

### COMPRESSOR DEFINITION

|                           |                 |
|---------------------------|-----------------|
| Designation               | EM 45HHR        |
| Nominal Voltage/Frequency | 220-240 V 50 Hz |
| Engineering Number        | 513307129       |

### 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                 | Low-Medium-High Back Pressure     |                                   |           |
| 4.1 Evaporating temperature range  | -35°C to 15°C                     | (-31°F to 59°F)                   |           |
| 5 Motor type                       | RSIR/CSIR                         |                                   |           |
| 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                        | 198 to 255 V                      | -         |
| 8.2 LBP (43°C Ambient temperature) | Static/Fan                        | 198 to 255 V                      | -         |
| 8.3 HBP (32°C Ambient temperature) | Fan                               | 198 to 255 V                      | -         |
| 8.4 HBP (43°C Ambient temperature) | Fan                               | 198 to 255 V                      | -         |
| 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      | 1/8           | [hp]                                       |
| 2 Displacement                | 3.77          | [cm <sup>3</sup> ] (0.230 cu.in)           |
| 2.1 Bore [mm]                 | 19.000        |  |
| 2.2 Stroke [mm]               | 13.300        |  |
| 3 Lubricant charge            | 160           | [ml] (5.41 fl.oz.)                         |
| 3.1 Lubricants approved       |               |  |
| 3.2 Lubricants type/viscosity | ESTER / ISO22 |  |
| 4 Weight (with oil charge)    | 7.66          | [kg] (16.89 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                          | 213514130/213515004                |                                    |
| 3 Start capacitor                            | 38-46(220)                         | [µF(VAC minimum)]                  |
| 4 Run capacitor                              | -                                  | [µF(VAC minimum)]                  |
| 5 Motor protection                           | 4TM718MFBYY-53                     |                                    |
| 6 Start winding resistance                   | 38.00                              | [Ω at 25°C (77°F)] +/- 8%          |
| 7 Run winding resistance                     | 20.50                              | [Ω at 25°C (77°F)] +/- 8%          |
| 8 LRA - Locked rotor amperage (50/60 Hz)     | 9.50/9.00                          | [A] - Measured according to UL 984 |
| 9 FLA - Full load amperage L/MBP (50/60 Hz)  | 1.05/0.90                          | [A] - Measured according to UL 984 |
| 10 FLA - Full Load Amperage HBP (50/60 Hz)   | -                                  | [A] - Measured according to UL 984 |
| 11 Approval boards certification             | CE - IRAM - ISI - TUV - UKCA - VDE |                                    |

### D - PERFORMANCE - CHECK POINT DATA

|                               |          |     |                             |                               |   |                           |                                      |       |  |
|-------------------------------|----------|-----|-----------------------------|-------------------------------|---|---------------------------|--------------------------------------|-------|--|
| TEST CONDITIONS:<br>@220V50Hz |          |     | ASHRAEHBP32<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 consumption<br>+/- 5% | Current consumption<br>+/- 5% | Gas flow rate<br>+/- 5%                             | EFFICIENCY RATE<br>+/- 7% |                                      |       |  |
| [Btu/h]                       | [kcal/h] | [W] | [W]                         | [A]                           | [kg/h]  | [Btu/Wh]                  | [kcal/Wh]                            | [W/W] |  |
| 1500                          | 378      | 440 | 167                         | 1.05                          |   | 8.96                      | 2.26                                 | 2.63  |  |

|                               |          |     |                             |                               |   |                           |  |       |  |
|-------------------------------|----------|-----|-----------------------------|-------------------------------|---|---------------------------|--|-------|--|
| TEST CONDITIONS:<br>@220V50Hz |          |     | 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 consumption<br>+/- 5% | Current consumption<br>+/- 5% | Gas flow rate<br>+/- 5%                             | EFFICIENCY RATE<br>+/- 7% |  |       |  |
| [Btu/h]                       | [kcal/h] | [W] | [W]                         | [A]                           | [kg/h]  | [Btu/Wh]                  | [kcal/Wh]                              | [W/W] |  |
| 348                           | 88       | 102 | 99                          | 0.86                          | 1.98  | 3.50                      | 0.88                                   | 1.03  |  |

### E - PERFORMANCE - CURVES

|                               |                            |          |                    |                             |  |                         |                           |           |       |
|-------------------------------|----------------------------|----------|--------------------|-----------------------------|--|-------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@220V50Hz |                            |          | ASHRAE32<br>Static |                             | (Condensing temperature 45°C (+113°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)                     | 172                        | 43       | 50                 | 73                          | 0.85                                   | 0.97                    | 2.33                      | 0.59      | 0.68  |
| -30 (-22)                     | 237                        | 60       | 69                 | 82                          | 0.85                                   | 1.35                    | 2.89                      | 0.73      | 0.85  |
| -25 (-13)                     | 323                        | 81       | 95                 | 91                          | 0.86                                   | 1.84                    | 3.58                      | 0.90      | 1.05  |
| -20 (- 4)                     | 432                        | 109      | 126                | 99                          | 0.87                                   | 2.46                    | 4.39                      | 1.11      | 1.29  |
| -15 (+ 5)                     | 567                        | 143      | 166                | 107                         | 0.89                                   | 3.23                    | 5.31                      | 1.34      | 1.56  |
| -10 (+14)                     | 733                        | 185      | 215                | 116                         | 0.91                                   | 4.19                    | 6.32                      | 1.59      | 1.85  |
| -5 (+23)                      | 931                        | 235      | 273                | 125                         | 0.93                                   | 5.35                    | 7.41                      | 1.87      | 2.17  |
| 0 (+32)                       | 1166                       | 294      | 342                | 135                         | 0.96                                   | 6.75                    | 8.58                      | 2.16      | 2.51  |
| +5 (+41)                      | 1441                       | 363      | 422                | 146                         | 0.99                                   | 8.39                    | 9.81                      | 2.47      | 2.87  |
| +10 (+50)                     | 1759                       | 443      | 515                | 158                         | 1.03                                   | 10.31                   | 11.08                     | 2.79      | 3.25  |
| +15 (+59)                     | 2123                       | 535      | 622                | 172                         | 1.07                                   | 12.53                   | 12.39                     | 3.12      | 3.63  |

|                               |                            |          |                    |                             |  |                         |                           |           |       |
|-------------------------------|----------------------------|----------|--------------------|-----------------------------|--|-------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@220V50Hz |                            |          | 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] |
| -35 (-31)                     | 143                        | 36       | 42                 | 69                          | 0.84                                   | 0.81                    | 2.07                      | 0.52      | 0.61  |
| -30 (-22)                     | 208                        | 52       | 61                 | 81                          | 0.85                                   | 1.18                    | 2.57                      | 0.65      | 0.75  |
| -25 (-13)                     | 291                        | 73       | 85                 | 92                          | 0.86                                   | 1.66                    | 3.17                      | 0.80      | 0.93  |
| -20 (- 4)                     | 396                        | 100      | 116                | 103                         | 0.88                                   | 2.25                    | 3.86                      | 0.97      | 1.13  |
| -15 (+ 5)                     | 525                        | 132      | 154                | 114                         | 0.91                                   | 2.99                    | 4.63                      | 1.17      | 1.36  |
| -10 (+14)                     | 682                        | 172      | 200                | 125                         | 0.93                                   | 3.90                    | 5.46                      | 1.38      | 1.60  |
| -5 (+23)                      | 869                        | 219      | 255                | 137                         | 0.96                                   | 5.00                    | 6.34                      | 1.60      | 1.86  |
| 0 (+32)                       | 1091                       | 275      | 320                | 150                         | 1.00                                   | 6.31                    | 7.26                      | 1.83      | 2.13  |
| +5 (+41)                      | 1351                       | 340      | 396                | 164                         | 1.04                                   | 7.86                    | 8.21                      | 2.07      | 2.41  |
| +10 (+50)                     | 1652                       | 416      | 484                | 179                         | 1.09                                   | 9.68                    | 9.18                      | 2.31      | 2.69  |
| +15 (+59)                     | 1996                       | 503      | 585                | 196                         | 1.14                                   | 11.78                   | 10.16                     | 2.56      | 2.98  |

### E - PERFORMANCE - CURVES

| TEST CONDITIONS:<br>@220V50Hz |       | 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) | 79                         | 20       | 23  | 67                                      | 0.83                          | 0.45                    | 1.20                      | 0.30      | 0.35  |
| -30                           | (-22) | 151                        | 38       | 44  | 80                                      | 0.85                          | 0.86                    | 1.83                      | 0.46      | 0.54  |
| -25                           | (-13) | 239                        | 60       | 70  | 92                                      | 0.87                          | 1.36                    | 2.53                      | 0.64      | 0.74  |
| -20                           | (- 4) | 345                        | 87       | 101 | 104                                     | 0.89                          | 1.97                    | 3.28                      | 0.83      | 0.96  |
| -15                           | (+ 5) | 474                        | 120      | 139 | 116                                     | 0.92                          | 2.71                    | 4.09                      | 1.03      | 1.20  |
| -10                           | (+14) | 629                        | 158      | 184 | 128                                     | 0.95                          | 3.60                    | 4.92                      | 1.24      | 1.44  |
| -5                            | (+23) | 812                        | 205      | 238 | 142                                     | 0.99                          | 4.67                    | 5.78                      | 1.46      | 1.69  |
| 0                             | (+32) | 1028                       | 259      | 301 | 156                                     | 1.03                          | 5.94                    | 6.65                      | 1.68      | 1.95  |
| +5                            | (+41) | 1279                       | 322      | 375 | 171                                     | 1.08                          | 7.44                    | 7.52                      | 1.90      | 2.20  |
| +10                           | (+50) | 1569                       | 395      | 460 | 188                                     | 1.13                          | 9.19                    | 8.38                      | 2.11      | 2.45  |
| +15                           | (+59) | 1901                       | 479      | 557 | 206                                     | 1.19                          | 11.22                   | 9.21                      | 2.32      | 2.70  |

### F - EXTERNAL CHARACTERISTICS

|                         |                                       |      |                          |
|-------------------------|---------------------------------------|------|--------------------------|
| 1 Base plate            | European Standard EG/F/AMEM Version 2 |      |                          |
| 2 Tray holder           | No                                    |      |                          |
| 3 Connectors            |                                       |      |                          |
| 3.1 SUCTION             | 6.36 +0.10/+0.10                      | [mm] | (0.250" +0.004"/+0.004") |
| 3.1.1 Material          | Copper                                |      |                          |
| 3.1.2 Shape             | Straight                              |      |                          |
| 3.2 DISCHARGE           | 5.1 +0.10/+0.00                       | [mm] | (0.201" +0.004"/+0.000") |
| 3.2.1 Material          | Copper                                |      |                          |
| 3.2.2 Shape             | Slanted                               |      |                          |
| 3.3 PROCESS             | 6.36 +0.10/+0.10                      | [mm] | (0.250" +0.004"/+0.004") |
| 3.3.1 Material          | Copper                                |      |                          |
| 3.3.2 Shape             | Straight                              |      |                          |
| 3.4 Oil cooler (Copper) | No                                    | [mm] |                          |
| 3.5 Connector sealing   | Rubber Plugs                          |      |                          |