

COMPRESSOR DEFINITION

| | |
|---------------------------|-------------|
| Designation | EM 30BR |
| Nominal Voltage/Frequency | 220 V 60 Hz |
| Engineering Number | 513303700 |

A - APPLICATION / LIMIT WORKING CONDITIONS

| | | | |
|------------------------------------|-----------------------------------|-----------------------------------|--------------|
| 1 Type | Hermetic reciprocating compressor | | |
| 2 Refrigerant | Blend | | |
| 3 Nominal voltage and frequency | 220 / 60 | [V / Hz] | |
| 4 Application type | Low-Medium-High Back Pressure | | |
| 4.1 Evaporating temperature range | -35°C to 15°C | (-31°F to 59°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 | - | 187 to 242 V |
| 8.2 LBP (43°C Ambient temperature) | Static | - | 187 to 242 V |
| 8.3 HBP (32°C Ambient temperature) | Fan | - | 187 to 242 V |
| 8.4 HBP (43°C Ambient temperature) | Fan | - | 187 to 242 V |
| 9 Maximum condensing temperature | | | |
| 9.1 Operating | 14.5 | [kgf/cm ²] (206 psig) | / °C - °F |
| 9.2 Peak | 18.2 | [kgf/cm ²] (259 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 | ALQUILB / ISO32 | |
| 4 Weight (with oil charge) | 7.47 | [kg] (16.47 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 V 60 Hz 1 ~ (Single phase) | |
| 2 Starting device type | Current Relay | |
| 2.1 Starting device | 213514059 | |
| 3 Start capacitor | 38-46(240) | [µF(VAC minimum)] |
| 4 Run capacitor | - | [µF(VAC minimum)] |
| 5 Motor protection | 4TM189RHBYY-53 | |
| 6 Start winding resistance | 47.80 | [Ω at 25°C (77°F)] +/- 8% |
| 7 Run winding resistance | 23.10 | [Ω at 25°C (77°F)] +/- 8% |
| 8 LRA - Locked rotor amperage (60 Hz) | 8.00 | [A] - Measured according to UL 984 |
| 9 FLA - Full load amperage L/MBP (60 Hz) | - | [A] - Measured according to UL 984 |
| 10 FLA - Full Load Amperage HBP (60 Hz) | 1.10 | [A] - Measured according to UL 984 |
| 11 Approval boards certification | | |

D - PERFORMANCE - CHECK POINT DATA

| | | | | | | | | | |
|-------------------------------|----------|-----|-----------------------------|-------------------------------|---|---------------------------|--------------------------------------|-------|--|
| TEST CONDITIONS: @220V60Hz | | | ASHRAEHBP32 Static | | Evaporating temperature (Condensing temperature) | | 7.2°C (44.96°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] | |
| 1270 | 320 | 372 | 156 | 0.94 | 9.51 | 8.14 | 2.05 | 2.39 | |

| | | | | | | | | | |
|-------------------------------|----------|-----|-----------------------------|-------------------------------|---|---------------------------|--------------------------------------|-------|--|
| TEST CONDITIONS: @220V60Hz | | | ASHRAEHBP32 Fan | | Evaporating temperature (Condensing temperature) | | 7.2°C (44.96°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] | |
| 1270 | 320 | 372 | 156 | 0.94 | 9.51 | 8.14 | 2.05 | 2.39 | |

| | | | | | | | | | |
|-------------------------------|----------|-----|-----------------------------|-------------------------------|---|---------------------------|--|-------|--|
| 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] | |
| 320 | 81 | 94 | 100 | 0.75 | 2.34 | 3.20 | 0.81 | 0.94 | |

| | | | | | | | | | |
|-------------------------------|----------|-----|-----------------------------|-------------------------------|---|---------------------------|--|-------|--|
| 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] | |
| 320 | 81 | 94 | 100 | 0.75 | 2.34 | 3.20 | 0.81 | 0.94 | |

E - PERFORMANCE - CURVES

| | | | | | | | | | | |
|-------------------------------|----------------------------|-----------------|---------|-----------------------------|-------------------------------|-------------------------|--|--------|----------|-----------|
| 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] |
| -35 | (-31) | 177 | 45 | 52 | 83 | 0.68 | 1.29 | 2.14 | 0.54 | 0.63 |
| -30 | (-22) | 248 | 62 | 73 | 90 | 0.69 | 1.81 | 2.75 | 0.69 | 0.81 |
| -25 | (-13) | 332 | 84 | 97 | 98 | 0.71 | 2.43 | 3.39 | 0.86 | 0.99 |
| -20 | (- 4) | 433 | 109 | 127 | 106 | 0.73 | 3.17 | 4.09 | 1.03 | 1.20 |
| -15 | (+ 5) | 553 | 139 | 162 | 114 | 0.76 | 4.06 | 4.86 | 1.22 | 1.42 |
| -10 | (+14) | 693 | 175 | 203 | 122 | 0.79 | 5.11 | 5.71 | 1.44 | 1.67 |
| -5 | (+23) | 858 | 216 | 251 | 129 | 0.82 | 6.34 | 6.67 | 1.68 | 1.95 |
| 0 | (+32) | 1048 | 264 | 307 | 136 | 0.84 | 7.79 | 7.75 | 1.95 | 2.27 |
| +5 | (+41) | 1267 | 319 | 371 | 142 | 0.87 | 9.47 | 8.96 | 2.26 | 2.63 |
| +10 | (+50) | 1516 | 382 | 444 | 147 | 0.90 | 11.40 | 10.33 | 2.60 | 3.03 |
| +15 | (+59) | 1799 | 453 | 527 | 151 | 0.92 | 13.60 | 11.86 | 2.99 | 3.48 |

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) | 133 | 33 | 39 | 79 | 0.68 | 0.97 | 1.68 | 0.42 | 0.49 |
| -30 | (-22) | 205 | 52 | 60 | 88 | 0.69 | 1.50 | 2.32 | 0.59 | 0.68 |
| -25 | (-13) | 291 | 73 | 85 | 98 | 0.72 | 2.13 | 2.96 | 0.75 | 0.87 |
| -20 | (- 4) | 391 | 99 | 115 | 107 | 0.74 | 2.87 | 3.62 | 0.91 | 1.06 |
| -15 | (+ 5) | 510 | 129 | 149 | 118 | 0.78 | 3.75 | 4.32 | 1.09 | 1.26 |
| -10 | (+14) | 649 | 164 | 190 | 128 | 0.81 | 4.78 | 5.06 | 1.28 | 1.48 |
| -5 | (+23) | 810 | 204 | 237 | 138 | 0.85 | 5.99 | 5.87 | 1.48 | 1.72 |
| 0 | (+32) | 996 | 251 | 292 | 147 | 0.89 | 7.41 | 6.77 | 1.71 | 1.98 |
| +5 | (+41) | 1210 | 305 | 355 | 156 | 0.93 | 9.04 | 7.77 | 1.96 | 2.28 |
| +10 | (+50) | 1453 | 366 | 426 | 164 | 0.96 | 10.92 | 8.88 | 2.24 | 2.60 |
| +15 | (+59) | 1728 | 436 | 506 | 171 | 0.99 | 13.07 | 10.13 | 2.55 | 2.97 |

| 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) | 84 | 21 | 25 | 74 | 0.67 | 0.61 | 1.16 | 0.29 | 0.34 |
| -30 | (-22) | 158 | 40 | 46 | 85 | 0.69 | 1.16 | 1.86 | 0.47 | 0.55 |
| -25 | (-13) | 244 | 61 | 71 | 96 | 0.72 | 1.79 | 2.54 | 0.64 | 0.74 |
| -20 | (- 4) | 344 | 87 | 101 | 108 | 0.75 | 2.53 | 3.19 | 0.80 | 0.93 |
| -15 | (+ 5) | 461 | 116 | 135 | 120 | 0.79 | 3.39 | 3.84 | 0.97 | 1.13 |
| -10 | (+14) | 597 | 151 | 175 | 132 | 0.83 | 4.40 | 4.51 | 1.14 | 1.32 |
| -5 | (+23) | 755 | 190 | 221 | 145 | 0.88 | 5.59 | 5.21 | 1.31 | 1.53 |
| 0 | (+32) | 937 | 236 | 275 | 157 | 0.93 | 6.96 | 5.96 | 1.50 | 1.75 |
| +5 | (+41) | 1145 | 289 | 335 | 169 | 0.98 | 8.56 | 6.78 | 1.71 | 1.99 |
| +10 | (+50) | 1381 | 348 | 405 | 180 | 1.02 | 10.39 | 7.68 | 1.93 | 2.25 |
| +15 | (+59) | 1649 | 416 | 483 | 190 | 1.07 | 12.47 | 8.67 | 2.19 | 2.54 |

F - EXTERNAL CHARACTERISTICS

| | | | |
|-------------------------|-------------------------------|------|--------------------------|
| 1 Base plate | Universal EG/F/AMEM version 2 | | |
| 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 | 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 | Straight | | |
| 3.4 Oil cooler (Copper) | No | [mm] | |
| 3.5 Connector sealing | Rubber Plugs | | |