

### COMPRESSOR DEFINITION

|                           |                    |
|---------------------------|--------------------|
| Designation               | <b>F F10HBKW</b>   |
| Nominal Voltage/Frequency | <b>115 V 60 Hz</b> |
| Engineering Number        | <b>513200239</b>   |

### A - APPLICATION / LIMIT WORKING CONDITIONS

|                                    |                                   |                                   |              |
|------------------------------------|-----------------------------------|-----------------------------------|--------------|
| 1 Type                             | Hermetic reciprocating compressor |                                   |              |
| 2 Refrigerant                      | R-134a                            |                                   |              |
| 3 Nominal voltage and frequency    | 115 / 60                          | [ 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                       | 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) | -                                 | -                                 | -            |
| 8.2 LBP (43°C Ambient temperature) | -                                 | -                                 | -            |
| 8.3 HBP (32°C Ambient temperature) | Fan                               | -                                 | 103 to 135 V |
| 8.4 HBP (43°C Ambient temperature) | Fan                               | -                                 | 103 to 135 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      | 1/4+          | [hp]                                       |
| 2 Displacement                | 9.04          | [cm <sup>3</sup> ] (0.552 cu.in)           |
| 2.1 Bore [mm]                 | 24.000        |  |
| 2.2 Stroke [mm]               | 20.000        |  |
| 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)    | 11.55         | [kg] (25.46 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 | 115 V 60 Hz 1 ~ (Single phase) |                                    |
| 2 Starting device type                       | Current Relay                  |                                    |
| 2.1 Starting device                          | 213516191                      |                                    |
| 3 Start capacitor                            | 216-259(115)                   | [µF(VAC minimum)]                  |
| 4 Run capacitor                              | -                              | [µF(VAC minimum)]                  |
| 5 Motor protection                           | 5TM795LFBZZ-53                 |                                    |
| 6 Start winding resistance                   | 6.03                           | [Ω at 25°C (77°F)] +/- 8%          |
| 7 Run winding resistance                     | 1.23                           | [Ω at 25°C (77°F)] +/- 8%          |
| 8 LRA - Locked rotor amperage (60 Hz)        | -                              | [A] - Measured according to UL 984 |
| 9 FLA - Full load amperage L/MBP (60 Hz)     | -                              | [A] - Measured according to UL 984 |
| 10 FLA - Full Load Amperage HBP (60 Hz)      | -                              | [A] - Measured according to UL 984 |
| 11 Approval boards certification             | CE - UKCA - UL                 |                                    |

### D - PERFORMANCE - CHECK POINT DATA

|                               |          |      |                                |                                  |  |                           |                                      |       |
|-------------------------------|----------|------|--------------------------------|----------------------------------|--|---------------------------|--------------------------------------|-------|
| TEST CONDITIONS:<br>@115V60Hz |          |      | 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<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] |
| 3530                          | 890      | 1034 | 462                            | 4.90                             |  | 7.64                      | 1.93                                 | 2.24  |

### E - PERFORMANCE - CURVES

|                               |                            |          |                 |                                |  |                            |                           |           |       |
|-------------------------------|----------------------------|----------|-----------------|--------------------------------|--|----------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@115V60Hz |                            |          | ASHRAE32<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] |
| -35 (-31)                     | 399                        | 101      | 117             | 163                            | 3.30                                   | 2.25                       | 2.49                      | 0.63      | 0.73  |
| -30 (-22)                     | 595                        | 150      | 174             | 186                            | 3.38                                   | 3.38                       | 3.18                      | 0.80      | 0.93  |
| -25 (-13)                     | 828                        | 209      | 243             | 213                            | 3.49                                   | 4.71                       | 3.85                      | 0.97      | 1.13  |
| -20 (- 4)                     | 1105                       | 279      | 324             | 243                            | 3.64                                   | 6.29                       | 4.52                      | 1.14      | 1.32  |
| -15 (+ 5)                     | 1436                       | 362      | 421             | 276                            | 3.81                                   | 8.19                       | 5.19                      | 1.31      | 1.52  |
| -10 (+14)                     | 1826                       | 460      | 535             | 310                            | 4.02                                   | 10.45                      | 5.89                      | 1.48      | 1.72  |
| -5 (+23)                      | 2286                       | 576      | 670             | 347                            | 4.25                                   | 13.14                      | 6.60                      | 1.66      | 1.93  |
| 0 (+32)                       | 2821                       | 711      | 827             | 385                            | 4.51                                   | 16.31                      | 7.35                      | 1.85      | 2.15  |
| +5 (+41)                      | 3441                       | 867      | 1008            | 424                            | 4.79                                   | 20.02                      | 8.14                      | 2.05      | 2.38  |
| +10 (+50)                     | 4152                       | 1046     | 1217            | 463                            | 5.10                                   | 24.33                      | 8.98                      | 2.26      | 2.63  |
| +15 (+59)                     | 4964                       | 1251     | 1454            | 502                            | 5.43                                   | 29.30                      | 9.88                      | 2.49      | 2.89  |

|                               |                            |          |                 |                                |  |                            |                           |           |       |
|-------------------------------|----------------------------|----------|-----------------|--------------------------------|--|----------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@115V60Hz |                            |          | ASHRAE32<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] |
| -35 (-31)                     | 364                        | 92       | 107             | 156                            | 3.29                                   | 2.05                       | 2.30                      | 0.58      | 0.68  |
| -30 (-22)                     | 537                        | 135      | 157             | 184                            | 3.38                                   | 3.06                       | 2.89                      | 0.73      | 0.85  |
| -25 (-13)                     | 749                        | 189      | 219             | 214                            | 3.51                                   | 4.27                       | 3.47                      | 0.88      | 1.02  |
| -20 (- 4)                     | 1008                       | 254      | 295             | 248                            | 3.67                                   | 5.74                       | 4.06                      | 1.02      | 1.19  |
| -15 (+ 5)                     | 1322                       | 333      | 387             | 285                            | 3.85                                   | 7.54                       | 4.65                      | 1.17      | 1.36  |
| -10 (+14)                     | 1698                       | 428      | 498             | 323                            | 4.07                                   | 9.71                       | 5.27                      | 1.33      | 1.54  |
| -5 (+23)                      | 2145                       | 541      | 629             | 364                            | 4.32                                   | 12.33                      | 5.92                      | 1.49      | 1.73  |
| 0 (+32)                       | 2671                       | 673      | 783             | 405                            | 4.59                                   | 15.44                      | 6.60                      | 1.66      | 1.93  |
| +5 (+41)                      | 3282                       | 827      | 962             | 448                            | 4.90                                   | 19.10                      | 7.33                      | 1.85      | 2.15  |
| +10 (+50)                     | 3989                       | 1005     | 1169            | 491                            | 5.23                                   | 23.38                      | 8.12                      | 2.05      | 2.38  |
| +15 (+59)                     | 4797                       | 1209     | 1406            | 535                            | 5.58                                   | 28.32                      | 8.97                      | 2.26      | 2.63  |

### E - PERFORMANCE - CURVES

| TEST CONDITIONS:<br>@115V60Hz |       | 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) | 276                        | 70       | 81   | 144                                     | 3.26                          | 1.56                    | 1.91                      | 0.48      | 0.56  |
| -30                           | (-22) | 425                        | 107      | 125  | 176                                     | 3.39                          | 2.42                    | 2.42                      | 0.61      | 0.71  |
| -25                           | (-13) | 616                        | 155      | 181  | 211                                     | 3.55                          | 3.51                    | 2.93                      | 0.74      | 0.86  |
| -20                           | (- 4) | 856                        | 216      | 251  | 250                                     | 3.74                          | 4.87                    | 3.45                      | 0.87      | 1.01  |
| -15                           | (+ 5) | 1153                       | 290      | 338  | 291                                     | 3.96                          | 6.57                    | 3.99                      | 1.00      | 1.17  |
| -10                           | (+14) | 1514                       | 382      | 444  | 334                                     | 4.22                          | 8.66                    | 4.55                      | 1.15      | 1.33  |
| -5                            | (+23) | 1949                       | 491      | 571  | 379                                     | 4.51                          | 11.20                   | 5.14                      | 1.30      | 1.51  |
| 0                             | (+32) | 2464                       | 621      | 722  | 425                                     | 4.82                          | 14.24                   | 5.78                      | 1.46      | 1.69  |
| +5                            | (+41) | 3067                       | 773      | 899  | 472                                     | 5.17                          | 17.85                   | 6.48                      | 1.63      | 1.90  |
| +10                           | (+50) | 3768                       | 949      | 1104 | 520                                     | 5.54                          | 22.08                   | 7.23                      | 1.82      | 2.12  |
| +15                           | (+59) | 4572                       | 1152     | 1340 | 568                                     | 5.94                          | 26.99                   | 8.05                      | 2.03      | 2.36  |

### F - EXTERNAL CHARACTERISTICS

|                         |                               |      |                          |
|-------------------------|-------------------------------|------|--------------------------|
| 1 Base plate            | Universal EG/F/AMEM version 2 |      |                          |
| 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 plated steel           |      |                          |
| 3.1.2 Shape             | Slanted                       |      |                          |
| 3.2 DISCHARGE           | 6.5 +0.12/-0.08               | [mm] | (0.256" +0.005"/-0.003") |
| 3.2.1 Material          | Copper plated steel           |      |                          |
| 3.2.2 Shape             | Slanted                       |      |                          |
| 3.3 PROCESS             | 6.5 +0.12/-0.08               | [mm] | (0.256" +0.005"/-0.003") |
| 3.3.1 Material          | Copper plated steel           |      |                          |
| 3.3.2 Shape             | Slanted                       |      |                          |
| 3.4 Oil cooler (Copper) | 6.5 +0.09/-0.09               | [mm] | (0.256" +0.004"/-0.004") |
| 3.5 Connector sealing   | Rubber Plugs                  |      |                          |