

COMPRESSOR DEFINITION

| | |
|---------------------------|--------------------|
| Designation | EM 30HNR |
| Nominal Voltage/Frequency | 220-240 V 50-60 Hz |
| Engineering Number | 513307650 |

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 Back Pressure | | |
| 4.1 Evaporating temperature range | -35°C to -10°C | (-31°F to 14°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 255 V |
| 8.2 LBP (43°C Ambient temperature) | Static/Fan | 187 to 255 V | 187 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 | 1/10 | [hp] |
| 2 Displacement | 3.00 | [cm ³] (0.183 cu.in) |
| 2.1 Bore [mm] | 19.000 | |
| 2.2 Stroke [mm] | 10.600 | |
| 3 Lubricant charge | 200 | [ml] (6.76 fl.oz.) |
| 3.1 Lubricants approved | | |
| 3.2 Lubricants type/viscosity | ESTER / ISO22 | |
| 4 Weight (with oil charge) | 7.1 | [kg] (15.65 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 | 213514032 | |
| 3 Start capacitor | 38-46(230) | [µF(VAC minimum)] |
| 4 Run capacitor | - | [µF(VAC minimum)] |
| 5 Motor protection | 5TM189KFBYY-53 | |
| 6 Start winding resistance | 44.20 | [Ω at 25°C (77°F)] +/- 8% |
| 7 Run winding resistance | 31.60 | [Ω at 25°C (77°F)] +/- 8% |
| 8 LRA - Locked rotor amperage (50/60 Hz) | 7.30/7.10 | [A] - Measured according to UL 984 |
| 9 FLA - Full load amperage L/MBP (50/60 Hz) | 0.72/0.70 | [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 - IMTRO - TUV - UKCA - 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] |
| 250 | 63 | 73 | 76 | 0.58 | 1.42 | 3.30 | 0.83 | 0.97 |

| | | | | | | | | |
|-------------------------------|----------|-----|--------------------------------|----------------------------------|--|---------------------------|--|-------|
| 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] |
| 305 | 77 | 89 | 85 | 0.55 | 1.73 | 3.60 | 0.91 | 1.05 |

E - PERFORMANCE - CURVES

| | | | | | | | | | |
|-------------------------------|----------------------------|----------|--------------------|--------------------------------|--|----------------------------|---------------------------|-----------|-------|
| 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) | 123 | 31 | 36 | 56 | 0.55 | 0.69 | 2.18 | 0.55 | 0.64 |
| -30 (-22) | 180 | 45 | 53 | 64 | 0.56 | 1.02 | 2.82 | 0.71 | 0.83 |
| -25 (-13) | 239 | 60 | 70 | 70 | 0.57 | 1.36 | 3.45 | 0.87 | 1.01 |
| -20 (- 4) | 311 | 78 | 91 | 76 | 0.58 | 1.77 | 4.13 | 1.04 | 1.21 |
| -15 (+ 5) | 404 | 102 | 118 | 82 | 0.59 | 2.30 | 4.89 | 1.23 | 1.43 |
| -10 (+14) | 526 | 132 | 154 | 90 | 0.61 | 3.01 | 5.79 | 1.46 | 1.70 |

| | | | | | | | | | |
|-------------------------------|----------------------------|----------|--------------------|--------------------------------|--|----------------------------|---------------------------|-----------|-------|
| 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) | 91 | 23 | 27 | 55 | 0.55 | 0.52 | 1.66 | 0.42 | 0.49 |
| -30 (-22) | 153 | 39 | 45 | 64 | 0.56 | 0.87 | 2.36 | 0.59 | 0.69 |
| -25 (-13) | 214 | 54 | 63 | 72 | 0.57 | 1.22 | 3.00 | 0.76 | 0.88 |
| -20 (- 4) | 285 | 72 | 83 | 79 | 0.58 | 1.62 | 3.64 | 0.92 | 1.07 |
| -15 (+ 5) | 372 | 94 | 109 | 86 | 0.59 | 2.12 | 4.32 | 1.09 | 1.27 |
| -10 (+14) | 486 | 123 | 142 | 95 | 0.61 | 2.79 | 5.08 | 1.28 | 1.49 |

E - PERFORMANCE - CURVES

| 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) | 53 | 13 | 16 | 51 | 0.55 | 0.30 | 1.05 | 0.27 | 0.31 | |
| -30 (-22) | 120 | 30 | 35 | 62 | 0.56 | 0.68 | 1.84 | 0.46 | 0.54 | |
| -25 (-13) | 183 | 46 | 54 | 71 | 0.57 | 1.04 | 2.52 | 0.64 | 0.74 | |
| -20 (- 4) | 252 | 63 | 74 | 80 | 0.58 | 1.43 | 3.15 | 0.79 | 0.92 | |
| -15 (+ 5) | 335 | 84 | 98 | 90 | 0.60 | 1.91 | 3.77 | 0.95 | 1.10 | |
| -10 (+14) | 441 | 111 | 129 | 100 | 0.62 | 2.53 | 4.42 | 1.11 | 1.30 | |

| 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) | 158 | 40 | 46 | 61 | 0.49 | 0.90 | 2.59 | 0.65 | 0.76 | |
| -30 (-22) | 216 | 54 | 63 | 70 | 0.51 | 1.22 | 3.10 | 0.78 | 0.91 | |
| -25 (-13) | 295 | 74 | 86 | 79 | 0.54 | 1.67 | 3.73 | 0.94 | 1.09 | |
| -20 (- 4) | 393 | 99 | 115 | 89 | 0.56 | 2.24 | 4.43 | 1.12 | 1.30 | |
| -15 (+ 5) | 510 | 128 | 149 | 98 | 0.59 | 2.91 | 5.18 | 1.30 | 1.52 | |
| -10 (+14) | 643 | 162 | 189 | 108 | 0.61 | 3.69 | 5.93 | 1.49 | 1.74 | |

| 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) | 123 | 31 | 36 | 59 | 0.48 | 0.69 | 2.06 | 0.52 | 0.60 | |
| -30 (-22) | 181 | 46 | 53 | 70 | 0.51 | 1.03 | 2.60 | 0.66 | 0.76 | |
| -25 (-13) | 260 | 66 | 76 | 81 | 0.53 | 1.48 | 3.22 | 0.81 | 0.94 | |
| -20 (- 4) | 358 | 90 | 105 | 92 | 0.56 | 2.03 | 3.88 | 0.98 | 1.14 | |
| -15 (+ 5) | 472 | 119 | 138 | 104 | 0.59 | 2.69 | 4.55 | 1.15 | 1.33 | |
| -10 (+14) | 602 | 152 | 176 | 116 | 0.63 | 3.45 | 5.18 | 1.31 | 1.52 | |

| 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) | 71 | 18 | 21 | 53 | 0.46 | 0.40 | 1.36 | 0.34 | 0.40 | |
| -30 (-22) | 134 | 34 | 39 | 66 | 0.49 | 0.76 | 2.00 | 0.50 | 0.58 | |
| -25 (-13) | 215 | 54 | 63 | 80 | 0.52 | 1.22 | 2.67 | 0.67 | 0.78 | |
| -20 (- 4) | 314 | 79 | 92 | 93 | 0.56 | 1.79 | 3.35 | 0.84 | 0.98 | |
| -15 (+ 5) | 429 | 108 | 126 | 108 | 0.60 | 2.45 | 4.00 | 1.01 | 1.17 | |
| -10 (+14) | 558 | 141 | 164 | 123 | 0.65 | 3.20 | 4.58 | 1.15 | 1.34 | |

F - EXTERNAL CHARACTERISTICS

| | | | |
|-------------------------|------------------|------|--------------------------|
| 1 Base plate | Universal AMEM | | |
| 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 | | |