

### COMPRESSOR DEFINITION

|                           |                 |
|---------------------------|-----------------|
| Designation               | EM 2X3121U      |
| Nominal Voltage/Frequency | 115-127 V 60 Hz |
| Engineering Number        | 513300676       |

### A - APPLICATION / LIMIT WORKING CONDITIONS

|                                    |  |                                   |           |
|------------------------------------|--|-----------------------------------|-----------|
| 1 Type                             | Hermetic reciprocating compressor                            |                                   |           |
| 2 Refrigerant                      | R-290  |                                   |           |
| 3 Nominal voltage and frequency    | 115-127 / 60   | [ V / Hz ]                        |           |
| 4 Application type                 | L/MBP(LC-Curve until T.E. -40°C) Hot Gas Defrost Not Allowed |                                   |           |
| 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) | -  | -                                 | -         |
| 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 | ALQUILB / ISO22 |                                  |
| 4 Weight (with oil charge)    | 8               | [kg] (17.64 lb.)                 |
| 5 Nitrogen charge             | -               | [kgf/cm <sup>2</sup> ]           |

### C - ELETRICAL DATA

|  |                                    |                                    |
|--|------------------------------------|------------------------------------|
| 1 Nominal Voltage/Frequency/Number of Phases | 115-127 V 60 Hz 1 ~ (Single phase) |                                    |
| 2 Starting device type                       | PTC                                |                                    |
| 2.1 Starting device                          | 8EA14C3/8EA14E62/8EA14E63/QP2-4.7  |                                    |
| 3 Start capacitor                            | -                                  | [µF(VAC minimum)]                  |
| 4 Run capacitor                              | 20(180)                            | [µF(VAC minimum)]                  |
| 5 Motor protection                           | DRB44N61A2                         |                                    |
| 6 Start winding resistance                   | 5.27                               | [Ω at 25°C (77°F)] +/- 8%          |
| 7 Run winding resistance                     | 3.04                               | [Ω at 25°C (77°F)] +/- 8%          |
| 8 LRA - Locked rotor amperage (60 Hz)        | 15.60                              | [A] - Measured according to UL 984 |
| 9 FLA - Full load amperage L/MBP (60 Hz)     | 3.50                               | [A] - Measured according to UL 984 |
| 10 FLA - Full Load Amperage HBP (60 Hz)      | 3.87                               | [A] - Measured according to UL 984 |
| 11 Approval boards certification             | UL                                 |                                    |

### D - PERFORMANCE - CHECK POINT DATA

|                               |          |     |                                |                                  |  |                           |  |       |
|-------------------------------|----------|-----|--------------------------------|----------------------------------|--|---------------------------|--|-------|
| TEST CONDITIONS:<br>@115V60Hz |          |     | ASHRAELBP32<br>Static          |                                  | 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] |
| 1138                          | 287      | 333 | 194                            | 1.70                             | 3.39   | 5.87                      | 1.48                                   | 1.72  |

|                               |          |     |                                |                                  |  |                           |  |       |
|-------------------------------|----------|-----|--------------------------------|----------------------------------|--|---------------------------|--|-------|
| TEST CONDITIONS:<br>@115V60Hz |          |     | 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] |
| 1158                          | 292      | 339 | 196                            | 1.71                             | 3.45   | 5.91                      | 1.49                                   | 1.73  |

### E - PERFORMANCE - CURVES

|                               |                            |                    |         |                                |                                       |                            |                           |        |          |           |
|-------------------------------|----------------------------|--------------------|---------|--------------------------------|---------------------------------------|----------------------------|---------------------------|--------|----------|-----------|
| TEST CONDITIONS:<br>@115V60Hz |                            | ASHRAE32<br>Static |         |                                | (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] |
| -40                           | (-40)                      | 653                | 165     | 191                            | 120                                   | 1.03                       | 1.93                      | 5.41   | 1.36     | 1.59      |
| -35                           | (-31)                      | 832                | 210     | 244                            | 133                                   | 1.15                       | 2.46                      | 6.25   | 1.57     | 1.83      |
| -30                           | (-22)                      | 1050               | 265     | 308                            | 148                                   | 1.28                       | 3.11                      | 7.13   | 1.80     | 2.09      |
| -25                           | (-13)                      | 1314               | 331     | 385                            | 163                                   | 1.41                       | 3.91                      | 8.11   | 2.04     | 2.38      |
| -20                           | (- 4)                      | 1629               | 411     | 477                            | 178                                   | 1.55                       | 4.86                      | 9.22   | 2.32     | 2.70      |
| -15                           | (+ 5)                      | 2001               | 504     | 586                            | 192                                   | 1.67                       | 6.00                      | 10.50  | 2.65     | 3.08      |
| -10                           | (+14)                      | 2434               | 613     | 713                            | 204                                   | 1.78                       | 7.33                      | 12.00  | 3.02     | 3.52      |
| -5                            | (+23)                      | 2933               | 739     | 860                            | 214                                   | 1.87                       | 8.87                      | 13.75  | 3.47     | 4.03      |
| 0                             | (+32)                      | 3505               | 883     | 1027                           | 220                                   | 1.93                       | 10.66                     | 15.81  | 3.98     | 4.63      |

|                               |                            |                    |         |                                |  |                            |                           |        |          |           |
|-------------------------------|----------------------------|--------------------|---------|--------------------------------|--|----------------------------|---------------------------|--------|----------|-----------|
| TEST CONDITIONS:<br>@115V60Hz |                            | ASHRAE32<br>Static |         |                                | (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] |
| -40                           | (-40)                      | 551                | 139     | 161                            | 126                                    | 1.10                       | 1.63                      | 4.40   | 1.11     | 1.29      |
| -35                           | (-31)                      | 726                | 183     | 213                            | 140                                    | 1.23                       | 2.15                      | 5.18   | 1.31     | 1.52      |
| -30                           | (-22)                      | 934                | 235     | 274                            | 156                                    | 1.37                       | 2.77                      | 5.95   | 1.50     | 1.74      |
| -25                           | (-13)                      | 1179               | 297     | 345                            | 174                                    | 1.52                       | 3.50                      | 6.73   | 1.70     | 1.97      |
| -20                           | (- 4)                      | 1467               | 370     | 430                            | 192                                    | 1.68                       | 4.38                      | 7.57   | 1.91     | 2.22      |
| -15                           | (+ 5)                      | 1803               | 454     | 528                            | 210                                    | 1.84                       | 5.40                      | 8.52   | 2.15     | 2.50      |
| -10                           | (+14)                      | 2193               | 553     | 643                            | 227                                    | 1.99                       | 6.60                      | 9.62   | 2.42     | 2.82      |
| -5                            | (+23)                      | 2642               | 666     | 774                            | 243                                    | 2.13                       | 7.99                      | 10.90  | 2.75     | 3.19      |
| 0                             | (+32)                      | 3155               | 795     | 924                            | 255                                    | 2.24                       | 9.59                      | 12.41  | 3.13     | 3.64      |

### E - PERFORMANCE - CURVES

| TEST CONDITIONS:<br>@115V60Hz |       | ASHRAE32<br>Static         |          |     | (Condensing temperature 55°C (+131°F)) |                               |                         |                           |           |       |
|-------------------------------|-------|----------------------------|----------|-----|--|-------------------------------|-------------------------|---------------------------|-----------|-------|
| Evaporating temperature       |       | Cooling capacity<br>+/- 5% |          |     | Power consumption<br>+/- 5%            | Current consumption<br>+/- 5% | Gas flow rate<br>+/- 5% | EFFICIENCY RATE<br>+/- 7% |           |       |
| °C                            | (°F)  | [Btu/h]                    | [kcal/h] | [W] | [W]                                    | [A]                           | [kg/h]                  | [Btu/Wh]                  | [kcal/Wh] | [W/W] |
| -40                           | (-40) | 430                        | 108      | 126 | 130                                    | 1.14                          | 1.27                    | 3.34                      | 0.84      | 0.98  |
| -35                           | (-31) | 605                        | 152      | 177 | 146                                    | 1.28                          | 1.79                    | 4.15                      | 1.05      | 1.22  |
| -30                           | (-22) | 803                        | 202      | 235 | 164                                    | 1.44                          | 2.38                    | 4.88                      | 1.23      | 1.43  |
| -25                           | (-13) | 1032                       | 260      | 302 | 185                                    | 1.62                          | 3.07                    | 5.55                      | 1.40      | 1.63  |
| -20                           | (- 4) | 1295                       | 326      | 380 | 207                                    | 1.82                          | 3.86                    | 6.22                      | 1.57      | 1.82  |
| -15                           | (+ 5) | 1599                       | 403      | 469 | 230                                    | 2.01                          | 4.79                    | 6.92                      | 1.74      | 2.03  |
| -10                           | (+14) | 1949                       | 491      | 571 | 252                                    | 2.21                          | 5.86                    | 7.69                      | 1.94      | 2.25  |
| -5                            | (+23) | 2349                       | 592      | 688 | 273                                    | 2.40                          | 7.10                    | 8.59                      | 2.16      | 2.52  |
| 0                             | (+32) | 2806                       | 707      | 822 | 292                                    | 2.57                          | 8.53                    | 9.64                      | 2.43      | 2.82  |

| TEST CONDITIONS:<br>@115V60Hz |       | ASHRAE32<br>Static         |          |     | (Condensing temperature 65°C (+149°F)) |                               |                         |                           |           |       |
|-------------------------------|-------|----------------------------|----------|-----|--|-------------------------------|-------------------------|---------------------------|-----------|-------|
| Evaporating temperature       |       | Cooling capacity<br>+/- 5% |          |     | Power consumption<br>+/- 5%            | Current consumption<br>+/- 5% | Gas flow rate<br>+/- 5% | EFFICIENCY RATE<br>+/- 7% |           |       |
| °C                            | (°F)  | [Btu/h]                    | [kcal/h] | [W] | [W]                                    | [A]                           | [kg/h]                  | [Btu/Wh]                  | [kcal/Wh] | [W/W] |
| -40                           | (-40) | 293                        | 74       | 86  | 131                                    | 1.13                          | 0.86                    | 2.21                      | 0.56      | 0.65  |
| -35                           | (-31) | 469                        | 118      | 137 | 149                                    | 1.29                          | 1.39                    | 3.14                      | 0.79      | 0.92  |
| -30                           | (-22) | 662                        | 167      | 194 | 170                                    | 1.48                          | 1.96                    | 3.91                      | 0.99      | 1.15  |
| -25                           | (-13) | 876                        | 221      | 257 | 194                                    | 1.69                          | 2.61                    | 4.56                      | 1.15      | 1.34  |
| -20                           | (- 4) | 1118                       | 282      | 328 | 220                                    | 1.92                          | 3.33                    | 5.14                      | 1.29      | 1.50  |
| -15                           | (+ 5) | 1392                       | 351      | 408 | 247                                    | 2.17                          | 4.17                    | 5.67                      | 1.43      | 1.66  |
| -10                           | (+14) | 1704                       | 429      | 499 | 275                                    | 2.41                          | 5.12                    | 6.21                      | 1.57      | 1.82  |
| -5                            | (+23) | 2058                       | 519      | 603 | 302                                    | 2.66                          | 6.22                    | 6.80                      | 1.71      | 1.99  |
| 0                             | (+32) | 2461                       | 620      | 721 | 328                                    | 2.90                          | 7.48                    | 7.48                      | 1.88      | 2.19  |

### F - EXTERNAL CHARACTERISTICS

|                         |                 |      |                          |
|-------------------------|-----------------|------|--------------------------|
| 1 Base plate            | Universal       |      |                          |
| 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             | 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    |      |                          |