

### COMPRESSOR DEFINITION

|                           |                 |
|---------------------------|-----------------|
| Designation               | EM T45HDR       |
| Nominal Voltage/Frequency | 220-240 V 50 Hz |
| Engineering Number        | 513306240       |

### 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 - Hight 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      | 1/7           | [hp]                                       |
| 2 Displacement                | 3.97          | [cm <sup>3</sup> ] (0.242 cu.in)           |
| 2.1 Bore [mm]                 | 19.000        |  |
| 2.2 Stroke [mm]               | 14.000        |  |
| 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)    | 7.52          | [kg] (16.58 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 | 220-240 V 50 Hz 1 ~ (Single phase) |                                    |
| 2 Starting device type                       | Current Relay                      |                                    |
| 2.1 Starting device                          | QL2-3.35 **                        |                                    |
| 3 Start capacitor                            | 64-77(280)                         | [µF(VAC minimum)]                  |
| 4 Run capacitor                              | -                                  | [µF(VAC minimum)]                  |
| 5 Motor protection                           | DRB170K52AXF                       |                                    |
| 6 Start winding resistance                   | 18.10                              | [Ω at 25°C (77°F)] +/- 8%          |
| 7 Run winding resistance                     | 16.25                              | [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 |          |     | EN12900HBP_HH<br>Static        |                                  | Evaporating temperature<br>(Condensing temperature |                           | 5°C (41°F)<br>50°C (122°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] |
| 1280                          | 323      | 375 | 147                            | 0.93                             | 8.75   | 8.74                      | 2.20                       | 2.56  |

### E - PERFORMANCE - CURVES

| TEST CONDITIONS:<br>@220V50Hz |       |                            | EN12900HH<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] |
| -15                           | (+5)  | 674                        | 170                 | 197 | 98                                    | 0.82                             | 3.94                       | 6.88                      | 1.73      | 2.01  |
| -10                           | (+14) | 845                        | 213                 | 248 | 106                                   | 0.84                             | 4.96                       | 7.97                      | 2.01      | 2.33  |
| -5                            | (+23) | 1040                       | 262                 | 305 | 113                                   | 0.85                             | 6.13                       | 9.20                      | 2.32      | 2.69  |
| 0                             | (+32) | 1270                       | 320                 | 372 | 120                                   | 0.86                             | 7.52                       | 10.61                     | 2.67      | 3.11  |
| +5                            | (+41) | 1544                       | 389                 | 452 | 126                                   | 0.87                             | 9.20                       | 12.24                     | 3.08      | 3.59  |
| +10                           | (+50) | 1872                       | 472                 | 548 | 132                                   | 0.89                             | 11.24                      | 14.14                     | 3.56      | 4.14  |

| TEST CONDITIONS:<br>@220V50Hz |       |                            | EN12900HH<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] |
| -15                           | (+5)  | 588                        | 148                 | 172 | 102                                    | 0.82                             | 3.75                       | 5.77                      | 1.45      | 1.69  |
| -10                           | (+14) | 744                        | 188                 | 218 | 113                                    | 0.85                             | 4.76                       | 6.61                      | 1.67      | 1.94  |
| -5                            | (+23) | 921                        | 232                 | 270 | 122                                    | 0.87                             | 5.92                       | 7.55                      | 1.90      | 2.21  |
| 0                             | (+32) | 1129                       | 285                 | 331 | 131                                    | 0.89                             | 7.30                       | 8.63                      | 2.17      | 2.53  |
| +5                            | (+41) | 1377                       | 347                 | 404 | 139                                    | 0.91                             | 8.97                       | 9.88                      | 2.49      | 2.90  |
| +10                           | (+50) | 1676                       | 422                 | 491 | 148                                    | 0.94                             | 10.99                      | 11.36                     | 2.86      | 3.33  |

| TEST CONDITIONS:<br>@220V50Hz |       |                            | EN12900HH<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] |
| -15                           | (+5)  | 503                        | 127                 | 147 | 107                                    | 0.83                             | 3.55                       | 4.72                      | 1.19      | 1.38  |
| -10                           | (+14) | 645                        | 163                 | 189 | 120                                    | 0.86                             | 4.55                       | 5.39                      | 1.36      | 1.58  |
| -5                            | (+23) | 804                        | 203                 | 235 | 132                                    | 0.89                             | 5.70                       | 6.11                      | 1.54      | 1.79  |
| 0                             | (+32) | 989                        | 249                 | 290 | 143                                    | 0.92                             | 7.07                       | 6.92                      | 1.74      | 2.03  |
| +5                            | (+41) | 1212                       | 305                 | 355 | 154                                    | 0.95                             | 8.73                       | 7.86                      | 1.98      | 2.30  |
| +10                           | (+50) | 1481                       | 373                 | 434 | 165                                    | 0.99                             | 10.75                      | 8.98                      | 2.26      | 2.63  |

### F - EXTERNAL CHARACTERISTICS

|                         |                                |      |                          |
|-------------------------|--------------------------------|------|--------------------------|
| 1 Base plate            | European Standard 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                   |      |                          |