parallel to Base Plate | | |
| 3.4 Oil cooler (Copper) | No | [mm] | |
| 3.5 Connector sealing | Rubber Plugs | | |