

COMPRESSOR DEFINITION

| | |
|---------------------------|-------------|
| Designation | EM IS20HHR |
| Nominal Voltage/Frequency | 220 V 60 Hz |
| Engineering Number | 513305053 |

A - APPLICATION / LIMIT WORKING CONDITIONS

| | | | |
|------------------------------------|-----------------------------------|-----------------------------------|--------------|
| 1 Type | Hermetic reciprocating compressor | | |
| 2 Refrigerant | R-134a | | |
| 3 Nominal voltage and frequency | 220 / 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 | - | 198 to 242 V |
| 8.2 LBP (43°C Ambient temperature) | Static | - | 198 to 242 V |
| 8.3 HBP (32°C Ambient temperature) | Fan | - | 198 to 242 V |
| 8.4 HBP (43°C Ambient temperature) | Fan | - | 198 to 242 V |
| 9 Maximum condensing temperature | | | |
| 9.1 Operating | 14.2 | [kgf/cm ²] (202 psig) | / °C - °F |
| 9.2 Peak | 15.9 | [kgf/cm ²] (226 psig) | / °C - °F |
| 10 Maximum winding temperature | 130 | [°C] | |

B - MECHANICAL DATA

| | | |
|-------------------------------|---------------|--|
| 1 Commercial designation | 1/12 | [hp] |
| 2 Displacement | 2.27 | [cm ³] (0.139 cu.in) |
| 2.1 Bore [mm] | 19.000 | |
| 2.2 Stroke [mm] | 8.000 | |
| 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) | 6.81 | [kg] (15.01 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 V 60 Hz 1 ~ (Single phase) | |
| 2 Starting device type | Current Relay | |
| 2.1 Starting device | 213514000/213515006 | |
| 3 Start capacitor | 72-88(180) | [μF(VAC minimum)] |
| 4 Run capacitor | - | [μF(VAC minimum)] |
| 5 Motor protection | 4TM718KDBYY-53 | |
| 6 Start winding resistance | 32.00 | [Ω at 25°C (77°F)] +/- 8% |
| 7 Run winding resistance | 38.20 | [Ω at 25°C (77°F)] +/- 8% |
| 8 LRA - Locked rotor amperage (60 Hz) | 9.10 | [A] - Measured according to UL 984 |
| 9 FLA - Full load amperage L/MBP (60 Hz) | 0.76 | [A] - Measured according to UL 984 |
| 10 FLA - Full Load Amperage HBP (60 Hz) | 0.82 | [A] - Measured according to UL 984 |
| 11 Approval boards certification | CE - TUV - UKCA | |

D - PERFORMANCE - CHECK POINT DATA

| | | | | | | | | | |
|-------------------------------|----------|-----|-----------------------------|-------------------------------|---|---------------------------|--------------------------------------|-------|--|
| TEST CONDITIONS: @220V60Hz | | | ASHRAEHBP32 Fan | | Evaporating temperature (Condensing temperature) | | 7.2°C (44.96°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] | |
| 1050 | 265 | 308 | 130 | 0.78 | | 8.07 | 2.03 | 2.36 | |

| | | | | | | | | | |
|-------------------------------|----------|-----|-----------------------------|-------------------------------|---|---------------------------|--|-------|--|
| 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] | |
| 196 | 49 | 57 | 71 | 0.61 | 1.11 | 2.77 | 0.70 | 0.81 | |

E - PERFORMANCE - CURVES

| | | | | | | | | | |
|-------------------------------|----------------------------|----------|-----------------|-----------------------------|---------------------------------------|-------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS: @220V60Hz | | | ASHRAE32 Fan | | (Condensing temperature 35°C (+95°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) | 146 | 37 | 43 | 60 | 0.60 | 0.83 | 2.40 | 0.60 | 0.70 |
| -30 (-22) | 190 | 48 | 56 | 66 | 0.61 | 1.08 | 2.87 | 0.72 | 0.84 |
| -25 (-13) | 252 | 63 | 74 | 72 | 0.62 | 1.43 | 3.49 | 0.88 | 1.02 |
| -20 (- 4) | 332 | 84 | 97 | 77 | 0.63 | 1.89 | 4.27 | 1.08 | 1.25 |
| -15 (+ 5) | 434 | 109 | 127 | 83 | 0.65 | 2.47 | 5.21 | 1.31 | 1.53 |
| -10 (+14) | 559 | 141 | 164 | 89 | 0.66 | 3.20 | 6.31 | 1.59 | 1.85 |
| -5 (+23) | 709 | 179 | 208 | 94 | 0.67 | 4.08 | 7.58 | 1.91 | 2.22 |
| 0 (+32) | 887 | 223 | 260 | 99 | 0.68 | 5.13 | 9.04 | 2.28 | 2.65 |
| +5 (+41) | 1094 | 276 | 321 | 103 | 0.69 | 6.37 | 10.68 | 2.69 | 3.13 |
| +10 (+50) | 1333 | 336 | 391 | 107 | 0.71 | 7.81 | 12.52 | 3.15 | 3.67 |
| +15 (+59) | 1606 | 405 | 470 | 110 | 0.72 | 9.48 | 14.55 | 3.67 | 4.26 |

| | | | | | | | | | |
|-------------------------------|----------------------------|----------|-----------------|-----------------------------|--|-------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS: @220V60Hz | | | ASHRAE32 Fan | | (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) | 102 | 26 | 30 | 59 | 0.60 | 0.57 | 1.80 | 0.45 | 0.53 |
| -30 (-22) | 149 | 38 | 44 | 65 | 0.61 | 0.85 | 2.35 | 0.59 | 0.69 |
| -25 (-13) | 212 | 53 | 62 | 71 | 0.62 | 1.21 | 3.00 | 0.76 | 0.88 |
| -20 (- 4) | 292 | 74 | 86 | 78 | 0.63 | 1.66 | 3.73 | 0.94 | 1.09 |
| -15 (+ 5) | 392 | 99 | 115 | 85 | 0.65 | 2.24 | 4.57 | 1.15 | 1.34 |
| -10 (+14) | 514 | 129 | 151 | 92 | 0.66 | 2.94 | 5.52 | 1.39 | 1.62 |
| -5 (+23) | 659 | 166 | 193 | 99 | 0.68 | 3.79 | 6.58 | 1.66 | 1.93 |
| 0 (+32) | 830 | 209 | 243 | 106 | 0.70 | 4.80 | 7.76 | 1.96 | 2.27 |
| +5 (+41) | 1028 | 259 | 301 | 113 | 0.72 | 5.98 | 9.07 | 2.28 | 2.66 |
| +10 (+50) | 1257 | 317 | 368 | 120 | 0.75 | 7.36 | 10.51 | 2.65 | 3.08 |
| +15 (+59) | 1517 | 382 | 444 | 126 | 0.77 | 8.95 | 12.09 | 3.05 | 3.54 |

E - PERFORMANCE - CURVES

| TEST CONDITIONS: @220V60Hz | | ASHRAE32 Fan | | | (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) | 62 | 16 | 18 | 56 | 0.60 | 0.35 | 1.12 | 0.28 | 0.33 |
| -30 | (-22) | 111 | 28 | 33 | 62 | 0.61 | 0.63 | 1.80 | 0.45 | 0.53 |
| -25 | (-13) | 174 | 44 | 51 | 69 | 0.62 | 0.99 | 2.51 | 0.63 | 0.74 |
| -20 | (- 4) | 253 | 64 | 74 | 77 | 0.63 | 1.44 | 3.26 | 0.82 | 0.95 |
| -15 | (+ 5) | 349 | 88 | 102 | 86 | 0.65 | 1.99 | 4.04 | 1.02 | 1.18 |
| -10 | (+14) | 466 | 117 | 136 | 94 | 0.67 | 2.66 | 4.88 | 1.23 | 1.43 |
| -5 | (+23) | 604 | 152 | 177 | 104 | 0.70 | 3.47 | 5.76 | 1.45 | 1.69 |
| 0 | (+32) | 766 | 193 | 224 | 113 | 0.72 | 4.43 | 6.71 | 1.69 | 1.97 |
| +5 | (+41) | 954 | 240 | 280 | 123 | 0.75 | 5.55 | 7.73 | 1.95 | 2.27 |
| +10 | (+50) | 1170 | 295 | 343 | 133 | 0.79 | 6.86 | 8.82 | 2.22 | 2.59 |
| +15 | (+59) | 1417 | 357 | 415 | 143 | 0.83 | 8.36 | 10.00 | 2.52 | 2.93 |

| TEST CONDITIONS: @220V60Hz | | ASHRAE32 Fan | | | (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) | 17 | 4 | 5 | 49 | 0.60 | 0.09 | 0.32 | 0.08 | 0.09 |
| -30 | (-22) | 66 | 17 | 19 | 56 | 0.61 | 0.38 | 1.17 | 0.30 | 0.34 |
| -25 | (-13) | 128 | 32 | 37 | 64 | 0.62 | 0.73 | 1.99 | 0.50 | 0.58 |
| -20 | (- 4) | 203 | 51 | 60 | 73 | 0.63 | 1.16 | 2.79 | 0.70 | 0.82 |
| -15 | (+ 5) | 295 | 74 | 86 | 83 | 0.65 | 1.68 | 3.57 | 0.90 | 1.05 |
| -10 | (+14) | 405 | 102 | 119 | 94 | 0.68 | 2.31 | 4.33 | 1.09 | 1.27 |
| -5 | (+23) | 534 | 135 | 157 | 105 | 0.71 | 3.07 | 5.10 | 1.28 | 1.49 |
| 0 | (+32) | 686 | 173 | 201 | 118 | 0.74 | 3.96 | 5.86 | 1.48 | 1.72 |
| +5 | (+41) | 862 | 217 | 253 | 130 | 0.78 | 5.02 | 6.63 | 1.67 | 1.94 |
| +10 | (+50) | 1065 | 268 | 312 | 143 | 0.83 | 6.24 | 7.42 | 1.87 | 2.17 |
| +15 | (+59) | 1296 | 327 | 380 | 157 | 0.88 | 7.65 | 8.23 | 2.07 | 2.41 |

F - EXTERNAL CHARACTERISTICS

| | | | |
|-------------------------|---------------------------------------|------|--------------------------|
| 1 Base plate | European Standard 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 | 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 | | |