

COMPRESSOR DEFINITION

| | |
|---------------------------|--------------------|
| Designation | FF US100HAK |
| Nominal Voltage/Frequency | 220-240 V 50-60 Hz |
| Engineering Number | 513200941 |

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 (Light Commercial) | | |
| 4.1 Evaporating temperature range | -35°C to 0°C | (-31°F to 32°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 | 198 to 255 V |
| 8.2 LBP (43°C Ambient temperature) | Static/Fan | 198 to 255 V | 198 to 255 V |
| 8.3 HBP (32°C Ambient temperature) | - | - | - |
| 8.4 HBP (43°C Ambient temperature) | - | - | - |
| 9 Maximum condensing pressures/temperature | | | |
| 9.1 Operating (gauge) | 16.2 | [kgf/cm ²] (230 psig) | / °C - °F |
| 9.2 Peak (gauge) | 20.6 | [kgf/cm ²] (293 psig) | / °C - °F |
| 10 Maximum winding temperature | 130 | [°C] | |

B - MECHANICAL DATA

| | | |
|-------------------------------|---------------|--|
| 1 Commercial designation | 1/3 | [hp] |
| 2 Displacement | 7.95 | [cm ³] (0.485 cu.in) |
| 2.1 Bore [mm] | 22.500 | |
| 2.2 Stroke [mm] | 20.000 | |
| 3 Lubricant charge | 350 | [ml] (11.84 fl.oz.) |
| 3.1 Lubricants approved | | |
| 3.2 Lubricants type/viscosity | ESTER / ISO10 | |
| 4 Weight (with oil charge) | 10.58 | [kg] (23.32 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 | 220-240 V 50-60 Hz 1 ~ (Single phase) | |
| 2 Starting device type | Current Relay | |
| 2.1 Starting device | 213516442/213516469 | |
| 3 Start capacitor | 88-108(180) | [µF(VAC minimum)] |
| 4 Run capacitor | - | [µF(VAC minimum)] |
| 5 Motor protection | 4TM757LFBYY-53 | |
| 6 Start winding resistance | 34.00 | [Ω at 25°C (77°F)] +/- 8% |
| 7 Run winding resistance | 8.80 | [Ω at 25°C (77°F)] +/- 8% |
| 8 LRA - Locked rotor amperage (50/60 Hz) | 17.55/16.64 | [A] - Measured according to UL 984 |
| 9 FLA - Full load amperage L/MBP (50/60 Hz) | - | [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 | IRAM - TUV - VDE | |

D - PERFORMANCE - CHECK POINT DATA

| | | | | | | | | |
|-------------------------------|----------|-----|--------------------------------|----------------------------------|--|---------------------------|--|-------|
| TEST CONDITIONS: @220V50Hz | | | 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] |
| 847 | 213 | 248 | 173 | 1.43 | 4.81 | 4.89 | 1.23 | 1.43 |

| | | | | | | | | |
|-------------------------------|----------|-----|--------------------------------|----------------------------------|--|---------------------------|--|-------|
| 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] |
| 1006 | 254 | 295 | 194 | 1.30 | 5.72 | 5.20 | 1.31 | 1.52 |

E - PERFORMANCE - CURVES

| | | | | | | | | | |
|-------------------------------|----------------------------|----------|--------------------|--------------------------------|---------------------------------------|----------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS: @220V50Hz | | | ASHRAE32 Static | | (Condensing temperature 35°C (+95°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) | 501 | 126 | 147 | 117 | 1.36 | 2.83 | 4.29 | 1.08 | 1.26 |
| -30 (-22) | 664 | 167 | 195 | 132 | 1.37 | 3.76 | 5.04 | 1.27 | 1.48 |
| -25 (-13) | 866 | 218 | 254 | 147 | 1.39 | 4.92 | 5.90 | 1.49 | 1.73 |
| -20 (- 4) | 1116 | 281 | 327 | 162 | 1.41 | 6.35 | 6.89 | 1.74 | 2.02 |
| -15 (+ 5) | 1423 | 358 | 417 | 178 | 1.44 | 8.12 | 8.00 | 2.02 | 2.34 |
| -10 (+14) | 1795 | 452 | 526 | 194 | 1.48 | 10.28 | 9.25 | 2.33 | 2.71 |
| -5 (+23) | 2242 | 565 | 657 | 211 | 1.53 | 12.90 | 10.63 | 2.68 | 3.11 |
| 0 (+32) | 2772 | 699 | 812 | 228 | 1.59 | 16.03 | 12.15 | 3.06 | 3.56 |

| | | | | | | | | | |
|-------------------------------|----------------------------|----------|--------------------|--------------------------------|--|----------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS: @220V50Hz | | | 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) | 462 | 116 | 135 | 121 | 1.35 | 2.61 | 3.80 | 0.96 | 1.11 |
| -30 (-22) | 625 | 158 | 183 | 140 | 1.37 | 3.55 | 4.46 | 1.12 | 1.31 |
| -25 (-13) | 825 | 208 | 242 | 158 | 1.40 | 4.68 | 5.21 | 1.31 | 1.53 |
| -20 (- 4) | 1069 | 269 | 313 | 177 | 1.44 | 6.09 | 6.05 | 1.52 | 1.77 |
| -15 (+ 5) | 1368 | 345 | 401 | 196 | 1.48 | 7.81 | 6.98 | 1.76 | 2.05 |
| -10 (+14) | 1729 | 436 | 506 | 215 | 1.54 | 9.90 | 8.02 | 2.02 | 2.35 |
| -5 (+23) | 2161 | 545 | 633 | 236 | 1.61 | 12.43 | 9.16 | 2.31 | 2.68 |
| 0 (+32) | 2674 | 674 | 783 | 257 | 1.69 | 15.46 | 10.41 | 2.62 | 3.05 |

E - PERFORMANCE - CURVES

| TEST CONDITIONS: @220V50Hz | | 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) | 404 | 102 | 118 | 120 | 1.34 | 2.29 | 3.37 | 0.85 | 0.99 |
| -30 | (-22) | 570 | 144 | 167 | 143 | 1.38 | 3.23 | 3.98 | 1.00 | 1.17 |
| -25 | (-13) | 769 | 194 | 225 | 165 | 1.41 | 4.37 | 4.65 | 1.17 | 1.36 |
| -20 | (- 4) | 1010 | 255 | 296 | 188 | 1.46 | 5.75 | 5.39 | 1.36 | 1.58 |
| -15 | (+ 5) | 1302 | 328 | 381 | 211 | 1.52 | 7.43 | 6.19 | 1.56 | 1.81 |
| -10 | (+14) | 1653 | 417 | 484 | 234 | 1.59 | 9.47 | 7.06 | 1.78 | 2.07 |
| -5 | (+23) | 2073 | 522 | 607 | 259 | 1.68 | 11.93 | 8.00 | 2.02 | 2.34 |
| 0 | (+32) | 2570 | 648 | 753 | 285 | 1.78 | 14.86 | 9.02 | 2.27 | 2.64 |

| TEST CONDITIONS: @220V50Hz | | 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) | 328 | 83 | 96 | 113 | 1.35 | 1.85 | 2.90 | 0.73 | 0.85 |
| -30 | (-22) | 498 | 126 | 146 | 140 | 1.39 | 2.83 | 3.51 | 0.89 | 1.03 |
| -25 | (-13) | 699 | 176 | 205 | 167 | 1.43 | 3.97 | 4.16 | 1.05 | 1.22 |
| -20 | (- 4) | 938 | 236 | 275 | 194 | 1.49 | 5.34 | 4.83 | 1.22 | 1.42 |
| -15 | (+ 5) | 1225 | 309 | 359 | 222 | 1.56 | 6.99 | 5.54 | 1.40 | 1.62 |
| -10 | (+14) | 1569 | 395 | 460 | 250 | 1.65 | 8.99 | 6.29 | 1.58 | 1.84 |
| -5 | (+23) | 1978 | 499 | 580 | 280 | 1.75 | 11.38 | 7.07 | 1.78 | 2.07 |
| 0 | (+32) | 2462 | 620 | 721 | 311 | 1.87 | 14.23 | 7.91 | 1.99 | 2.32 |

| TEST CONDITIONS: @220V60Hz | | ASHRAE32 Static | | | (Condensing temperature 35°C (+95°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) | 597 | 151 | 175 | 123 | 1.11 | 3.38 | 4.82 | 1.21 | 1.41 |
| -30 | (-22) | 796 | 201 | 233 | 144 | 1.15 | 4.51 | 5.54 | 1.39 | 1.62 |
| -25 | (-13) | 1043 | 263 | 305 | 165 | 1.21 | 5.92 | 6.33 | 1.60 | 1.86 |
| -20 | (- 4) | 1344 | 339 | 394 | 187 | 1.28 | 7.65 | 7.22 | 1.82 | 2.12 |
| -15 | (+ 5) | 1710 | 431 | 501 | 208 | 1.35 | 9.76 | 8.22 | 2.07 | 2.41 |
| -10 | (+14) | 2148 | 541 | 629 | 230 | 1.43 | 12.30 | 9.34 | 2.35 | 2.74 |
| -5 | (+23) | 2665 | 672 | 781 | 252 | 1.52 | 15.34 | 10.59 | 2.67 | 3.10 |
| 0 | (+32) | 3271 | 824 | 958 | 272 | 1.61 | 18.91 | 11.99 | 3.02 | 3.51 |

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) | 538 | 135 | 158 | 127 | 1.11 | 3.04 | 4.23 | 1.07 | 1.24 |
| -30 | (-22) | 738 | 186 | 216 | 151 | 1.17 | 4.18 | 4.87 | 1.23 | 1.43 |
| -25 | (-13) | 983 | 248 | 288 | 176 | 1.24 | 5.58 | 5.56 | 1.40 | 1.63 |
| -20 | (- 4) | 1282 | 323 | 376 | 202 | 1.32 | 7.29 | 6.31 | 1.59 | 1.85 |
| -15 | (+ 5) | 1641 | 414 | 481 | 229 | 1.42 | 9.37 | 7.14 | 1.80 | 2.09 |
| -10 | (+14) | 2070 | 522 | 607 | 257 | 1.53 | 11.86 | 8.05 | 2.03 | 2.36 |
| -5 | (+23) | 2576 | 649 | 755 | 284 | 1.64 | 14.82 | 9.06 | 2.28 | 2.66 |
| 0 | (+32) | 3168 | 798 | 928 | 312 | 1.77 | 18.31 | 10.19 | 2.57 | 2.99 |

| 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) | 470 | 118 | 138 | 125 | 1.11 | 2.66 | 3.77 | 0.95 | 1.11 |
| -30 | (-22) | 670 | 169 | 196 | 153 | 1.17 | 3.80 | 4.37 | 1.10 | 1.28 |
| -25 | (-13) | 912 | 230 | 267 | 183 | 1.26 | 5.18 | 4.99 | 1.26 | 1.46 |
| -20 | (- 4) | 1205 | 304 | 353 | 214 | 1.36 | 6.86 | 5.63 | 1.42 | 1.65 |
| -15 | (+ 5) | 1556 | 392 | 456 | 246 | 1.48 | 8.88 | 6.31 | 1.59 | 1.85 |
| -10 | (+14) | 1974 | 497 | 578 | 279 | 1.62 | 11.31 | 7.05 | 1.78 | 2.07 |
| -5 | (+23) | 2467 | 622 | 723 | 313 | 1.76 | 14.19 | 7.86 | 1.98 | 2.30 |
| 0 | (+32) | 3043 | 767 | 892 | 348 | 1.92 | 17.59 | 8.75 | 2.21 | 2.56 |

| 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) | 395 | 100 | 116 | 118 | 1.08 | 2.23 | 3.34 | 0.84 | 0.98 |
| -30 | (-22) | 592 | 149 | 174 | 150 | 1.16 | 3.36 | 3.93 | 0.99 | 1.15 |
| -25 | (-13) | 829 | 209 | 243 | 184 | 1.27 | 4.71 | 4.51 | 1.14 | 1.32 |
| -20 | (- 4) | 1114 | 281 | 326 | 220 | 1.39 | 6.34 | 5.08 | 1.28 | 1.49 |
| -15 | (+ 5) | 1455 | 367 | 426 | 258 | 1.53 | 8.30 | 5.66 | 1.43 | 1.66 |
| -10 | (+14) | 1860 | 469 | 545 | 298 | 1.69 | 10.65 | 6.26 | 1.58 | 1.83 |
| -5 | (+23) | 2337 | 589 | 685 | 339 | 1.87 | 13.44 | 6.89 | 1.74 | 2.02 |
| 0 | (+32) | 2895 | 730 | 848 | 381 | 2.06 | 16.73 | 7.58 | 1.91 | 2.22 |

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 | | |