

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 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) | 398 | 100 | 117 | 92 | 0.86 | 2.25 | 4.31 | 1.09 | 1.26 |
| -30 | (-22) | 570 | 144 | 167 | 110 | 0.92 | 3.23 | 5.17 | 1.30 | 1.51 |
| -25 | (-13) | 767 | 193 | 225 | 128 | 0.97 | 4.36 | 6.00 | 1.51 | 1.76 |
| -20 | (- 4) | 1003 | 253 | 294 | 147 | 1.02 | 5.71 | 6.87 | 1.73 | 2.01 |
| -15 | (+ 5) | 1290 | 325 | 378 | 165 | 1.07 | 7.36 | 7.85 | 1.98 | 2.30 |
| -10 | (+14) | 1642 | 414 | 481 | 183 | 1.13 | 9.41 | 9.02 | 2.27 | 2.64 |
| -5 | (+23) | 2073 | 522 | 607 | 199 | 1.19 | 11.93 | 10.43 | 2.63 | 3.06 |
| 0 | (+32) | 2595 | 654 | 760 | 213 | 1.26 | 15.00 | 12.16 | 3.06 | 3.56 |

| 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) | 356 | 90 | 104 | 97 | 0.87 | 2.01 | 3.69 | 0.93 | 1.08 |
| -30 | (-22) | 527 | 133 | 154 | 114 | 0.92 | 2.99 | 4.56 | 1.15 | 1.34 |
| -25 | (-13) | 721 | 182 | 211 | 134 | 0.98 | 4.09 | 5.34 | 1.34 | 1.56 |
| -20 | (- 4) | 950 | 240 | 279 | 156 | 1.05 | 5.41 | 6.08 | 1.53 | 1.78 |
| -15 | (+ 5) | 1229 | 310 | 360 | 178 | 1.12 | 7.01 | 6.87 | 1.73 | 2.01 |
| -10 | (+14) | 1570 | 396 | 460 | 201 | 1.20 | 8.99 | 7.76 | 1.96 | 2.27 |
| -5 | (+23) | 1986 | 501 | 582 | 224 | 1.30 | 11.43 | 8.83 | 2.23 | 2.59 |
| 0 | (+32) | 2491 | 628 | 730 | 247 | 1.41 | 14.40 | 10.15 | 2.56 | 2.97 |

E - PERFORMANCE - CURVES

| 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) | 296 | 75 | 87 | 100 | 0.88 | 1.68 | 3.01 | 0.76 | 0.88 |
| -30 | (-22) | 468 | 118 | 137 | 117 | 0.93 | 2.66 | 3.97 | 1.00 | 1.16 |
| -25 | (-13) | 660 | 166 | 193 | 138 | 0.99 | 3.75 | 4.76 | 1.20 | 1.40 |
| -20 | (- 4) | 885 | 223 | 259 | 162 | 1.07 | 5.03 | 5.46 | 1.37 | 1.60 |
| -15 | (+ 5) | 1156 | 291 | 339 | 189 | 1.16 | 6.60 | 6.12 | 1.54 | 1.79 |
| -10 | (+14) | 1486 | 375 | 436 | 217 | 1.26 | 8.51 | 6.82 | 1.72 | 2.00 |
| -5 | (+23) | 1890 | 476 | 554 | 247 | 1.39 | 10.87 | 7.62 | 1.92 | 2.23 |
| 0 | (+32) | 2379 | 600 | 697 | 277 | 1.54 | 13.75 | 8.60 | 2.17 | 2.52 |

| 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) | 219 | 55 | 64 | 100 | 0.90 | 1.24 | 2.18 | 0.55 | 0.64 |
| -30 | (-22) | 393 | 99 | 115 | 117 | 0.94 | 2.23 | 3.30 | 0.83 | 0.97 |
| -25 | (-13) | 584 | 147 | 171 | 139 | 1.00 | 3.32 | 4.19 | 1.06 | 1.23 |
| -20 | (- 4) | 805 | 203 | 236 | 166 | 1.08 | 4.58 | 4.90 | 1.24 | 1.44 |
| -15 | (+ 5) | 1070 | 270 | 314 | 196 | 1.18 | 6.11 | 5.51 | 1.39 | 1.62 |
| -10 | (+14) | 1392 | 351 | 408 | 229 | 1.31 | 7.97 | 6.09 | 1.54 | 1.78 |
| -5 | (+23) | 1783 | 449 | 523 | 266 | 1.46 | 10.26 | 6.70 | 1.69 | 1.96 |
| 0 | (+32) | 2258 | 569 | 662 | 304 | 1.64 | 13.05 | 7.42 | 1.87 | 2.17 |

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 | | |