

### COMPRESSOR DEFINITION

|                           |             |
|---------------------------|-------------|
| Designation               | EM 2U60HLP  |
| Nominal Voltage/Frequency | 220 V 60 Hz |
| Engineering Number        | 513305512   |

### A - APPLICATION / LIMIT WORKING CONDITIONS

|                                    |                                   |                                   |              |
|------------------------------------|-----------------------------------|-----------------------------------|--------------|
| 1 Type                             | Hermetic reciprocating compressor |                                   |              |
| 2 Refrigerant                      | R-134a                            |                                   |              |
| 3 Nominal voltage and frequency    | 220 / 60                          | [ V / Hz ]                        |              |
| 4 Application type                 | Low Back Pressure                 |                                   |              |
| 4.1 Evaporating temperature range  | -35°C to -10°C                    | (-31°F to 14°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 242 V |
| 8.2 LBP (43°C Ambient temperature) | Static                            | -                                 | 198 to 242 V |
| 8.3 HBP (32°C Ambient temperature) | -                                 | -                                 | -            |
| 8.4 HBP (43°C Ambient temperature) | -                                 | -                                 | -            |
| 9 Maximum condensing temperature   |                                   |                                   |              |
| 9.1 Operating                      | 14.2                              | [kgf/cm <sup>2</sup> ] (202 psig) | / °C - °F    |
| 9.2 Peak                           | 15.9                              | [kgf/cm <sup>2</sup> ] (226 psig) | / °C - °F    |
| 10 Maximum winding temperature     | 130                               | [ °C ]                            |              |

### B - MECHANICAL DATA

|                               |               |  |
|-------------------------------|---------------|--|
| 1 Commercial designation      | 1/5           | [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)    | 7.23          | [kg] (15.94 lb.)                           |
| 5 Nitrogen charge             | 0.2 to 0.3    | [kgf/cm <sup>2</sup> ] (2.84 to 4.27 psig) |

### C - ELETRICAL DATA

|  |   |                                    |
|--|---|------------------------------------|
| 1 Nominal Voltage/Frequency/Number of Phases | 220 V 60 Hz 1 ~ (Single phase)                      |                                    |
| 2 Starting device type                       | PTC   |                                    |
| 2.1 Starting device                          | 8EA17C3/8EA17E61/8EA17E62/8EA17E63/QPS2-A22MD3/QPS3 |                                    |
| 3 Start capacitor                            | -   | [µF(VAC minimum)]                  |
| 4 Run capacitor                              | 3(350)/4(350)/5(350)                                | [µF(VAC minimum)]                  |
| 5 Motor protection                           | 4TM232NFBYY-53                                      |                                    |
| 6 Start winding resistance                   | 26.16   | [Ω at 25°C (77°F)] +/- 8%          |
| 7 Run winding resistance                     | 19.35   | [Ω at 25°C (77°F)] +/- 8%          |
| 8 LRA - Locked rotor amperage (50/60 Hz)     | 7.00/6.65   | [A] - Measured according to UL 984 |
| 9 FLA - Full load amperage L/MBP (50/60 Hz)  | 1.33/1.02   | [A] - Measured according to UL 984 |
| 10 FLA - Full Load Amperage HBP (50/60 Hz)   | 1.52/1.23   | [A] - Measured according to UL 984 |
| 11 Approval boards certification             | CE - IMTRO - TUV - UKCA                             |                                    |

### D - PERFORMANCE - CHECK POINT DATA

|                               |          |     |                                |                                  |  |                           |  |       |
|-------------------------------|----------|-----|--------------------------------|----------------------------------|--|---------------------------|--|-------|
| TEST CONDITIONS:<br>@220V60Hz |          |     | 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] |
| 614                           | 155      | 180 | 116                            | 0.55                             | 3.49   | 5.29                      | 1.33                                   | 1.55  |

### E - PERFORMANCE - CURVES

|                               |       |                            |          |     |                                |  |                            |                           |           |       |
|-------------------------------|-------|----------------------------|----------|-----|--------------------------------|--|----------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@220V60Hz |       | 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] | [W/W] |
| -35                           | (-31) | 381                        | 96       | 112 | 78                             | 0.47                                   | 2.16                       | 4.85                      | 1.22      | 1.42  |
| -30                           | (-22) | 520                        | 131      | 152 | 91                             | 0.49                                   | 2.95                       | 5.71                      | 1.44      | 1.67  |
| -25                           | (-13) | 687                        | 173      | 201 | 105                            | 0.52                                   | 3.90                       | 6.58                      | 1.66      | 1.93  |
| -20                           | (- 4) | 890                        | 224      | 261 | 119                            | 0.56                                   | 5.06                       | 7.49                      | 1.89      | 2.20  |
| -15                           | (+ 5) | 1137                       | 287      | 333 | 134                            | 0.61                                   | 6.49                       | 8.47                      | 2.13      | 2.48  |
| -10                           | (+14) | 1437                       | 362      | 421 | 150                            | 0.66                                   | 8.23                       | 9.54                      | 2.40      | 2.80  |

|                               |       |                            |          |     |                                |   |                            |                           |           |       |
|-------------------------------|-------|----------------------------|----------|-----|--------------------------------|---|----------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@220V60Hz |       | 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] | [W/W] |
| -35                           | (-31) | 338                        | 85       | 99  | 79                             | 0.50                                    | 1.91                       | 4.31                      | 1.08      | 1.26  |
| -30                           | (-22) | 470                        | 118      | 138 | 92                             | 0.51                                    | 2.67                       | 5.08                      | 1.28      | 1.49  |
| -25                           | (-13) | 629                        | 159      | 184 | 108                            | 0.54                                    | 3.57                       | 5.84                      | 1.47      | 1.71  |
| -20                           | (- 4) | 823                        | 207      | 241 | 125                            | 0.58                                    | 4.68                       | 6.60                      | 1.66      | 1.93  |
| -15                           | (+ 5) | 1060                       | 267      | 311 | 143                            | 0.63                                    | 6.05                       | 7.39                      | 1.86      | 2.17  |
| -10                           | (+14) | 1348                       | 340      | 395 | 163                            | 0.69                                    | 7.72                       | 8.25                      | 2.08      | 2.42  |

|                               |       |                            |          |     |                                |   |                            |                           |           |       |
|-------------------------------|-------|----------------------------|----------|-----|--------------------------------|---|----------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@220V60Hz |       | ASHRAE32<br>Static         |          |     |                                | (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) | 294                        | 74       | 86  | 78                             | 0.50                                    | 1.66                       | 3.79                      | 0.96      | 1.11  |
| -30                           | (-22) | 419                        | 106      | 123 | 93                             | 0.51                                    | 2.38                       | 4.51                      | 1.14      | 1.32  |
| -25                           | (-13) | 570                        | 144      | 167 | 110                            | 0.54                                    | 3.24                       | 5.18                      | 1.31      | 1.52  |
| -20                           | (- 4) | 755                        | 190      | 221 | 130                            | 0.59                                    | 4.30                       | 5.82                      | 1.47      | 1.71  |
| -15                           | (+ 5) | 981                        | 247      | 287 | 151                            | 0.65                                    | 5.60                       | 6.47                      | 1.63      | 1.89  |
| -10                           | (+14) | 1257                       | 317      | 368 | 176                            | 0.72                                    | 7.20                       | 7.15                      | 1.80      | 2.10  |

### E - PERFORMANCE - CURVES

| TEST CONDITIONS:<br>@220V60Hz |       | 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] |
| -35                           | (-31) | 247                        | 62       | 72  | 75                                      | 0.48                          | 1.40                    | 3.27                      | 0.82      | 0.96  |
| -30                           | (-22) | 366                        | 92       | 107 | 92                                      | 0.49                          | 2.07                    | 3.97                      | 1.00      | 1.16  |
| -25                           | (-13) | 509                        | 128      | 149 | 111                                     | 0.53                          | 2.89                    | 4.57                      | 1.15      | 1.34  |
| -20                           | (- 4) | 684                        | 172      | 200 | 134                                     | 0.59                          | 3.89                    | 5.13                      | 1.29      | 1.50  |
| -15                           | (+ 5) | 900                        | 227      | 264 | 160                                     | 0.67                          | 5.14                    | 5.66                      | 1.43      | 1.66  |
| -10                           | (+14) | 1165                       | 293      | 341 | 188                                     | 0.76                          | 6.67                    | 6.19                      | 1.56      | 1.81  |

### F - EXTERNAL CHARACTERISTICS

|                         |                                |      |                          |
|-------------------------|--------------------------------|------|--------------------------|
| 1 Base plate            | New Base Plate EUEM            |      |                          |
| 2 Tray holder           | Yes                            |      |                          |
| 3 Connectors            |                                |      |                          |
| 3.1 SUCTION             | 6.5 +0.12/-0.08                | [mm] | (0.256" +0.005"/-0.003") |
| 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             | 6.5 +0.12/-0.08                | [mm] | (0.256" +0.005"/-0.003") |
| 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                   |      |                          |