

COMPRESSOR DEFINITION

| | |
|---------------------------|-------------|
| Designation | EM 2S30HLR |
| Nominal Voltage/Frequency | 220 V 60 Hz |
| Engineering Number | 513304630 |

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 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 242 V |
| 8.2 LBP (43°C Ambient temperature) | Static | - | 198 to 242 V |
| 8.3 HBP (32°C Ambient temperature) | - | - | - |
| 8.4 HBP (43°C Ambient temperature) | - | - | - |
| 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 | 1/10 | [hp] |
| 2 Displacement | 3.00 | [cm ³] (0.183 cu.in) |
| 2.1 Bore [mm] | 19.000 | |
| 2.2 Stroke [mm] | 10.600 | |
| 3 Lubricant charge | 150 | [ml] (5.07 fl.oz.) |
| 3.1 Lubricants approved | | |
| 3.2 Lubricants type/viscosity | ESTER / ISO10 | |
| 4 Weight (with oil charge) | 7.13 | [kg] (15.72 lb.) |
| 5 Nitrogen charge | 0.2 to 0.3 | [kgf/cm ²] (2.84 to 4.27 psig) |

C - ELECTRICAL 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 | 213514164 | |
| 3 Start capacitor | - | [µF(VAC minimum)] |
| 4 Run capacitor | - | [µF(VAC minimum)] |
| 5 Motor protection | 4TM283JDBYY | |
| 6 Start winding resistance | 32.83 | [Ω at 25°C (77°F)] +/- 8% |
| 7 Run winding resistance | 27.20 | [Ω at 25°C (77°F)] +/- 8% |
| 8 LRA - Locked rotor amperage (60 Hz) | 8.72 | [A] - Measured according to UL 984 |
| 9 FLA - Full load amperage L/MBP (60 Hz) | 0.59 | [A] - Measured according to UL 984 |
| 10 FLA - Full Load Amperage HBP (60 Hz) | 0.71 | [A] - Measured according to UL 984 |
| 11 Approval boards certification | CE - TUV - UKCA | |

D - PERFORMANCE - CHECK POINT DATA

| TEST CONDITIONS: @220V60Hz | | | ASHRAELBP32 Static | | Evaporating temperature (Condensing temperature | | -23.3°C (-9.94°F) 54.4°C (129.92°F) | |
|---------------------------------|----------|-----|-------------------------------|-------------------------------|--|--------------------------------|--|-------|
| Cooling capacity (Qe) +/- 5% | | | Input power (We) +/- 5% | Electric current +/- 5% | Mass flow rate +/- 5% | Efficiency EER & COP +/- 7% | | |
| [Btu/h] | [kcal/h] | [W] | [W] | [A] | [kg/h] | [Btu/Wh] | [kcal/Wh] | [W/W] |
| 330 | 83 | 97 | 72 | 0.54 | 1.88 | 4.60 | 1.16 | 1.35 |

E - PERFORMANCE - CURVES

| TEST CONDITIONS: @220V60Hz | | | ASHRAE32 Static | | (Condensing temperature 35°C (+95°F)) | | | | | |
|-------------------------------|-------|---------------------------------|--------------------|-----|--|----------------------------|-----------------------------|--------------------------------|-----------|-------|
| Evaporating temperature | | Cooling capacity (Qe) +/- 5% | | | Input power (We) +/- 5% | Electric current +/- 5% | Mass flow rate +/- 5% | Efficiency EER & COP +/- 7% | | |
| °C | (°F) | [Btu/h] | [kcal/h] | [W] | [W] | [A] | [kg/h] | [Btu/Wh] | [kcal/Wh] | [W/W] |
| -35 | (-31) | 191 | 48 | 56 | 43 | 0.48 | 1.08 | 4.42 | 1.11 | 1.30 |
| -30 | (-22) | 261 | 66 | 76 | 53 | 0.50 | 1.48 | 4.96 | 1.25 | 1.45 |
| -25 | (-13) | 354 | 89 | 104 | 63 | 0.52 | 2.01 | 5.68 | 1.43 | 1.67 |
| -20 | (- 4) | 472 | 119 | 138 | 72 | 0.54 | 2.69 | 6.60 | 1.66 | 1.93 |
| -15 | (+ 5) | 618 | 156 | 181 | 80 | 0.57 | 3.53 | 7.69 | 1.94 | 2.25 |
| -10 | (+14) | 793 | 200 | 233 | 88 | 0.59 | 4.55 | 8.97 | 2.26 | 2.63 |

| TEST CONDITIONS: @220V60Hz | | | ASHRAE32 Static | | (Condensing temperature 45°C (+113°F)) | | | | | |
|-------------------------------|-------|---------------------------------|--------------------|-----|---|----------------------------|-----------------------------|--------------------------------|-----------|-------|
| Evaporating temperature | | Cooling capacity (Qe) +/- 5% | | | Input power (We) +/- 5% | Electric current +/- 5% | Mass flow rate +/- 5% | Efficiency EER & COP +/- 7% | | |
| °C | (°F) | [Btu/h] | [kcal/h] | [W] | [W] | [A] | [kg/h] | [Btu/Wh] | [kcal/Wh] | [W/W] |
| -35 | (-31) | 166 | 42 | 49 | 47 | 0.49 | 0.94 | 3.51 | 0.89 | 1.03 |
| -30 | (-22) | 237 | 60 | 69 | 57 | 0.51 | 1.34 | 4.18 | 1.05 | 1.23 |
| -25 | (-13) | 328 | 83 | 96 | 66 | 0.53 | 1.86 | 4.95 | 1.25 | 1.45 |
| -20 | (- 4) | 441 | 111 | 129 | 76 | 0.55 | 2.51 | 5.81 | 1.47 | 1.70 |
| -15 | (+ 5) | 579 | 146 | 170 | 85 | 0.58 | 3.31 | 6.77 | 1.71 | 1.98 |
| -10 | (+14) | 743 | 187 | 218 | 95 | 0.62 | 4.26 | 7.82 | 1.97 | 2.29 |

| TEST CONDITIONS: @220V60Hz | | | ASHRAE32 Static | | (Condensing temperature 55°C (+131°F)) | | | | | |
|-------------------------------|-------|---------------------------------|--------------------|-----|---|----------------------------|-----------------------------|--------------------------------|-----------|-------|
| Evaporating temperature | | Cooling capacity (Qe) +/- 5% | | | Input power (We) +/- 5% | Electric current +/- 5% | Mass flow rate +/- 5% | Efficiency EER & COP +/- 7% | | |
| °C | (°F) | [Btu/h] | [kcal/h] | [W] | [W] | [A] | [kg/h] | [Btu/Wh] | [kcal/Wh] | [W/W] |
| -35 | (-31) | 127 | 32 | 37 | 50 | 0.49 | 0.72 | 2.55 | 0.64 | 0.75 |
| -30 | (-22) | 201 | 51 | 59 | 59 | 0.51 | 1.14 | 3.39 | 0.85 | 0.99 |
| -25 | (-13) | 292 | 74 | 86 | 68 | 0.53 | 1.66 | 4.24 | 1.07 | 1.24 |
| -20 | (- 4) | 401 | 101 | 118 | 79 | 0.56 | 2.28 | 5.09 | 1.28 | 1.49 |
| -15 | (+ 5) | 532 | 134 | 156 | 89 | 0.60 | 3.04 | 5.95 | 1.50 | 1.74 |
| -10 | (+14) | 686 | 173 | 201 | 101 | 0.64 | 3.93 | 6.80 | 1.71 | 1.99 |

E - PERFORMANCE - CURVES

| TEST CONDITIONS: @220V60Hz | | ASHRAE32 Static | | | (Condensing temperature 65°C (+149°F)) | | | | | |
|-------------------------------|-------|---------------------------------|----------|-----|--|----------------------------|--------------------------|--------------------------------|-----------|-------|
| Evaporating temperature | | Cooling capacity (Qe) +/- 5% | | | Input power (We) +/- 5% | Electric current +/- 5% | Mass flow rate +/- 5% | Efficiency EER & COP +/- 7% | | |
| °C | (°F) | [Btu/h] | [kcal/h] | [W] | [W] | [A] | [kg/h] | [Btu/Wh] | [kcal/Wh] | [W/W] |
| -35 | (-31) | 76 | 19 | 22 | 51 | 0.49 | 0.43 | 1.47 | 0.37 | 0.43 |
| -30 | (-22) | 154 | 39 | 45 | 60 | 0.51 | 0.87 | 2.53 | 0.64 | 0.74 |
| -25 | (-13) | 245 | 62 | 72 | 70 | 0.54 | 1.39 | 3.51 | 0.88 | 1.03 |
| -20 | (- 4) | 352 | 89 | 103 | 81 | 0.57 | 2.00 | 4.39 | 1.11 | 1.29 |
| -15 | (+ 5) | 477 | 120 | 140 | 93 | 0.61 | 2.72 | 5.19 | 1.31 | 1.52 |
| -10 | (+14) | 622 | 157 | 182 | 106 | 0.66 | 3.56 | 5.89 | 1.48 | 1.72 |

F - EXTERNAL CHARACTERISTICS

| | | | |
|-------------------------|------------------------------|------|--------------------------|
| 1 Base plate | European Standard EUEM | | |
| 2 Tray holder | Yes | | |
| 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 42° up + 45° to Back | | |
| 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 30° up + 24° to Back | | |
| 3.3 PROCESS | 6.35 +0.08/-0.08 | [mm] | (0.250" +0.003"/-0.003") |
| 3.3.1 Material | Copper(OD) | | |
| 3.3.2 Shape | Slanted 43° up + 45° to Back | | |
| 3.4 Oil cooler (Copper) | No | [mm] | |
| 3.5 Connector sealing | Rubber Plugs | | |