

### COMPRESSOR DEFINITION

|                           |                 |
|---------------------------|-----------------|
| Designation               | EM T45HDR       |
| Nominal Voltage/Frequency | 220-240 V 50 Hz |
| Engineering Number        | 513300285       |

### A - APPLICATION / LIMIT WORKING CONDITIONS

|                                    |   |                                   |           |
|------------------------------------|---|-----------------------------------|-----------|
| 1 Type                             | Hermetic reciprocating compressor           |                                   |           |
| 2 Refrigerant                      | R-134a                                      |                                   |           |
| 3 Nominal voltage and frequency    | 220-240 / 50                                | [ V / Hz ]                        |           |
| 4 Application type                 | High Back Pressure (Commercial Compressors) |                                   |           |
| 4.1 Evaporating temperature range  | -15°C to 10°C                               | (5°F to 50°F)                     |           |
| 5 Motor type                       | CSIR  |                                   |           |
| 6 Starting torque                  | HST - High starting torque                  |                                   |           |
| 7 Expansion device                 | Capillary tube or Expansion valve           |                                   |           |
| 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                      | 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      | 1/2           | [hp]                             |
| 2 Displacement                | 4.15          | [cm <sup>3</sup> ] (0.253 cu.in) |
| 2.1 Bore [mm]                 | 21.000        |                                  |
| 2.2 Stroke [mm]               | 12.000        |                                  |
| 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)    | 7.8           | [kg] (17.20 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                       | Current Relay                      |                                    |
| 2.1 Starting device                          | 213515004/MTRP-0036                |                                    |
| 3 Start capacitor                            | 64-77(328)                         | [µF(VAC minimum)]                  |
| 4 Run capacitor                              | -                                  | [µF(VAC minimum)]                  |
| 5 Motor protection                           | 4TM730KFBYY-53                     |                                    |
| 6 Start winding resistance                   | 17.50                              | [Ω at 25°C (77°F)] +/- 8%          |
| 7 Run winding resistance                     | 16.60                              | [Ω at 25°C (77°F)] +/- 8%          |
| 8 LRA - Locked rotor amperage (50 Hz)        | 8.80                               | [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             | CCC - VDE                          |                                    |

### D - PERFORMANCE - CHECK POINT DATA

|                               |          |     |                                |                                  |  |                           |                                      |       |
|-------------------------------|----------|-----|--------------------------------|----------------------------------|--|---------------------------|--------------------------------------|-------|
| TEST CONDITIONS:<br>@220V50Hz |          |     | ASHRAEHBP46<br>Fan             |                                  | Evaporating temperature<br>(Condensing temperature |                           | 7.2°C (44.96°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] |
| 1515                          | 382      | 444 | 165                            | 1.00                             | 9.82   | 9.20                      | 2.32                                 | 2.70  |

### E - PERFORMANCE - CURVES

|                               |       |                            |                 |     |                                       |                                  |                            |                           |           |       |
|-------------------------------|-------|----------------------------|-----------------|-----|---------------------------------------|----------------------------------|----------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@220V50Hz |       |                            | ASHRAE46<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] |
| -15                           | (+5)  | 735                        | 185             | 215 | 96                                    | 0.80                             | 3.97                       | 7.66                      | 1.93      | 2.24  |
| -10                           | (+14) | 930                        | 234             | 272 | 104                                   | 0.82                             | 5.05                       | 8.94                      | 2.25      | 2.62  |
| -5                            | (+23) | 1164                       | 293             | 341 | 112                                   | 0.84                             | 6.34                       | 10.41                     | 2.62      | 3.05  |
| 0                             | (+32) | 1438                       | 362             | 421 | 119                                   | 0.86                             | 7.87                       | 12.07                     | 3.04      | 3.54  |
| +5                            | (+41) | 1753                       | 442             | 514 | 126                                   | 0.88                             | 9.64                       | 13.89                     | 3.50      | 4.07  |
| +10                           | (+50) | 2111                       | 532             | 618 | 133                                   | 0.91                             | 11.69                      | 15.88                     | 4.00      | 4.65  |

|                               |       |                            |                 |     |  |                                  |                            |                           |           |       |
|-------------------------------|-------|----------------------------|-----------------|-----|--|----------------------------------|----------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@220V50Hz |       |                            | ASHRAE46<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] |
| -15                           | (+5)  | 633                        | 159             | 185 | 103                                    | 0.81                             | 3.70                       | 6.19                      | 1.56      | 1.81  |
| -10                           | (+14) | 806                        | 203             | 236 | 113                                    | 0.84                             | 4.73                       | 7.14                      | 1.80      | 2.09  |
| -5                            | (+23) | 1016                       | 256             | 298 | 123                                    | 0.87                             | 5.98                       | 8.25                      | 2.08      | 2.42  |
| 0                             | (+32) | 1264                       | 319             | 370 | 133                                    | 0.90                             | 7.48                       | 9.49                      | 2.39      | 2.78  |
| +5                            | (+41) | 1551                       | 391             | 454 | 143                                    | 0.93                             | 9.23                       | 10.86                     | 2.74      | 3.18  |
| +10                           | (+50) | 1878                       | 473             | 550 | 152                                    | 0.96                             | 11.25                      | 12.35                     | 3.11      | 3.62  |

|                               |       |                            |                 |     |  |                                  |                            |                           |           |       |
|-------------------------------|-------|----------------------------|-----------------|-----|--|----------------------------------|----------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@220V50Hz |       |                            | ASHRAE46<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] |
| -15                           | (+5)  | 537                        | 135             | 157 | 108                                    | 0.83                             | 3.42                       | 4.94                      | 1.25      | 1.45  |
| -10                           | (+14) | 686                        | 173             | 201 | 121                                    | 0.86                             | 4.39                       | 5.68                      | 1.43      | 1.66  |
| -5                            | (+23) | 869                        | 219             | 255 | 133                                    | 0.90                             | 5.58                       | 6.52                      | 1.64      | 1.91  |
| 0                             | (+32) | 1088                       | 274             | 319 | 146                                    | 0.94                             | 7.03                       | 7.46                      | 1.88      | 2.19  |
| +5                            | (+41) | 1344                       | 339             | 394 | 159                                    | 0.99                             | 8.74                       | 8.48                      | 2.14      | 2.49  |
| +10                           | (+50) | 1638                       | 413             | 480 | 171                                    | 1.03                             | 10.72                      | 9.58                      | 2.41      | 2.81  |

### F - EXTERNAL CHARACTERISTICS

|                         |                              |      |                          |
|-------------------------|------------------------------|------|--------------------------|
| 1 Base plate            | European Standard EUEM       |      |                          |
| 2 Tray holder           | Yes                          |      |                          |
| 3 Connectors            |                              |      |                          |
| 3.1 SUCTION             | 6.2 +0.05/+0.05              | [mm] | (0.244" +0.002"/+0.002") |
| 3.1.1 Material          | Copper                       |      |                          |
| 3.1.2 Shape             | Slanted 40° up + 45° to Back |      |                          |
| 3.2 DISCHARGE           | 4.9 +0.10/-0.05              | [mm] | (0.193" +0.004"/-0.002") |
| 3.2.1 Material          | Copper                       |      |                          |
| 3.2.2 Shape             | Slanted 0° up + 24° to Back  |      |                          |
| 3.3 PROCESS             | 6.2 +0.05/+0.05              | [mm] | (0.244" +0.002"/+0.002") |
| 3.3.1 Material          | Copper                       |      |                          |
| 3.3.2 Shape             | Slanted 40° up + 45° to Back |      |                          |
| 3.4 Oil cooler (Copper) | No                           | [mm] |                          |
| 3.5 Connector sealing   | Rubber Plugs                 |      |                          |