

COMPRESSOR DEFINITION

| | |
|---------------------------|--------------------|
| Designation | F F10HBK |
| Nominal Voltage/Frequency | 220 V 60 Hz |
| Engineering Number | 513200248 |

A - APPLICATION / LIMIT WORKING CONDITIONS

| | | | |
|------------------------------------|-----------------------------------|-----------------------------------|--------------|
| 1 Type | Hermetic reciprocating compressor | | |
| 2 Refrigerant | R-134a | | |
| 3 Nominal voltage and frequency | 220 / 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 | 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 | - | 198 to 242 V |
| 8.2 LBP (43°C Ambient temperature) | Static | - | 198 to 242 V |
| 8.3 HBP (32°C Ambient temperature) | Fan | - | 198 to 242 V |
| 8.4 HBP (43°C Ambient temperature) | Fan | - | 198 to 242 V |
| 9 Maximum condensing temperature | | | |
| 9.1 Operating | 14.2 | [kgf/cm ²] (202 psig) | / °C - °F |
| 9.2 Peak | 15.9 | [kgf/cm ²] (226 psig) | / °C - °F |
| 10 Maximum winding temperature | 130 | [°C] | |

B - MECHANICAL DATA

| | | |
|-------------------------------|---------------|--|
| 1 Commercial designation | 1/4+ | [hp] |
| 2 Displacement | 9.04 | [cm ³] (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) | 11.39 | [kg] (25.11 lb.) |
| 5 Nitrogen charge | 0.2 to 0.3 | [kgf/cm ²] (2.84 to 4.27 psig) |

C - ELETRICAL DATA

| | | |
|--|--------------------------------|------------------------------------|
| 1 Nominal Voltage/Frequency/Number of Phases | 220 V 60 Hz 1 ~ (Single phase) | |
| 2 Starting device type | Current Relay | |
| 2.1 Starting device | 213516450/213516477 | |
| 3 Start capacitor | 88-108(220) | [µF(VAC minimum)] |
| 4 Run capacitor | - | [µF(VAC minimum)] |
| 5 Motor protection | MRP56AMZ-5590 | |
| 6 Start winding resistance | 17.40 | [Ω at 25°C (77°F)] +/- 8% |
| 7 Run winding resistance | 6.30 | [Ω at 25°C (77°F)] +/- 8% |
| 8 LRA - Locked rotor amperage (60 Hz) | 23.30 | [A] - Measured according to UL 984 |
| 9 FLA - Full load amperage L/MBP (60 Hz) | 2.75 | [A] - Measured according to UL 984 |
| 10 FLA - Full Load Amperage HBP (60 Hz) | 3.20 | [A] - Measured according to UL 984 |
| 11 Approval boards certification | CE - TUV - UKCA - UL | |

D - PERFORMANCE - CHECK POINT DATA

| | | | | | | | | | |
|-------------------------------|----------|------|-----------------------------|-------------------------------|---|---------------------------|--------------------------------------|-------|--|
| TEST CONDITIONS: @220V60Hz | | | ASHRAEHBP32 Fan | | Evaporating temperature (Condensing temperature) | | 7.2°C (44.96°F) 54.4°C (129.92°F) | | |
| Cooling capacity +/- 5% | | | Power consumption +/- 5% | Current consumption +/- 5% | Gas flow rate +/- 5% | EFFICIENCY RATE +/- 7% | | | |
| [Btu/h] | [kcal/h] | [W] | [W] | [A] | [kg/h] | [Btu/Wh] | [kcal/Wh] | [W/W] | |
| 3530 | 890 | 1034 | 462 | 2.48 | | 7.64 | 1.93 | 2.24 | |

| | | | | | | | | | |
|-------------------------------|----------|-----|-----------------------------|-------------------------------|---|---------------------------|--|-------|--|
| TEST CONDITIONS: @220V60Hz | | | ASHRAELBP32 Static | | Evaporating temperature (Condensing temperature) | | -23.3°C (-9.94°F) 54.4°C (129.92°F) | | |
| Cooling capacity +/- 5% | | | Power consumption +/- 5% | Current consumption +/- 5% | Gas flow rate +/- 5% | EFFICIENCY RATE +/- 7% | | | |
| [Btu/h] | [kcal/h] | [W] | [W] | [A] | [kg/h] | [Btu/Wh] | [kcal/Wh] | [W/W] | |
| 840 | 212 | 246 | 215 | 1.83 | 4.77 | 3.90 | 0.98 | 1.14 | |

E - PERFORMANCE - CURVES

| | | | | | | | | | |
|-------------------------------|----------------------------|----------|--------------------|-----------------------------|--|-------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS: @220V60Hz | | | ASHRAE32 Static | | (Condensing temperature 45°C (+113°F)) | | | | |
| Evaporating temperature | Cooling capacity +/- 5% | | | Power consumption +/- 5% | Current consumption +/- 5% | Gas flow rate +/- 5% | EFFICIENCY RATE +/- 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: @220V60Hz | | | ASHRAE32 Static | | (Condensing temperature 55°C (+131°F)) | | | | |
| Evaporating temperature | Cooling capacity +/- 5% | | | Power consumption +/- 5% | Current consumption +/- 5% | Gas flow rate +/- 5% | EFFICIENCY RATE +/- 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: @220V60Hz | | ASHRAE32 Static | | | (Condensing temperature 65°C (+149°F)) | | | | | |
|-------------------------------|-------|----------------------------|----------|------|---|-------------------------------|-------------------------|---------------------------|-----------|-------|
| Evaporating temperature | | Cooling capacity +/- 5% | | | Power consumption +/- 5% | Current consumption +/- 5% | Gas flow rate +/- 5% | EFFICIENCY RATE +/- 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 | | |
| 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 | | |
| 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 | | |
| 3.3.2 Shape | Slanted | | |
| 3.4 Oil cooler (Copper) | No | [mm] | |
| 3.5 Connector sealing | Rubber Plugs | | |