

### COMPRESSOR DEFINITION

|                           |                 |
|---------------------------|-----------------|
| Designation               | EM C3121U       |
| Nominal Voltage/Frequency | 220-240 V 50 Hz |
| Engineering Number        | 7111A57         |

### 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 (Commercial Compressors) |                                   |           |
| 4.1 Evaporating temperature range  | -35°C to 0°C                                      | (-31°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) | -   | -                                 | -         |
| 8.2 LBP (43°C Ambient temperature) | -   | -                                 | -         |
| 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 <sup>2</sup> ] (262 psig) | / °C - °F |
| 9.2 Peak                           | 20.6  | [kgf/cm <sup>2</sup> ] (293 psig) | / °C - °F |
| 10 Maximum winding temperature     | 130   | [ °C ]                            |           |

### B - MECHANICAL DATA

|                               |               |                                  |
|-------------------------------|---------------|----------------------------------|
| 1 Commercial designation      | 1/4           | [hp]                             |
| 2 Displacement                | 5.54          | [cm <sup>3</sup> ] (0.338 cu.in) |
| 2.1 Bore [mm]                 | 21.000        |                                  |
| 2.2 Stroke [mm]               | 16.000        |                                  |
| 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)    | 8.2           | [kg] (18.08 lb.)                 |
| 5 Nitrogen charge             | -             | [kgf/cm <sup>2</sup> ]           |

### C - ELETRICAL DATA

|  |                                    |                                    |
|--|------------------------------------|------------------------------------|
| 1 Nominal Voltage/Frequency/Number of Phases | 220-240 V 50 Hz 1 ~ (Single phase) |                                    |
| 2 Starting device type                       | TSD                                |                                    |
| 2.1 Starting device                          | TSD2-220V/TSD2-220V1.2/TSD2-D-220V |                                    |
| 3 Start capacitor                            | -                                  | [µF(VAC minimum)]                  |
| 4 Run capacitor                              | 5(350)                             | [µF(VAC minimum)]                  |
| 5 Motor protection                           | 4TM276JDBYY                        |                                    |
| 6 Start winding resistance                   | 13.50                              | [Ω at 25°C (77°F)] +/- 8%          |
| 7 Run winding resistance                     | 13.70                              | [Ω at 25°C (77°F)] +/- 8%          |
| 8 LRA - Locked rotor amperage (50 Hz)        | -                                  | [A] - Measured according to UL 984 |
| 9 FLA - Full load amperage L/MBP (50 Hz)     | -                                  | [A] - Measured according to UL 984 |
| 10 FLA - Full Load Amperage HBP (50 Hz)      | -                                  | [A] - Measured according to UL 984 |
| 11 Approval boards certification             | VDE                                |                                    |

### D - PERFORMANCE - CHECK POINT DATA

| TEST CONDITIONS:<br>@220V50Hz |          |     | ASHRAELBP32<br>Fan             |                                  | Evaporating temperature<br>(Condensing temperature |                           | -23.3°C (-9.94°F)<br>54.4°C (129.92°F) |       |
|-------------------------------|----------|-----|--------------------------------|----------------------------------|--|---------------------------|--|-------|
| Cooling capacity<br>+/- 5%    |          |     | Power<br>consumption<br>+/- 5% | Current<br>consumption<br>+/- 5% | Gas flow<br>rate<br>+/- 5%                         | EFFICIENCY RATE<br>+/- 7% |  |       |
| [Btu/h]                       | [kcal/h] | [W] | [W]                            | [A]                              | [kg/h]   | [Btu/Wh]                  | [kcal/Wh]                              | [W/W] |
| 924                           | 233      | 271 | 144                            | 0.68                             | 2.75   | 6.42                      | 1.62                                   | 1.88  |

### E - PERFORMANCE - CURVES

| TEST CONDITIONS:<br>@220V50Hz |       |                            | ASHRAE32<br>Fan |     | (Condensing temperature 35°C (+95°F)) |                                  |                            |                           |           |       |
|-------------------------------|-------|----------------------------|-----------------|-----|---------------------------------------|----------------------------------|----------------------------|---------------------------|-----------|-------|
| Evaporating<br>temperature    |       | Cooling capacity<br>+/- 5% |                 |     | Power<br>consumption<br>+/- 5%        | Current<br>consumption<br>+/- 5% | Gas flow<br>rate<br>+/- 5% | EFFICIENCY RATE<br>+/- 7% |           |       |
| °C                            | (°F)  | [Btu/h]                    | [kcal/h]        | [W] | [W]                                   | [A]                              | [kg/h]                     | [Btu/Wh]                  | [kcal/Wh] | [W/W] |
| -35                           | (-31) | 586                        | 148             | 172 | 101                                   | 0.49                             | 1.73                       | 5.80                      | 1.46      | 1.70  |
| -30                           | (-22) | 752                        | 190             | 220 | 113                                   | 0.55                             | 2.23                       | 6.70                      | 1.69      | 1.96  |
| -25                           | (-13) | 958                        | 241             | 281 | 124                                   | 0.60                             | 2.85                       | 7.73                      | 1.95      | 2.26  |
| -20                           | (- 4) | 1203                       | 303             | 352 | 136                                   | 0.65                             | 3.59                       | 8.87                      | 2.24      | 2.60  |
| -15                           | (+ 5) | 1487                       | 375             | 436 | 147                                   | 0.70                             | 4.46                       | 10.12                     | 2.55      | 2.97  |
| -10                           | (+14) | 1810                       | 456             | 530 | 158                                   | 0.75                             | 5.45                       | 11.47                     | 2.89      | 3.36  |
| -5                            | (+23) | 2172                       | 547             | 636 | 168                                   | 0.80                             | 6.57                       | 12.90                     | 3.25      | 3.78  |
| 0                             | (+32) | 2573                       | 648             | 754 | 179                                   | 0.86                             | 7.82                       | 14.40                     | 3.63      | 4.22  |

| TEST CONDITIONS:<br>@220V50Hz |       |                            | ASHRAE32<br>Fan |     | (Condensing temperature 45°C (+113°F)) |                                  |                            |                           |           |       |
|-------------------------------|-------|----------------------------|-----------------|-----|--|----------------------------------|----------------------------|---------------------------|-----------|-------|
| Evaporating<br>temperature    |       | Cooling capacity<br>+/- 5% |                 |     | Power<br>consumption<br>+/- 5%         | Current<br>consumption<br>+/- 5% | Gas flow<br>rate<br>+/- 5% | EFFICIENCY RATE<br>+/- 7% |           |       |
| °C                            | (°F)  | [Btu/h]                    | [kcal/h]        | [W] | [W]                                    | [A]                              | [kg/h]                     | [Btu/Wh]                  | [kcal/Wh] | [W/W] |
| -35                           | (-31) | 548                        | 138             | 161 | 105                                    | 0.51                             | 1.62                       | 5.20                      | 1.31      | 1.52  |
| -30                           | (-22) | 715                        | 180             | 210 | 120                                    | 0.58                             | 2.12                       | 5.95                      | 1.50      | 1.74  |
| -25                           | (-13) | 915                        | 231             | 268 | 135                                    | 0.65                             | 2.72                       | 6.80                      | 1.71      | 1.99  |
| -20                           | (- 4) | 1148                       | 289             | 336 | 148                                    | 0.71                             | 3.43                       | 7.73                      | 1.95      | 2.26  |
| -15                           | (+ 5) | 1414                       | 356             | 414 | 162                                    | 0.77                             | 4.24                       | 8.73                      | 2.20      | 2.56  |
| -10                           | (+14) | 1713                       | 432             | 502 | 175                                    | 0.83                             | 5.15                       | 9.80                      | 2.47      | 2.87  |
| -5                            | (+23) | 2044                       | 515             | 599 | 187                                    | 0.89                             | 6.18                       | 10.93                     | 2.75      | 3.20  |
| 0                             | (+32) | 2408                       | 607             | 706 | 199                                    | 0.95                             | 7.32                       | 12.09                     | 3.05      | 3.54  |

| TEST CONDITIONS:<br>@220V50Hz |       |                            | ASHRAE32<br>Fan |     | (Condensing temperature 55°C (+131°F)) |                                  |                            |                           |           |       |
|-------------------------------|-------|----------------------------|-----------------|-----|--|----------------------------------|----------------------------|---------------------------|-----------|-------|
| Evaporating<br>temperature    |       | Cooling capacity<br>+/- 5% |                 |     | Power<br>consumption<br>+/- 5%         | Current<br>consumption<br>+/- 5% | Gas flow<br>rate<br>+/- 5% | EFFICIENCY RATE<br>+/- 7% |           |       |
| °C                            | (°F)  | [Btu/h]                    | [kcal/h]        | [W] | [W]                                    | [A]                              | [kg/h]                     | [Btu/Wh]                  | [kcal/Wh] | [W/W] |
| -35                           | (-31) | 488                        | 123             | 143 | 105                                    | 0.51                             | 1.44                       | 4.67                      | 1.18      | 1.37  |
| -30                           | (-22) | 655                        | 165             | 192 | 123                                    | 0.59                             | 1.94                       | 5.32                      | 1.34      | 1.56  |
| -25                           | (-13) | 849                        | 214             | 249 | 140                                    | 0.67                             | 2.52                       | 6.03                      | 1.52      | 1.77  |
| -20                           | (- 4) | 1069                       | 269             | 313 | 157                                    | 0.75                             | 3.19                       | 6.80                      | 1.71      | 1.99  |
| -15                           | (+ 5) | 1315                       | 331             | 385 | 173                                    | 0.82                             | 3.94                       | 7.61                      | 1.92      | 2.23  |
| -10                           | (+14) | 1588                       | 400             | 465 | 188                                    | 0.89                             | 4.78                       | 8.45                      | 2.13      | 2.48  |
| -5                            | (+23) | 1888                       | 476             | 553 | 203                                    | 0.96                             | 5.71                       | 9.32                      | 2.35      | 2.73  |
| 0                             | (+32) | 2214                       | 558             | 649 | 217                                    | 1.03                             | 6.73                       | 10.19                     | 2.57      | 2.99  |

### F - EXTERNAL CHARACTERISTICS

|                         |                              |      |                          |
|-------------------------|------------------------------|------|--------------------------|
| 1 Base plate            | European Standard            |      |                          |
| 2 Tray holder           | Yes                          |      |                          |
| 3 Connectors            |                              |      |                          |
| 3.1 SUCTION             | 6.1 +0.10/+0.00              | [mm] | (0.240" +0.004"/+0.000") |
| 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 0° up + 45° to Back  |      |                          |
| 3.3 PROCESS             | 6.1 +0.10/+0.00              | [mm] | (0.240" +0.004"/+0.000") |
| 3.3.1 Material          | Copper                       |      |                          |
| 3.3.2 Shape             | Slanted 45° up + 45° to Back |      |                          |
| 3.4 Oil cooler (Copper) | No                           | [mm] |                          |
| 3.5 Connector sealing   | Rubber Plugs                 |      |                          |