

COMPRESSOR DEFINITION

| | |
|---------------------------|-----------------|
| Designation | FF US70HAK |
| Nominal Voltage/Frequency | 220-240 V 60 Hz |
| Engineering Number | 513200995 |

A - APPLICATION / LIMIT WORKING CONDITIONS

| | | | |
|------------------------------------|---|-----------------------------------|--------------|
| 1 Type | Hermetic reciprocating compressor | | |
| 2 Refrigerant | R-134a | | |
| 3 Nominal voltage and frequency | 220-240 / 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 | - | 198 to 255 V |
| 8.2 LBP (43°C Ambient temperature) | Static | - | 198 to 255 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 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 | 6.36 | [cm ³] (0.388 cu.in) |
| 2.1 Bore [mm] | 22.500 | |
| 2.2 Stroke [mm] | 16.000 | |
| 3 Lubricant charge | 230 | [ml] (7.78 fl.oz.) |
| 3.1 Lubricants approved | | |
| 3.2 Lubricants type/viscosity | ESTER / ISO10 | |
| 4 Weight (with oil charge) | 10.2 | [kg] (22.49 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 60 Hz 1~ (Single phase) | |
| 2 Starting device type | Current Relay | |
| 2.1 Starting device | 213516256/213516493 | |
| 3 Start capacitor | 189-227(90) | [µF(VAC minimum)] |
| 4 Run capacitor | - | [µF(VAC minimum)] |
| 5 Motor protection | 4TM283NFBYY-53 | |
| 6 Start winding resistance | 38.05 | [Ω at 25°C (77°F)] +/- 8% |
| 7 Run winding resistance | 14.81 | [Ω at 25°C (77°F)] +/- 8% |
| 8 LRA - Locked rotor amperage (50/60 Hz) | 14.50/12.10 | [A] - Measured according to UL 984 |
| 9 FLA - Full load amperage L/MBP (50/60 Hz) | 2.33/2.21 | [A] - Measured according to UL 984 |
| 10 FLA - Full Load Amperage HBP (50/60 Hz) | 2.49/2.36 | [A] - Measured according to UL 984 |
| 11 Approval boards certification | CE - TUV - UKCA | |

D - PERFORMANCE - CHECK POINT DATA

| 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] |
| 737 | 186 | 216 | 147 | 1.02 | 4.19 | 5.01 | 1.26 | 1.47 |

| TEST CONDITIONS: @220V60Hz | | | ASHRAELBP32 Fan | | 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] |
| 756 | 191 | 222 | 147 | 1.02 | 4.30 | 5.14 | 1.30 | 1.51 |

E - PERFORMANCE - CURVES

| TEST CONDITIONS: @220V60Hz | | ASHRAE32 Fan | | | | (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) | 422 | 106 | 124 | 95 | 0.87 | 2.39 | 4.41 | 1.11 | 1.29 |
| -30 | (-22) | 590 | 149 | 173 | 112 | 0.92 | 3.35 | 5.26 | 1.33 | 1.54 |
| -25 | (-13) | 792 | 200 | 232 | 130 | 0.97 | 4.50 | 6.11 | 1.54 | 1.79 |
| -20 | (- 4) | 1036 | 261 | 304 | 149 | 1.03 | 5.90 | 7.01 | 1.77 | 2.05 |
| -15 | (+ 5) | 1331 | 335 | 390 | 167 | 1.09 | 7.60 | 8.01 | 2.02 | 2.35 |
| -10 | (+14) | 1685 | 425 | 494 | 184 | 1.15 | 9.66 | 9.18 | 2.31 | 2.69 |
| -5 | (+23) | 2107 | 531 | 617 | 200 | 1.20 | 12.13 | 10.56 | 2.66 | 3.09 |
| 0 | (+32) | 2605 | 656 | 763 | 212 | 1.26 | 15.06 | 12.20 | 3.07 | 3.58 |

| TEST CONDITIONS: @220V60Hz | | ASHRAE32 Fan | | | | (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) | 367 | 92 | 107 | 97 | 0.89 | 2.07 | 3.79 | 0.95 | 1.11 |
| -30 | (-22) | 537 | 135 | 157 | 115 | 0.93 | 3.04 | 4.64 | 1.17 | 1.36 |
| -25 | (-13) | 738 | 186 | 216 | 135 | 0.99 | 4.19 | 5.43 | 1.37 | 1.59 |
| -20 | (- 4) | 980 | 247 | 287 | 157 | 1.05 | 5.58 | 6.21 | 1.56 | 1.82 |
| -15 | (+ 5) | 1271 | 320 | 372 | 180 | 1.13 | 7.25 | 7.03 | 1.77 | 2.06 |
| -10 | (+14) | 1619 | 408 | 474 | 203 | 1.21 | 9.27 | 7.95 | 2.00 | 2.33 |
| -5 | (+23) | 2032 | 512 | 595 | 225 | 1.31 | 11.69 | 9.02 | 2.27 | 2.64 |
| 0 | (+32) | 2519 | 635 | 738 | 246 | 1.40 | 14.56 | 10.30 | 2.60 | 3.02 |

E - PERFORMANCE - CURVES

| TEST CONDITIONS: @220V60Hz | | ASHRAE32 Fan | | | (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) | 310 | 78 | 91 | 99 | 0.92 | 1.75 | 3.19 | 0.80 | 0.94 |
| -30 | (-22) | 478 | 120 | 140 | 116 | 0.95 | 2.71 | 4.10 | 1.03 | 1.20 |
| -25 | (-13) | 676 | 170 | 198 | 138 | 1.00 | 3.84 | 4.87 | 1.23 | 1.43 |
| -20 | (- 4) | 911 | 230 | 267 | 163 | 1.07 | 5.19 | 5.58 | 1.41 | 1.64 |
| -15 | (+ 5) | 1194 | 301 | 350 | 190 | 1.16 | 6.81 | 6.27 | 1.58 | 1.84 |
| -10 | (+14) | 1532 | 386 | 449 | 218 | 1.27 | 8.77 | 7.00 | 1.76 | 2.05 |
| -5 | (+23) | 1933 | 487 | 566 | 246 | 1.39 | 11.12 | 7.82 | 1.97 | 2.29 |
| 0 | (+32) | 2406 | 606 | 705 | 275 | 1.53 | 13.91 | 8.79 | 2.21 | 2.57 |

| TEST CONDITIONS: @220V60Hz | | ASHRAE32 Fan | | | (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) | 253 | 64 | 74 | 98 | 0.94 | 1.43 | 2.54 | 0.64 | 0.74 |
| -30 | (-22) | 415 | 104 | 121 | 116 | 0.96 | 2.35 | 3.55 | 0.89 | 1.04 |
| -25 | (-13) | 604 | 152 | 177 | 139 | 1.01 | 3.43 | 4.37 | 1.10 | 1.28 |
| -20 | (- 4) | 830 | 209 | 243 | 165 | 1.08 | 4.72 | 5.06 | 1.27 | 1.48 |
| -15 | (+ 5) | 1101 | 277 | 323 | 196 | 1.18 | 6.28 | 5.67 | 1.43 | 1.66 |
| -10 | (+14) | 1425 | 359 | 417 | 228 | 1.30 | 8.16 | 6.26 | 1.58 | 1.83 |
| -5 | (+23) | 1810 | 456 | 530 | 263 | 1.45 | 10.41 | 6.88 | 1.73 | 2.02 |
| 0 | (+32) | 2265 | 571 | 664 | 298 | 1.62 | 13.09 | 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 | | |