

### COMPRESSOR DEFINITION

|                           |                 |
|---------------------------|-----------------|
| Designation               | EM 2X3121U      |
| Nominal Voltage/Frequency | 115-127 V 60 Hz |
| Engineering Number        | 513304097       |

### 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                 | 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/Fan                                                         | -                                 | 103 to 140 V |
| 8.2 LBP (43°C Ambient temperature) | Static/Fan                                                         | -                                 | 103 to 140 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 <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      | 1/3           | [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            | 180           | [ml] (6.09 fl.oz.)               |
| 3.1 Lubricants approved       |               |                                  |
| 3.2 Lubricants type/viscosity | ESTER / ISO22 |                                  |
| 4 Weight (with oil charge)    | 7.84          | [kg] (17.28 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                          | 8EA14C3/8EA14E63/QPS2-A4R7MD3/QPS2-A4R7MD3 094 |                                    |
| 3 Start capacitor                            | -                                              | [µF(VAC minimum)]                  |
| 4 Run capacitor                              | 20(180)                                        | [µF(VAC minimum)]                  |
| 5 Motor protection                           | 4TM762MDBZZ-53                                 |                                    |
| 6 Start winding resistance                   | 5.30                                           | [Ω at 25°C (77°F)] +/- 8%          |
| 7 Run winding resistance                     | 3.26                                           | [Ω at 25°C (77°F)] +/- 8%          |
| 8 LRA - Locked rotor amperage (60 Hz)        | 16.90                                          | [A] - Measured according to UL 984 |
| 9 FLA - Full load amperage L/MBP (60 Hz)     | 1.85                                           | [A] - Measured according to UL 984 |
| 10 FLA - Full Load Amperage HBP (60 Hz)      | 2.36                                           | [A] - Measured according to UL 984 |
| 11 Approval boards certification             | CE - TUV - UKCA - 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] |
| 1185                          | 299      | 347 | 193                            | 1.73                             | 3.53                                               | 6.14                      | 1.55                                   | 1.80  |

|                               |          |     |                                |                                  |                                                    |                           |                                        |       |
|-------------------------------|----------|-----|--------------------------------|----------------------------------|----------------------------------------------------|---------------------------|----------------------------------------|-------|
| 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] |
| 1208                          | 304      | 354 | 194                            | 1.74                             | 3.60                                               | 6.23                      | 1.57                                   | 1.83  |

### E - PERFORMANCE - CURVES

|                               |                            |          |                 |                                |                                       |                            |                           |           |       |
|-------------------------------|----------------------------|----------|-----------------|--------------------------------|---------------------------------------|----------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@115V60Hz |                            |          | 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] |
| -40 (-40)                     | 633                        | 160      | 185             | 122                            | 1.10                                  | 1.87                       | 5.19                      | 1.31      | 1.52  |
| -35 (-31)                     | 798                        | 201      | 234             | 136                            | 1.23                                  | 2.36                       | 5.87                      | 1.48      | 1.72  |
| -30 (-22)                     | 999                        | 252      | 293             | 151                            | 1.37                                  | 2.96                       | 6.61                      | 1.67      | 1.94  |
| -25 (-13)                     | 1238                       | 312      | 363             | 166                            | 1.50                                  | 3.68                       | 7.44                      | 1.88      | 2.18  |
| -20 (- 4)                     | 1516                       | 382      | 444             | 181                            | 1.63                                  | 4.52                       | 8.39                      | 2.11      | 2.46  |
| -15 (+ 5)                     | 1835                       | 462      | 538             | 194                            | 1.74                                  | 5.50                       | 9.49                      | 2.39      | 2.78  |
| -10 (+14)                     | 2198                       | 554      | 644             | 206                            | 1.84                                  | 6.61                       | 10.75                     | 2.71      | 3.15  |
| -5 (+23)                      | 2605                       | 656      | 763             | 214                            | 1.91                                  | 7.88                       | 12.22                     | 3.08      | 3.58  |
| 0 (+32)                       | 3059                       | 771      | 896             | 219                            | 1.95                                  | 9.30                       | 13.91                     | 3.50      | 4.08  |

|                               |                            |          |                 |                                |                                        |                            |                           |           |       |
|-------------------------------|----------------------------|----------|-----------------|--------------------------------|----------------------------------------|----------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@115V60Hz |                            |          | 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] |
| -40 (-40)                     | 588                        | 148      | 172             | 125                            | 1.14                                   | 1.74                       | 4.72                      | 1.19      | 1.38  |
| -35 (-31)                     | 751                        | 189      | 220             | 140                            | 1.28                                   | 2.22                       | 5.34                      | 1.35      | 1.57  |
| -30 (-22)                     | 949                        | 239      | 278             | 158                            | 1.43                                   | 2.81                       | 5.98                      | 1.51      | 1.75  |
| -25 (-13)                     | 1184                       | 298      | 347             | 177                            | 1.59                                   | 3.52                       | 6.67                      | 1.68      | 1.95  |
| -20 (- 4)                     | 1458                       | 367      | 427             | 195                            | 1.75                                   | 4.35                       | 7.42                      | 1.87      | 2.17  |
| -15 (+ 5)                     | 1773                       | 447      | 520             | 213                            | 1.90                                   | 5.31                       | 8.28                      | 2.09      | 2.43  |
| -10 (+14)                     | 2131                       | 537      | 624             | 230                            | 2.04                                   | 6.41                       | 9.26                      | 2.33      | 2.71  |
| -5 (+23)                      | 2533                       | 638      | 742             | 244                            | 2.17                                   | 7.66                       | 10.40                     | 2.62      | 3.05  |
| 0 (+32)                       | 2981                       | 751      | 874             | 255                            | 2.28                                   | 9.06                       | 11.72                     | 2.95      | 3.43  |

### E - PERFORMANCE - CURVES

| TEST CONDITIONS:<br>@115V60Hz |       | ASHRAE32<br>Fan            |          |     | (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) | 521                        | 131      | 153 | 127                                    | 1.17                          | 1.54                    | 4.12                      | 1.04      | 1.21  |
| -35                           | (-31) | 682                        | 172      | 200 | 144                                    | 1.32                          | 2.02                    | 4.75                      | 1.20      | 1.39  |
| -30                           | (-22) | 879                        | 221      | 257 | 164                                    | 1.48                          | 2.61                    | 5.36                      | 1.35      | 1.57  |
| -25                           | (-13) | 1112                       | 280      | 326 | 186                                    | 1.66                          | 3.30                    | 5.97                      | 1.51      | 1.75  |
| -20                           | (- 4) | 1383                       | 349      | 405 | 208                                    | 1.85                          | 4.13                    | 6.61                      | 1.67      | 1.94  |
| -15                           | (+ 5) | 1695                       | 427      | 497 | 231                                    | 2.04                          | 5.08                    | 7.30                      | 1.84      | 2.14  |
| -10                           | (+14) | 2049                       | 516      | 600 | 252                                    | 2.23                          | 6.16                    | 8.08                      | 2.04      | 2.37  |
| -5                            | (+23) | 2446                       | 616      | 717 | 272                                    | 2.42                          | 7.40                    | 8.96                      | 2.26      | 2.63  |
| 0                             | (+32) | 2890                       | 728      | 847 | 290                                    | 2.59                          | 8.78                    | 9.98                      | 2.52      | 2.93  |

| TEST CONDITIONS:<br>@115V60Hz |       | ASHRAE32<br>Fan            |          |     | (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) | 433                        | 109      | 127 | 129                                    | 1.19                          | 1.28                    | 3.31                      | 0.83      | 0.97  |
| -35                           | (-31) | 594                        | 150      | 174 | 148                                    | 1.34                          | 1.76                    | 4.03                      | 1.02      | 1.18  |
| -30                           | (-22) | 789                        | 199      | 231 | 170                                    | 1.52                          | 2.34                    | 4.69                      | 1.18      | 1.37  |
| -25                           | (-13) | 1021                       | 257      | 299 | 194                                    | 1.72                          | 3.04                    | 5.30                      | 1.33      | 1.55  |
| -20                           | (- 4) | 1291                       | 325      | 378 | 220                                    | 1.94                          | 3.85                    | 5.89                      | 1.48      | 1.73  |
| -15                           | (+ 5) | 1600                       | 403      | 469 | 247                                    | 2.18                          | 4.79                    | 6.49                      | 1.64      | 1.90  |
| -10                           | (+14) | 1951                       | 492      | 572 | 273                                    | 2.42                          | 5.87                    | 7.14                      | 1.80      | 2.09  |
| -5                            | (+23) | 2346                       | 591      | 687 | 299                                    | 2.65                          | 7.09                    | 7.84                      | 1.98      | 2.30  |
| 0                             | (+32) | 2785                       | 702      | 816 | 322                                    | 2.89                          | 8.46                    | 8.64                      | 2.18      | 2.53  |

### F - EXTERNAL CHARACTERISTICS

|                         |                                |      |                          |
|-------------------------|--------------------------------|------|--------------------------|
| 1 Base plate            | Universal EUEM                 |      |                          |
| 2 Tray holder           | No                             |      |                          |
| 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 parallel BP+24°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                   |      |                          |