

COMPRESSOR DEFINITION

| | |
|---------------------------|--------------------|
| Designation | EM 30HNR |
| Nominal Voltage/Frequency | 220-240 V 50-60 Hz |
| Engineering Number | 513307036 |

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 | 160 | [ml] (5.41 fl.oz.) |
| 3.1 Lubricants approved | | |
| 3.2 Lubricants type/viscosity | ESTER / ISO10 | |
| 4 Weight (with oil charge) | 7.12 | [kg] (15.70 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 | 74 | 0.62 | 1.42 | 3.40 | 0.86 | 1.00 |

| | | | | | | | | |
|-------------------------------|----------|-----|--------------------------------|----------------------------------|----------------------------------------------------|---------------------------|----------------------------------------|-------|
| 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 | 81 | 0.56 | 1.73 | 3.75 | 0.95 | 1.10 |

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) | 104 | 26 | 30 | 55 | 0.57 | 0.59 | 1.87 | 0.47 | 0.55 |
| -30 | (-22) | 165 | 41 | 48 | 61 | 0.58 | 0.93 | 2.69 | 0.68 | 0.79 |
| -25 | (-13) | 235 | 59 | 69 | 68 | 0.60 | 1.33 | 3.46 | 0.87 | 1.01 |
| -20 | (- 4) | 320 | 81 | 94 | 75 | 0.62 | 1.82 | 4.25 | 1.07 | 1.25 |
| -15 | (+ 5) | 424 | 107 | 124 | 83 | 0.64 | 2.42 | 5.09 | 1.28 | 1.49 |
| -10 | (+14) | 553 | 139 | 162 | 91 | 0.66 | 3.17 | 6.04 | 1.52 | 1.77 |

| | | | | | | | | | | |
|-------------------------------|-------|----------------------------|--------------------|-----|----------------------------------------|----------------------------------|----------------------------|---------------------------|-----------|-------|
| 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) | 72 | 18 | 21 | 52 | 0.57 | 0.41 | 1.40 | 0.35 | 0.41 |
| -30 | (-22) | 136 | 34 | 40 | 60 | 0.58 | 0.77 | 2.26 | 0.57 | 0.66 |
| -25 | (-13) | 207 | 52 | 61 | 68 | 0.60 | 1.18 | 3.05 | 0.77 | 0.89 |
| -20 | (- 4) | 292 | 74 | 86 | 77 | 0.62 | 1.66 | 3.80 | 0.96 | 1.11 |
| -15 | (+ 5) | 394 | 99 | 116 | 86 | 0.64 | 2.25 | 4.57 | 1.15 | 1.34 |
| -10 | (+14) | 520 | 131 | 152 | 96 | 0.67 | 2.98 | 5.40 | 1.36 | 1.58 |

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] |
| -35 | (-31) | 41 | 10 | 12 | 47 | 0.56 | 0.23 | 0.86 | 0.22 | 0.25 |
| -30 | (-22) | 100 | 25 | 29 | 56 | 0.57 | 0.57 | 1.73 | 0.44 | 0.51 |
| -25 | (-13) | 165 | 42 | 48 | 66 | 0.59 | 0.93 | 2.48 | 0.63 | 0.73 |
| -20 | (- 4) | 241 | 61 | 71 | 77 | 0.61 | 1.37 | 3.16 | 0.80 | 0.93 |
| -15 | (+ 5) | 333 | 84 | 98 | 88 | 0.64 | 1.90 | 3.81 | 0.96 | 1.12 |
| -10 | (+14) | 448 | 113 | 131 | 100 | 0.67 | 2.56 | 4.49 | 1.13 | 1.31 |

| 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] |
| -35 | (-31) | 130 | 33 | 38 | 58 | 0.49 | 0.74 | 2.27 | 0.57 | 0.66 |
| -30 | (-22) | 213 | 54 | 62 | 67 | 0.52 | 1.20 | 3.18 | 0.80 | 0.93 |
| -25 | (-13) | 306 | 77 | 90 | 77 | 0.56 | 1.74 | 3.97 | 1.00 | 1.16 |
| -20 | (- 4) | 411 | 104 | 120 | 87 | 0.59 | 2.34 | 4.69 | 1.18 | 1.38 |
| -15 | (+ 5) | 530 | 134 | 155 | 98 | 0.62 | 3.03 | 5.39 | 1.36 | 1.58 |
| -10 | (+14) | 665 | 168 | 195 | 108 | 0.66 | 3.81 | 6.12 | 1.54 | 1.79 |

| 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] |
| -35 | (-31) | 91 | 23 | 27 | 55 | 0.48 | 0.52 | 1.67 | 0.42 | 0.49 |
| -30 | (-22) | 171 | 43 | 50 | 64 | 0.51 | 0.97 | 2.68 | 0.68 | 0.79 |
| -25 | (-13) | 262 | 66 | 77 | 75 | 0.54 | 1.49 | 3.51 | 0.88 | 1.03 |
| -20 | (- 4) | 367 | 93 | 108 | 88 | 0.58 | 2.09 | 4.21 | 1.06 | 1.23 |
| -15 | (+ 5) | 487 | 123 | 143 | 101 | 0.63 | 2.78 | 4.81 | 1.21 | 1.41 |
| -10 | (+14) | 623 | 157 | 183 | 115 | 0.68 | 3.57 | 5.38 | 1.36 | 1.58 |

| 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] |
| -35 | (-31) | 45 | 11 | 13 | 50 | 0.47 | 0.26 | 0.89 | 0.22 | 0.26 |
| -30 | (-22) | 123 | 31 | 36 | 59 | 0.50 | 0.70 | 2.08 | 0.52 | 0.61 |
| -25 | (-13) | 214 | 54 | 63 | 71 | 0.53 | 1.21 | 3.04 | 0.77 | 0.89 |
| -20 | (- 4) | 319 | 80 | 94 | 85 | 0.57 | 1.82 | 3.79 | 0.96 | 1.11 |
| -15 | (+ 5) | 441 | 111 | 129 | 101 | 0.63 | 2.52 | 4.40 | 1.11 | 1.29 |
| -10 | (+14) | 580 | 146 | 170 | 119 | 0.69 | 3.32 | 4.90 | 1.24 | 1.44 |

F - EXTERNAL CHARACTERISTICS

| | | | |
|-------------------------|-------------------------------|------|--------------------------|
| 1 Base plate | Universal EG/F/AMEM version 2 | | |
| 2 Tray holder | Yes | | |
| 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 | | |