

COMPRESSOR DEFINITION

| | |
|---------------------------|-----------------|
| Designation | VEM X9C |
| Nominal Voltage/Frequency | 230 V 40-150 Hz |
| Engineering Number | 513903000 |

A - APPLICATION / LIMIT WORKING CONDITIONS

| | | | |
|------------------------------------|-----------------------------------|-----------------------------------|--------------|
| 1 Type | Hermetic reciprocating compressor | | |
| 2 Refrigerant | R-600a | | |
| 3 Nominal voltage and frequency | 230 / 40-150 | [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 | BPM | | |
| 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 | 103 to 140 V | 103 to 140 V |
| 8.2 LBP (43°C Ambient temperature) | Static | 103 to 140 V | 103 to 140 V |
| 8.3 HBP (32°C Ambient temperature) | - | - | - |
| 8.4 HBP (43°C Ambient temperature) | - | - | - |
| 9 Maximum condensing temperature | | | |
| 9.1 Operating | 6.9 | [kgf/cm ²] (98 psig) | / °C - °F |
| 9.2 Peak | 7.8 | [kgf/cm ²] (111 psig) | / °C - °F |
| 10 Maximum winding temperature | 130 | [°C] | |

B - MECHANICAL DATA

| | | |
|-------------------------------|----------------|----------------------------------|
| 1 Commercial designation | 1/5 | [hp] |
| 2 Displacement | 9.04 | [cm ³] (0.552 cu.in) |
| 2.1 Bore [mm] | 24.000 | |
| 2.2 Stroke [mm] | 20.000 | |
| 3 Lubricant charge | 220 | [ml] (7.44 fl.oz.) |
| 3.1 Lubricants approved | | |
| 3.2 Lubricants type/viscosity | ALQUILB / ISO5 | |
| 4 Weight (with oil charge) | 7.59 | [kg] (16.73 lb.) |
| 5 Nitrogen charge | - | [kgf/cm ²] |

C - ELETRICAL DATA

| | | |
|----------------------------------------------|-----------------------------------|------------------------------------|
| 1 Nominal Voltage/Frequency/Number of Phases | 230 V 40-150 Hz 3 ~ (Three phase) | |
| 2 Starting device type | Inverter | |
| 2.1 Starting device | VCC31156XXXX | |
| 3 Start capacitor | - | [µF(VAC minimum)] |
| 4 Run capacitor | - | [µF(VAC minimum)] |
| 5 Motor protection | VCC31156XXXXX | |
| 6 Start winding resistance | 16.07 | [Ω at 25°C (77°F)] +/- 8% |
| 7 Run winding resistance | 16.07 | [Ω at 25°C (77°F)] +/- 8% |
| 8 LRA - Locked rotor amperage (40/150 Hz) | 2.10/2.10 | [A] - Measured according to UL 984 |
| 9 FLA - Full load amperage L/MBP (40/150 Hz) | 2.10/2.10 | [A] - Measured according to UL 984 |
| 10 FLA - Full Load Amperage HBP (40/150 Hz) | - | [A] - Measured according to UL 984 |
| 11 Approval boards certification | CE - NOM - TUV - UKCA | |

D - PERFORMANCE - CHECK POINT DATA

| | | | | | | | | |
|----------------------------------|----------|-----|--------------------------------|----------------------------------|----------------------------------------------------|---------------------------|----------------------------------------|-------|
| TEST CONDITIONS: @220V1200RPM | | | 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] |
| 220 | 55 | 64 | 38 | 0.30 | 0.69 | 5.84 | 1.47 | 1.71 |

E - PERFORMANCE - CURVES

| | | | | | | | | | | |
|----------------------------------|-------|----------------------------|--------------------|-----|----------------------------------------|----------------------------------|----------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS: @220V1200RPM | | | 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) | 123 | 31 | 36 | 21 | 0.18 | 0.39 | 5.77 | 1.45 | 1.69 |
| -30 | (-22) | 168 | 42 | 49 | 25 | 0.21 | 0.53 | 6.62 | 1.67 | 1.94 |
| -25 | (-13) | 220 | 55 | 64 | 29 | 0.24 | 0.69 | 7.54 | 1.90 | 2.21 |
| -20 | (- 4) | 282 | 71 | 83 | 33 | 0.27 | 0.88 | 8.59 | 2.17 | 2.52 |
| -15 | (+ 5) | 355 | 89 | 104 | 36 | 0.29 | 1.12 | 9.83 | 2.48 | 2.88 |
| -10 | (+14) | 441 | 111 | 129 | 39 | 0.31 | 1.39 | 11.32 | 2.85 | 3.32 |

| | | | | | | | | | | |
|----------------------------------|-------|----------------------------|--------------------|-----|-----------------------------------------|----------------------------------|----------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS: @220V1200RPM | | | 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) | 115 | 29 | 34 | 22 | 0.18 | 0.36 | 5.10 | 1.29 | 1.50 |
| -30 | (-22) | 157 | 40 | 46 | 27 | 0.22 | 0.49 | 5.81 | 1.46 | 1.70 |
| -25 | (-13) | 209 | 53 | 61 | 32 | 0.26 | 0.65 | 6.53 | 1.65 | 1.91 |
| -20 | (- 4) | 270 | 68 | 79 | 37 | 0.30 | 0.85 | 7.34 | 1.85 | 2.15 |
| -15 | (+ 5) | 343 | 86 | 101 | 41 | 0.33 | 1.08 | 8.29 | 2.09 | 2.43 |
| -10 | (+14) | 430 | 108 | 126 | 46 | 0.37 | 1.36 | 9.44 | 2.38 | 2.77 |

| | | | | | | | | | | |
|----------------------------------|-------|----------------------------|--------------------|-----|-----------------------------------------|----------------------------------|----------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS: @220V1200RPM | | | 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) | 101 | 25 | 30 | 23 | 0.19 | 0.32 | 4.36 | 1.10 | 1.28 |
| -30 | (-22) | 144 | 36 | 42 | 28 | 0.24 | 0.45 | 5.08 | 1.28 | 1.49 |
| -25 | (-13) | 195 | 49 | 57 | 34 | 0.28 | 0.61 | 5.77 | 1.45 | 1.69 |
| -20 | (- 4) | 258 | 65 | 75 | 40 | 0.33 | 0.81 | 6.50 | 1.64 | 1.90 |
| -15 | (+ 5) | 332 | 84 | 97 | 45 | 0.37 | 1.05 | 7.33 | 1.85 | 2.15 |
| -10 | (+14) | 421 | 106 | 123 | 51 | 0.41 | 1.33 | 8.32 | 2.10 | 2.44 |

E - PERFORMANCE - CURVES

| TEST CONDITIONS: @220V1600RPM | | 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] |
| -35 | (-31) | 167 | 42 | 49 | 27 | 0.22 | 0.52 | 6.09 | 1.54 | 1.79 |
| -30 | (-22) | 226 | 57 | 66 | 33 | 0.26 | 0.71 | 6.91 | 1.74 | 2.02 |
| -25 | (-13) | 296 | 75 | 87 | 38 | 0.31 | 0.93 | 7.82 | 1.97 | 2.29 |
| -20 | (- 4) | 381 | 96 | 112 | 43 | 0.35 | 1.20 | 8.88 | 2.24 | 2.60 |
| -15 | (+ 5) | 481 | 121 | 141 | 48 | 0.39 | 1.51 | 10.14 | 2.56 | 2.97 |
| -10 | (+14) | 600 | 151 | 176 | 52 | 0.42 | 1.89 | 11.66 | 2.94 | 3.42 |

| TEST CONDITIONS: @220V1600RPM | | 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) | 151 | 38 | 44 | 29 | 0.23 | 0.47 | 5.30 | 1.34 | 1.55 |
| -30 | (-22) | 210 | 53 | 62 | 35 | 0.28 | 0.66 | 6.05 | 1.53 | 1.77 |
| -25 | (-13) | 281 | 71 | 82 | 41 | 0.34 | 0.88 | 6.82 | 1.72 | 2.00 |
| -20 | (- 4) | 365 | 92 | 107 | 48 | 0.40 | 1.15 | 7.67 | 1.93 | 2.25 |
| -15 | (+ 5) | 466 | 117 | 137 | 54 | 0.45 | 1.47 | 8.63 | 2.18 | 2.53 |
| -10 | (+14) | 584 | 147 | 171 | 60 | 0.50 | 1.84 | 9.78 | 2.47 | 2.87 |

| TEST CONDITIONS: @220V1600RPM | | 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) | 132 | 33 | 39 | 29 | 0.24 | 0.41 | 4.47 | 1.13 | 1.31 |
| -30 | (-22) | 191 | 48 | 56 | 36 | 0.30 | 0.60 | 5.29 | 1.33 | 1.55 |
| -25 | (-13) | 262 | 66 | 77 | 43 | 0.36 | 0.82 | 6.05 | 1.52 | 1.77 |
| -20 | (- 4) | 347 | 87 | 102 | 51 | 0.43 | 1.09 | 6.80 | 1.71 | 1.99 |
| -15 | (+ 5) | 447 | 113 | 131 | 59 | 0.49 | 1.41 | 7.60 | 1.91 | 2.23 |
| -10 | (+14) | 565 | 142 | 166 | 66 | 0.55 | 1.78 | 8.49 | 2.14 | 2.49 |

F - EXTERNAL CHARACTERISTICS

| | | | |
|-------------------------|---------------------------------|------|--------------------------|
| 1 Base plate | European Standard | | |
| 2 Tray holder | Yes | | |
| 3 Connectors | | | |
| 3.1 SUCTION | 6.1 +0.10/+0.00 | [mm] | (0.240" +0.004"/+0.000") |
| 3.1.1 Material | Copper | | |
| 3.1.2 Shape | Slanted 12° out + 79° up | | |
| 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 parallel BP+24° to Back | | |
| 3.3 PROCESS | 6 +0.08/-0.08 | [mm] | (0.236" +0.003"/-0.003") |
| 3.3.1 Material | Copper(OD) | | |
| 3.3.2 Shape | Slanted 42° up + 45° to Back | | |
| 3.4 Oil cooler (Copper) | No | [mm] | |
| 3.5 Connector sealing | Rubber Plugs | | |