

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 Fan | | | (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) | 494 | 124 | 145 | 110 | 0.57 | 1.46 | 4.48 | 1.13 | 1.31 |
| -35 | (-31) | 630 | 159 | 185 | 122 | 0.62 | 1.86 | 5.13 | 1.29 | 1.50 |
| -30 | (-22) | 794 | 200 | 233 | 135 | 0.67 | 2.35 | 5.88 | 1.48 | 1.72 |
| -25 | (-13) | 989 | 249 | 290 | 147 | 0.72 | 2.94 | 6.74 | 1.70 | 1.97 |
| -20 | (- 4) | 1220 | 307 | 357 | 159 | 0.77 | 3.64 | 7.72 | 1.95 | 2.26 |
| -15 | (+ 5) | 1491 | 376 | 437 | 170 | 0.82 | 4.47 | 8.84 | 2.23 | 2.59 |
| -10 | (+14) | 1805 | 455 | 529 | 180 | 0.86 | 5.43 | 10.11 | 2.55 | 2.96 |
| -5 | (+23) | 2168 | 546 | 635 | 188 | 0.90 | 6.56 | 11.56 | 2.91 | 3.39 |
| 0 | (+32) | 2583 | 651 | 757 | 195 | 0.93 | 7.85 | 13.19 | 3.32 | 3.87 |

| TEST CONDITIONS: @220V50Hz | | ASHRAE32 Fan | | | (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) | 454 | 114 | 133 | 113 | 0.58 | 1.34 | 4.03 | 1.01 | 1.18 |
| -35 | (-31) | 585 | 147 | 171 | 127 | 0.64 | 1.73 | 4.59 | 1.16 | 1.35 |
| -30 | (-22) | 744 | 187 | 218 | 142 | 0.70 | 2.20 | 5.22 | 1.32 | 1.53 |
| -25 | (-13) | 933 | 235 | 273 | 157 | 0.76 | 2.77 | 5.92 | 1.49 | 1.73 |
| -20 | (- 4) | 1157 | 292 | 339 | 172 | 0.82 | 3.45 | 6.70 | 1.69 | 1.96 |
| -15 | (+ 5) | 1421 | 358 | 416 | 186 | 0.89 | 4.26 | 7.59 | 1.91 | 2.22 |
| -10 | (+14) | 1727 | 435 | 506 | 201 | 0.95 | 5.20 | 8.60 | 2.17 | 2.52 |
| -5 | (+23) | 2081 | 524 | 610 | 214 | 1.01 | 6.29 | 9.74 | 2.45 | 2.85 |
| 0 | (+32) | 2487 | 627 | 729 | 227 | 1.07 | 7.56 | 11.03 | 2.78 | 3.23 |

E - PERFORMANCE - CURVES

| TEST CONDITIONS: @220V50Hz | | ASHRAE32 Fan | | | (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) | 410 | 103 | 120 | 115 | 0.59 | 1.21 | 3.61 | 0.91 | 1.06 |
| -35 | (-31) | 535 | 135 | 157 | 130 | 0.65 | 1.58 | 4.15 | 1.04 | 1.21 |
| -30 | (-22) | 687 | 173 | 201 | 146 | 0.72 | 2.04 | 4.71 | 1.19 | 1.38 |
| -25 | (-13) | 868 | 219 | 254 | 163 | 0.79 | 2.58 | 5.30 | 1.34 | 1.55 |
| -20 | (- 4) | 1084 | 273 | 318 | 181 | 0.87 | 3.23 | 5.95 | 1.50 | 1.74 |
| -15 | (+ 5) | 1339 | 337 | 392 | 200 | 0.95 | 4.01 | 6.66 | 1.68 | 1.95 |
| -10 | (+14) | 1636 | 412 | 479 | 218 | 1.03 | 4.92 | 7.45 | 1.88 | 2.18 |
| -5 | (+23) | 1980 | 499 | 580 | 237 | 1.11 | 5.99 | 8.34 | 2.10 | 2.44 |
| 0 | (+32) | 2374 | 598 | 696 | 255 | 1.20 | 7.22 | 9.35 | 2.36 | 2.74 |

| TEST CONDITIONS: @220V50Hz | | ASHRAE32 Fan | | | (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) | 362 | 91 | 106 | 114 | 0.59 | 1.07 | 3.12 | 0.79 | 0.91 |
| -35 | (-31) | 480 | 121 | 141 | 131 | 0.66 | 1.42 | 3.68 | 0.93 | 1.08 |
| -30 | (-22) | 623 | 157 | 182 | 148 | 0.73 | 1.85 | 4.23 | 1.07 | 1.24 |
| -25 | (-13) | 795 | 200 | 233 | 168 | 0.81 | 2.36 | 4.78 | 1.20 | 1.40 |
| -20 | (- 4) | 1001 | 252 | 293 | 189 | 0.90 | 2.99 | 5.34 | 1.35 | 1.57 |
| -15 | (+ 5) | 1245 | 314 | 365 | 210 | 1.00 | 3.73 | 5.94 | 1.50 | 1.74 |
| -10 | (+14) | 1531 | 386 | 449 | 233 | 1.10 | 4.61 | 6.57 | 1.66 | 1.93 |
| -5 | (+23) | 1863 | 469 | 546 | 256 | 1.20 | 5.63 | 7.27 | 1.83 | 2.13 |
| 0 | (+32) | 2245 | 566 | 658 | 279 | 1.31 | 6.82 | 8.04 | 2.03 | 2.36 |

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 | | |