

COMPRESSOR DEFINITION

| | |
|---------------------------|-----------------|
| Designation | EM 2U3121U |
| Nominal Voltage/Frequency | 220-240 V 50 Hz |
| Engineering Number | 513304161 |

A - APPLICATION / LIMIT WORKING CONDITIONS

| | | | |
|------------------------------------|--|-----------------------------------|-----------|
| 1 Type | Hermetic reciprocating compressor | | |
| 2 Refrigerant | R-290 | | |
| 3 Nominal voltage and frequency | 220-240 / 50 | [V / Hz] | |
| 4 Application type | Low-Medium Back Pressure (Light Commercial - Curves until T.Evap - | | |
| 4.1 Evaporating temperature range | -40°C to 0°C | (-40°F to 32°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 | - |
| 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 temperature | | | |
| 9.1 Operating | 18.4 | [kgf/cm ²] (262 psig) | / °C - °F |
| 9.2 Peak | 20.6 | [kgf/cm ²] (293 psig) | / °C - °F |
| 10 Maximum winding temperature | 130 | [°C] | |

B - MECHANICAL DATA

| | | |
|-------------------------------|-----------------|--|
| 1 Commercial designation | 1/3 | [hp] |
| 2 Displacement | 5.54 | [cm ³] (0.338 cu.in) |
| 2.1 Bore [mm] | 21.000 | |
| 2.2 Stroke [mm] | 16.000 | |
| 3 Lubricant charge | 180 | [ml] (6.09 fl.oz.) |
| 3.1 Lubricants approved | | |
| 3.2 Lubricants type/viscosity | ALQUILB / ISO22 | |
| 4 Weight (with oil charge) | 8.05 | [kg] (17.75 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 | 220-240 V 50 Hz 1 ~ (Single phase) | |
| 2 Starting device type | PTC | |
| 2.1 Starting device | 8EA17C3/QPS2-A22MD3 | |
| 3 Start capacitor | - | [µF(VAC minimum)] |
| 4 Run capacitor | 5(346) | [µF(VAC minimum)] |
| 5 Motor protection | 4TM283KFBYY-53 | |
| 6 Start winding resistance | 29.64 | [Ω at 25°C (77°F)] +/- 8% |
| 7 Run winding resistance | 17.59 | [Ω at 25°C (77°F)] +/- 8% |
| 8 LRA - Locked rotor amperage (50 Hz) | 6.77 | [A] - Measured according to UL 984 |
| 9 FLA - Full load amperage L/MBP (50 Hz) | 0.87 | [A] - Measured according to UL 984 |
| 10 FLA - Full Load Amperage HBP (50 Hz) | 1.05 | [A] - Measured according to UL 984 |
| 11 Approval boards certification | CE - IRAM - UKCA | |

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 (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] |
| 909 | 229 | 266 | 169 | 0.81 | 2.71 | 5.37 | 1.35 | 1.57 |

| TEST CONDITIONS: @220V50Hz | | | ASHRAELBP32 Fan | | 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] |
| 945 | 238 | 277 | 170 | 0.82 | 2.81 | 5.56 | 1.40 | 1.63 |

E - PERFORMANCE - CURVES

| TEST CONDITIONS: @220V50Hz | | 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] |
| -40 | (-40) | 475 | 120 | 139 | 108 | 0.56 | 1.40 | 4.39 | 1.11 | 1.29 |
| -35 | (-31) | 604 | 152 | 177 | 121 | 0.61 | 1.79 | 4.99 | 1.26 | 1.46 |
| -30 | (-22) | 766 | 193 | 224 | 134 | 0.66 | 2.27 | 5.71 | 1.44 | 1.67 |
| -25 | (-13) | 963 | 243 | 282 | 147 | 0.72 | 2.86 | 6.56 | 1.65 | 1.92 |
| -20 | (- 4) | 1197 | 302 | 351 | 159 | 0.77 | 3.57 | 7.55 | 1.90 | 2.21 |
| -15 | (+ 5) | 1469 | 370 | 431 | 170 | 0.82 | 4.40 | 8.68 | 2.19 | 2.54 |
| -10 | (+14) | 1783 | 449 | 522 | 180 | 0.86 | 5.37 | 9.97 | 2.51 | 2.92 |
| -5 | (+23) | 2140 | 539 | 627 | 188 | 0.90 | 6.47 | 11.40 | 2.87 | 3.34 |
| 0 | (+32) | 2542 | 641 | 745 | 194 | 0.92 | 7.73 | 13.00 | 3.28 | 3.81 |

| TEST CONDITIONS: @220V50Hz | | 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] |
| -40 | (-40) | 433 | 109 | 127 | 112 | 0.58 | 1.28 | 3.90 | 0.98 | 1.14 |
| -35 | (-31) | 556 | 140 | 163 | 126 | 0.63 | 1.65 | 4.42 | 1.12 | 1.30 |
| -30 | (-22) | 712 | 179 | 209 | 141 | 0.69 | 2.11 | 5.03 | 1.27 | 1.48 |
| -25 | (-13) | 903 | 228 | 265 | 156 | 0.76 | 2.68 | 5.74 | 1.45 | 1.68 |
| -20 | (- 4) | 1131 | 285 | 331 | 171 | 0.82 | 3.37 | 6.54 | 1.65 | 1.92 |
| -15 | (+ 5) | 1397 | 352 | 409 | 186 | 0.89 | 4.19 | 7.45 | 1.88 | 2.18 |
| -10 | (+14) | 1704 | 430 | 499 | 201 | 0.96 | 5.13 | 8.48 | 2.14 | 2.48 |
| -5 | (+23) | 2055 | 518 | 602 | 214 | 1.01 | 6.21 | 9.62 | 2.42 | 2.82 |
| 0 | (+32) | 2450 | 617 | 718 | 226 | 1.07 | 7.45 | 10.88 | 2.74 | 3.19 |

E - PERFORMANCE - CURVES

| TEST CONDITIONS: @220V50Hz | | 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] |
| -40 | (-40) | 395 | 100 | 116 | 114 | 0.59 | 1.17 | 3.50 | 0.88 | 1.03 |
| -35 | (-31) | 509 | 128 | 149 | 129 | 0.64 | 1.51 | 3.99 | 1.00 | 1.17 |
| -30 | (-22) | 655 | 165 | 192 | 145 | 0.71 | 1.94 | 4.52 | 1.14 | 1.32 |
| -25 | (-13) | 836 | 211 | 245 | 163 | 0.79 | 2.49 | 5.11 | 1.29 | 1.50 |
| -20 | (- 4) | 1053 | 265 | 309 | 181 | 0.87 | 3.14 | 5.76 | 1.45 | 1.69 |
| -15 | (+ 5) | 1309 | 330 | 384 | 200 | 0.95 | 3.92 | 6.49 | 1.63 | 1.90 |
| -10 | (+14) | 1606 | 405 | 471 | 219 | 1.04 | 4.83 | 7.29 | 1.84 | 2.14 |
| -5 | (+23) | 1946 | 490 | 570 | 238 | 1.12 | 5.88 | 8.17 | 2.06 | 2.39 |
| 0 | (+32) | 2330 | 587 | 683 | 256 | 1.20 | 7.08 | 9.14 | 2.30 | 2.68 |

| TEST CONDITIONS: @220V50Hz | | 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] |
| -40 | (-40) | 363 | 91 | 106 | 114 | 0.59 | 1.07 | 3.12 | 0.79 | 0.91 |
| -35 | (-31) | 463 | 117 | 136 | 130 | 0.65 | 1.37 | 3.60 | 0.91 | 1.05 |
| -30 | (-22) | 595 | 150 | 174 | 148 | 0.72 | 1.76 | 4.09 | 1.03 | 1.20 |
| -25 | (-13) | 761 | 192 | 223 | 168 | 0.81 | 2.26 | 4.60 | 1.16 | 1.35 |
| -20 | (- 4) | 964 | 243 | 283 | 189 | 0.90 | 2.88 | 5.14 | 1.29 | 1.51 |
| -15 | (+ 5) | 1206 | 304 | 353 | 212 | 1.00 | 3.61 | 5.71 | 1.44 | 1.67 |
| -10 | (+14) | 1488 | 375 | 436 | 235 | 1.11 | 4.48 | 6.32 | 1.59 | 1.85 |
| -5 | (+23) | 1813 | 457 | 531 | 259 | 1.22 | 5.48 | 6.98 | 1.76 | 2.04 |
| 0 | (+32) | 2183 | 550 | 640 | 283 | 1.32 | 6.63 | 7.68 | 1.94 | 2.25 |

F - EXTERNAL CHARACTERISTICS

| | | | |
|-------------------------|--------------------------------|------|--------------------------|
| 1 Base plate | Universal EUEM | | |
| 2 Tray holder | No | | |
| 3 Connectors | | | |
| 3.1 SUCTION | 8.2 +0.12/-0.08 | [mm] | (0.323" +0.005"/-0.003") |
| 3.1.1 Material | Copper | | |
| 3.1.2 Shape | Slanted parallel BP+45°to Back | | |
| 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 | Slanted parallel BP+24°to Back | | |
| 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 BP+45°to Back | | |
| 3.4 Oil cooler (Copper) | No | [mm] | |
| 3.5 Connector sealing | Rubber Plugs | | |