

### COMPRESSOR DEFINITION

|                           |                 |
|---------------------------|-----------------|
| Designation               | F F112HBK       |
| Nominal Voltage/Frequency | 220-240 V 50 Hz |
| Engineering Number        | 513205520       |

### 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) | Fan                               | 198 to 255 V                      | -         |
| 8.2 LBP (43°C Ambient temperature) | 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      | 1/3+          | [hp]                                       |
| 2 Displacement                | 11.14         | [cm <sup>3</sup> ] (0.680 cu.in)           |
| 2.1 Bore [mm]                 | 26.000        |  |
| 2.2 Stroke [mm]               | 21.000        |  |
| 3 Lubricant charge            | 280           | [ml] (9.47 fl.oz.)                         |
| 3.1 Lubricants approved       |               |  |
| 3.2 Lubricants type/viscosity | ESTER / ISO22 |  |
| 4 Weight (with oil charge)    | 11.35         | [kg] (25.02 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                          | 213516035/213516043                |                                    |
| 3 Start capacitor                            | 88-108(220)                        | [µF(VAC minimum)]                  |
| 4 Run capacitor                              | -                                  | [µF(VAC minimum)]                  |
| 5 Motor protection                           | CP4TMF210N52A2                     |                                    |
| 6 Start winding resistance                   | 29.90                              | [Ω at 25°C (77°F)] +/- 8%          |
| 7 Run winding resistance                     | 5.70                               | [Ω at 25°C (77°F)] +/- 8%          |
| 8 LRA - Locked rotor amperage (50 Hz)        | 20.00                              | [A] - Measured according to UL 984 |
| 9 FLA - Full load amperage L/MBP (50 Hz)     | 2.50                               | [A] - Measured according to UL 984 |
| 10 FLA - Full Load Amperage HBP (50 Hz)      | 3.00                               | [A] - Measured according to UL 984 |
| 11 Approval boards certification             | CCC - CE - IRAM - UKCA - UL - 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] |
| 4492                          | 1132     | 1316 | 504                         | 2.79                          |  | 8.91                      | 2.25                                 | 2.61  |

|                               |          |     |                             |                               |  |                           |  |       |
|-------------------------------|----------|-----|-----------------------------|-------------------------------|--|---------------------------|--|-------|
| TEST CONDITIONS:<br>@220V50Hz |          |     | 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 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] |
| 1090                          | 275      | 319 | 256                         | 1.96                          | 6.19   | 4.26                      | 1.07                                   | 1.25  |

### E - PERFORMANCE - CURVES

|                               |                            |          |                 |                             |  |                         |                           |           |       |
|-------------------------------|----------------------------|----------|-----------------|-----------------------------|--|-------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@220V50Hz |                            |          | ASHRAE32<br>Fan |                             | (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)                     | 553                        | 139      | 162             | 187                         | 1.87                                   | 3.13                    | 2.94                      | 0.74      | 0.86  |
| -30 (-22)                     | 762                        | 192      | 223             | 214                         | 1.91                                   | 4.33                    | 3.62                      | 0.91      | 1.06  |
| -25 (-13)                     | 1038                       | 262      | 304             | 242                         | 1.97                                   | 5.90                    | 4.35                      | 1.10      | 1.27  |
| -20 (- 4)                     | 1383                       | 348      | 405             | 272                         | 2.05                                   | 7.87                    | 5.12                      | 1.29      | 1.50  |
| -15 (+ 5)                     | 1799                       | 453      | 527             | 303                         | 2.13                                   | 10.26                   | 5.94                      | 1.50      | 1.74  |
| -10 (+14)                     | 2289                       | 577      | 671             | 336                         | 2.23                                   | 13.10                   | 6.80                      | 1.71      | 1.99  |
| -5 (+23)                      | 2853                       | 719      | 836             | 370                         | 2.35                                   | 16.41                   | 7.69                      | 1.94      | 2.25  |
| 0 (+32)                       | 3495                       | 881      | 1024            | 406                         | 2.47                                   | 20.21                   | 8.60                      | 2.17      | 2.52  |
| +5 (+41)                      | 4217                       | 1063     | 1236            | 442                         | 2.60                                   | 24.54                   | 9.52                      | 2.40      | 2.79  |
| +10 (+50)                     | 5019                       | 1265     | 1471            | 480                         | 2.75                                   | 29.41                   | 10.46                     | 2.64      | 3.07  |
| +15 (+59)                     | 5905                       | 1488     | 1730            | 518                         | 2.90                                   | 34.86                   | 11.40                     | 2.87      | 3.34  |

|                               |                            |          |                 |                             |  |                         |                           |           |       |
|-------------------------------|----------------------------|----------|-----------------|-----------------------------|--|-------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@220V50Hz |                            |          | 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] |
| -35 (-31)                     | 514                        | 130      | 151             | 184                         | 1.89                                   | 2.91                    | 2.71                      | 0.68      | 0.79  |
| -30 (-22)                     | 713                        | 180      | 209             | 215                         | 1.93                                   | 4.05                    | 3.31                      | 0.83      | 0.97  |
| -25 (-13)                     | 974                        | 245      | 285             | 247                         | 2.00                                   | 5.54                    | 3.95                      | 1.00      | 1.16  |
| -20 (- 4)                     | 1300                       | 328      | 381             | 282                         | 2.08                                   | 7.40                    | 4.62                      | 1.16      | 1.35  |
| -15 (+ 5)                     | 1693                       | 427      | 496             | 319                         | 2.18                                   | 9.65                    | 5.32                      | 1.34      | 1.56  |
| -10 (+14)                     | 2155                       | 543      | 631             | 357                         | 2.30                                   | 12.33                   | 6.03                      | 1.52      | 1.77  |
| -5 (+23)                      | 2687                       | 677      | 787             | 398                         | 2.44                                   | 15.44                   | 6.76                      | 1.70      | 1.98  |
| 0 (+32)                       | 3292                       | 830      | 965             | 440                         | 2.59                                   | 19.03                   | 7.50                      | 1.89      | 2.20  |
| +5 (+41)                      | 3972                       | 1001     | 1164            | 483                         | 2.75                                   | 23.11                   | 8.23                      | 2.08      | 2.41  |
| +10 (+50)                     | 4729                       | 1192     | 1386            | 528                         | 2.93                                   | 27.71                   | 8.97                      | 2.26      | 2.63  |
| +15 (+59)                     | 5565                       | 1402     | 1631            | 575                         | 3.12                                   | 32.85                   | 9.69                      | 2.44      | 2.84  |

### E - PERFORMANCE - CURVES

| TEST CONDITIONS:<br>@220V50Hz |       | 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] |
| -35                           | (-31) | 395                        | 100      | 116  | 175                                     | 1.87                          | 2.22                    | 2.32                      | 0.58      | 0.68  |
| -30                           | (-22) | 608                        | 153      | 178  | 211                                     | 1.92                          | 3.46                    | 2.91                      | 0.73      | 0.85  |
| -25                           | (-13) | 880                        | 222      | 258  | 249                                     | 2.00                          | 5.01                    | 3.53                      | 0.89      | 1.03  |
| -20                           | (- 4) | 1212                       | 305      | 355  | 289                                     | 2.10                          | 6.90                    | 4.16                      | 1.05      | 1.22  |
| -15                           | (+ 5) | 1606                       | 405      | 471  | 332                                     | 2.22                          | 9.16                    | 4.81                      | 1.21      | 1.41  |
| -10                           | (+14) | 2065                       | 520      | 605  | 377                                     | 2.37                          | 11.82                   | 5.45                      | 1.37      | 1.60  |
| -5                            | (+23) | 2590                       | 653      | 759  | 424                                     | 2.53                          | 14.89                   | 6.09                      | 1.54      | 1.79  |
| 0                             | (+32) | 3183                       | 802      | 933  | 474                                     | 2.71                          | 18.40                   | 6.73                      | 1.70      | 1.97  |
| +5                            | (+41) | 3847                       | 970      | 1127 | 525                                     | 2.91                          | 22.38                   | 7.34                      | 1.85      | 2.15  |
| +10                           | (+50) | 4583                       | 1155     | 1343 | 578                                     | 3.13                          | 26.85                   | 7.94                      | 2.00      | 2.33  |
| +15                           | (+59) | 5394                       | 1359     | 1581 | 633                                     | 3.36                          | 31.84                   | 8.51                      | 2.14      | 2.49  |

### F - EXTERNAL CHARACTERISTICS

|                         |                 |      |                          |
|-------------------------|-----------------|------|--------------------------|
| 1 Base plate            | Universal       |      |                          |
| 2 Tray holder           | No              |      |                          |
| 3 Connectors            |                 |      |                          |
| 3.1 SUCTION             | 8.2 +0.12/-0.08 | [mm] | (0.323" +0.005"/-0.003") |
| 3.1.1 Material          | Copper          |      |                          |
| 3.1.2 Shape             | Straight        |      |                          |
| 3.2 DISCHARGE           | 6.5 +0.12/-0.08 | [mm] | (0.256" +0.005"/-0.003") |
| 3.2.1 Material          | Copper          |      |                          |
| 3.2.2 Shape             | Straight        |      |                          |
| 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             | Straight        |      |                          |
| 3.4 Oil cooler (Copper) | No              | [mm] |                          |
| 3.5 Connector sealing   | Rubber Plugs    |      |                          |