

### COMPRESSOR DEFINITION

|                           |                    |
|---------------------------|--------------------|
| Designation               | F F18,5HAK         |
| Nominal Voltage/Frequency | 220-240 V 50-60 Hz |
| Engineering Number        | 513200721          |

### A - APPLICATION / LIMIT WORKING CONDITIONS

|                                    |                                   |                                   |              |
|------------------------------------|-----------------------------------|-----------------------------------|--------------|
| 1 Type                             | Hermetic reciprocating compressor |                                   |              |
| 2 Refrigerant                      | R-134a                            |                                   |              |
| 3 Nominal voltage and frequency    | 220-240 / 50-60                   | [ V / Hz ]                        |              |
| 4 Application type                 | Low-Medium Back Pressure          |                                   |              |
| 4.1 Evaporating temperature range  | -35°C to -5°C                     | (-31°F to 23°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                        | 187 to 255 V                      | 187 to 242 V |
| 8.2 LBP (43°C Ambient temperature) | Static/Fan                        | 187 to 255 V                      | 187 to 242 V |
| 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      | 1/4+          | [hp]                                       |
| 2 Displacement                | 7.15          | [cm <sup>3</sup> ] (0.436 cu.in)           |
| 2.1 Bore [mm]                 | 22.500        |  |
| 2.2 Stroke [mm]               | 18.000        |  |
| 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)    | 11.02         | [kg] (24.29 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 50-60 Hz 1 ~ (Single phase) |                                    |
| 2 Starting device type                       | Current Relay                         |                                    |
| 2.1 Starting device                          | 213516078/213516086                   |                                    |
| 3 Start capacitor                            | 64-77(200)                            | [μF(VAC minimum)]                  |
| 4 Run capacitor                              | -                                     | [μF(VAC minimum)]                  |
| 5 Motor protection                           | 5TM757KDBYY-53                        |                                    |
| 6 Start winding resistance                   | 29.70                                 | [Ω at 25°C (77°F)] +/- 8%          |
| 7 Run winding resistance                     | 8.35                                  | [Ω at 25°C (77°F)] +/- 8%          |
| 8 LRA - Locked rotor amperage (50/60 Hz)     | 17.00/16.00                           | [A] - Measured according to UL 984 |
| 9 FLA - Full load amperage L/MBP (50/60 Hz)  | 1.80/1.75                             | [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 - UKCA - UL                        |                                    |

### D - PERFORMANCE - CHECK POINT DATA

|                               |          |     |                                |                                  |  |                           |  |       |  |
|-------------------------------|----------|-----|--------------------------------|----------------------------------|--|---------------------------|--|-------|--|
| 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<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] |  |
| 702                           | 177      | 206 | 157                            | 1.34                             | 3.99   | 4.49                      | 1.13                                   | 1.32  |  |

|                               |          |     |                                |                                  |  |                           |  |       |  |
|-------------------------------|----------|-----|--------------------------------|----------------------------------|--|---------------------------|--|-------|--|
| 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<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] |  |
| 702                           | 177      | 206 | 157                            | 1.34                             | 3.99   | 4.49                      | 1.13                                   | 1.32  |  |

|                               |          |     |                                |                                  |  |                           |  |       |  |
|-------------------------------|----------|-----|--------------------------------|----------------------------------|--|---------------------------|--|-------|--|
| TEST CONDITIONS:<br>@220V60Hz |          |     | 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<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] |  |
| 823                           | 207      | 241 | 176                            | 1.23                             | 4.68   | 4.68                      | 1.18                                   | 1.37  |  |

|                               |          |     |                                |                                  |  |                           |  |       |  |
|-------------------------------|----------|-----|--------------------------------|----------------------------------|--|---------------------------|--|-------|--|
| TEST CONDITIONS:<br>@220V60Hz |          |     | 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<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] |  |
| 823                           | 207      | 241 | 176                            | 1.23                             | 4.68   | 4.68                      | 1.18                                   | 1.37  |  |

### E - PERFORMANCE - CURVES

|                               |                            |                    |         |                                |                                  |                            |  |        |          |           |
|-------------------------------|----------------------------|--------------------|---------|--------------------------------|----------------------------------|----------------------------|--|--------|----------|-----------|
| TEST CONDITIONS:<br>@220V50Hz |                            | ASHRAE32<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] |
| -35                           | (-31)                      | 381                | 96      | 112                            | 114                              | 1.21                       | 2.16                                   | 3.33   | 0.84     | 0.97      |
| -30                           | (-22)                      | 518                | 131     | 152                            | 130                              | 1.25                       | 2.93                                   | 4.00   | 1.01     | 1.17      |
| -25                           | (-13)                      | 690                | 174     | 202                            | 146                              | 1.28                       | 3.92                                   | 4.77   | 1.20     | 1.40      |
| -20                           | (- 4)                      | 904                | 228     | 265                            | 161                              | 1.31                       | 5.14                                   | 5.63   | 1.42     | 1.65      |
| -15                           | (+ 5)                      | 1163               | 293     | 341                            | 177                              | 1.35                       | 6.64                                   | 6.55   | 1.65     | 1.92      |
| -10                           | (+14)                      | 1474               | 372     | 432                            | 195                              | 1.40                       | 8.45                                   | 7.53   | 1.90     | 2.21      |
| -5                            | (+23)                      | 1842               | 464     | 540                            | 216                              | 1.46                       | 10.60                                  | 8.55   | 2.15     | 2.51      |

### E - PERFORMANCE - CURVES

| 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)                     | 314                        | 79                 | 92       | 111                         | 1.21                                   | 1.78                    | 2.87                      | 0.72     | 0.84      |       |
| -30 (-22)                     | 462                        | 116                | 135      | 131                         | 1.25                                   | 2.62                    | 3.53                      | 0.89     | 1.03      |       |
| -25 (-13)                     | 637                        | 160                | 187      | 151                         | 1.29                                   | 3.62                    | 4.23                      | 1.07     | 1.24      |       |
| -20 (- 4)                     | 846                        | 213                | 248      | 170                         | 1.33                                   | 4.81                    | 4.97                      | 1.25     | 1.46      |       |
| -15 (+ 5)                     | 1093                       | 275                | 320      | 191                         | 1.39                                   | 6.24                    | 5.72                      | 1.44     | 1.68      |       |
| -10 (+14)                     | 1385                       | 349                | 406      | 213                         | 1.45                                   | 7.93                    | 6.48                      | 1.63     | 1.90      |       |
| -5 (+23)                      | 1726                       | 435                | 506      | 238                         | 1.54                                   | 9.93                    | 7.24                      | 1.82     | 2.12      |       |

| 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)                     | 250                        | 63                 | 73       | 105                         | 1.21                                   | 1.41                    | 2.39                      | 0.60     | 0.70      |       |
| -30 (-22)                     | 405                        | 102                | 119      | 129                         | 1.25                                   | 2.30                    | 3.09                      | 0.78     | 0.90      |       |
| -25 (-13)                     | 581                        | 146                | 170      | 152                         | 1.30                                   | 3.30                    | 3.78                      | 0.95     | 1.11      |       |
| -20 (- 4)                     | 783                        | 197                | 229      | 175                         | 1.35                                   | 4.45                    | 4.46                      | 1.12     | 1.31      |       |
| -15 (+ 5)                     | 1016                       | 256                | 298      | 200                         | 1.41                                   | 5.80                    | 5.11                      | 1.29     | 1.50      |       |
| -10 (+14)                     | 1285                       | 324                | 377      | 226                         | 1.50                                   | 7.36                    | 5.71                      | 1.44     | 1.67      |       |
| -5 (+23)                      | 1597                       | 402                | 468      | 255                         | 1.61                                   | 9.18                    | 6.25                      | 1.58     | 1.83      |       |

| TEST CONDITIONS:<br>@220V60Hz |                            | 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)                     | 430                        | 108                | 126      | 121                         | 1.04                                   | 2.43                    | 3.52                      | 0.89     | 1.03      |       |
| -30 (-22)                     | 607                        | 153                | 178      | 144                         | 1.10                                   | 3.44                    | 4.21                      | 1.06     | 1.23      |       |
| -25 (-13)                     | 822                        | 207                | 241      | 167                         | 1.17                                   | 4.67                    | 4.93                      | 1.24     | 1.45      |       |
| -20 (- 4)                     | 1080                       | 272                | 317      | 191                         | 1.25                                   | 6.15                    | 5.69                      | 1.43     | 1.67      |       |
| -15 (+ 5)                     | 1391                       | 350                | 408      | 214                         | 1.34                                   | 7.94                    | 6.50                      | 1.64     | 1.90      |       |
| -10 (+14)                     | 1761                       | 444                | 516      | 239                         | 1.43                                   | 10.09                   | 7.37                      | 1.86     | 2.16      |       |
| -5 (+23)                      | 2198                       | 554                | 644      | 264                         | 1.53                                   | 12.64                   | 8.30                      | 2.09     | 2.43      |       |

### E - PERFORMANCE - CURVES

| TEST CONDITIONS:<br>@220V60Hz |       | 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) | 360                        | 91       | 105 | 119                                     | 1.05                          | 2.03                    | 3.06                      | 0.77      | 0.90  |
| -30                           | (-22) | 536                        | 135      | 157 | 143                                     | 1.11                          | 3.04                    | 3.74                      | 0.94      | 1.09  |
| -25                           | (-13) | 748                        | 189      | 219 | 169                                     | 1.19                          | 4.25                    | 4.40                      | 1.11      | 1.29  |
| -20                           | (- 4) | 1004                       | 253      | 294 | 197                                     | 1.28                          | 5.71                    | 5.07                      | 1.28      | 1.49  |
| -15                           | (+ 5) | 1311                       | 330      | 384 | 227                                     | 1.39                          | 7.48                    | 5.75                      | 1.45      | 1.69  |
| -10                           | (+14) | 1676                       | 422      | 491 | 259                                     | 1.51                          | 9.61                    | 6.45                      | 1.63      | 1.89  |
| -5                            | (+23) | 2108                       | 531      | 618 | 294                                     | 1.65                          | 12.13                   | 7.19                      | 1.81      | 2.11  |

| TEST CONDITIONS:<br>@220V60Hz |       | 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) | 301                        | 76       | 88  | 115                                     | 1.03                          | 1.70                    | 2.60                      | 0.66      | 0.76  |
| -30                           | (-22) | 465                        | 117      | 136 | 140                                     | 1.09                          | 2.63                    | 3.29                      | 0.83      | 0.96  |
| -25                           | (-13) | 664                        | 167      | 195 | 168                                     | 1.18                          | 3.77                    | 3.93                      | 0.99      | 1.15  |
| -20                           | (- 4) | 906                        | 228      | 266 | 200                                     | 1.29                          | 5.16                    | 4.54                      | 1.14      | 1.33  |
| -15                           | (+ 5) | 1198                       | 302      | 351 | 234                                     | 1.42                          | 6.84                    | 5.13                      | 1.29      | 1.50  |
| -10                           | (+14) | 1548                       | 390      | 454 | 272                                     | 1.57                          | 8.87                    | 5.69                      | 1.43      | 1.67  |
| -5                            | (+23) | 1964                       | 495      | 576 | 314                                     | 1.73                          | 11.30                   | 6.25                      | 1.58      | 1.83  |

### F - EXTERNAL CHARACTERISTICS

|                         |                               |      |                          |
|-------------------------|-------------------------------|------|--------------------------|
| 1 Base plate            | Universal EG/F/AMEM version 2 |      |                          |
| 2 Tray holder           | No                            |      |                          |
| 3 Connectors            |                               |      |                          |
| 3.1 SUCTION             | 6.5 +0.12/-0.08               | [mm] | (0.256" +0.005"/-0.003") |
| 3.1.1 Material          | Copper                        |      |                          |
| 3.1.2 Shape             | Straight                      |      |                          |
| 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             | 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                  |      |                          |