Surgical Motor Solutions

B1210N1025 Large Bone Orthopedic Saw/Reamer

Dimensions in inches [mm]

- **Optimization Direction**: Bi-Directional
- **No Load Speed**: 16,800 rpm
- **Typical No Load Current**: 1267 mA
- **Max. Continuous Mechanical Power (@25°C)**: 123.4 W
- **Max. Continuous Current**: 16.1 A
- **Max. Continuous Torque**: 83.1 (11.77) mNm (oz-in)
- **Back EMF Constant**: 5.41 (0.77) mNm/A (oz-in/A)
- **Motor Regulation**: 27.3 (3.93) mNm/W½ (oz-in/W½)
- **Line to Line Resistance**: 0.038 ohms
- **Inductance Phase to Phase**: 0.018 mH
- **Mechanical Time Constant**: 1.85 ms
- **Electrical Time Constant**: 0.474 ms
- **Gearhead Ratio**: N/A
- **Ambient Working Temperature Range**: 25 (77) °C (°F)
- **Max Operating Temperature Range**: 155 (311) °C (°F)
- **Radial Static Force w/o Shaft Support (max)**: 80.28 lbs
- **Axial Static Force w/o Shaft Support (max)**: 27.17 lbs
- **Thermal Resistance**: 8.7 °C/W
- **Thermal Time Constant**: 975 s
- **Weight**: 267 (9.42) g
- **Rotor Inertia**: 133 (189) kg-cm² 10⁻⁴ (oz-in-sec² 10⁻⁶)
- **Hall Sensor Electrical Phasing**: 60 Electrical °
- **Motor type has been designed and tested to achieve the stated number of autoclave cycles**
- **Above parameters specified for 25°C ambient temperature**
- **Typical shaft material 17-4 PH**

**Notes:**
- Three phase motor with Wye connections
- Hall sensors: supply voltage 4.5 V - 24 V
- Typical housing material 303 SS

**Electrical Data**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>B1210N1025</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Nominal Voltage</td>
<td>U₀</td>
<td>9.6 Volt</td>
</tr>
<tr>
<td>2 Optimization Direction</td>
<td>-</td>
<td>Bi-Directional</td>
</tr>
<tr>
<td>3 No Load Speed</td>
<td>n₀</td>
<td>16,800 rpm</td>
</tr>
<tr>
<td>4 Typical No Load Current</td>
<td>I₀</td>
<td>1267 mA</td>
</tr>
<tr>
<td>5 Max. Continuous Mechanical Power (@25°C)</td>
<td>P max</td>
<td>123.4 W</td>
</tr>
<tr>
<td>6 Max. Continuous Current</td>
<td>Ics</td>
<td>16.1 A</td>
</tr>
<tr>
<td>7 Max. Continuous Torque</td>
<td>Tcs</td>
<td>83.1 (11.77) mNm (oz-in)</td>
</tr>
<tr>
<td>8 Back EMF Constant</td>
<td>ke</td>
<td>0.566 V/1000 rpm</td>
</tr>
<tr>
<td>9 Torque Constant</td>
<td>kT</td>
<td>5.41 (0.77) mNm/A (oz-in/A)</td>
</tr>
<tr>
<td>10 Motor Regulation</td>
<td>R/k²</td>
<td>1298</td>
</tr>
<tr>
<td>11 Peak Torque</td>
<td>Tpk</td>
<td>1365.4 (193.4) mNm (oz-in)</td>
</tr>
<tr>
<td>12 Motor Constant</td>
<td>kν</td>
<td>27.3 (3.93) mNm/W² (oz-in/W²)</td>
</tr>
<tr>
<td>13 Line to Line Resistance</td>
<td>R²</td>
<td>0.038 ohms</td>
</tr>
<tr>
<td>14 Inductance Phase to Phase</td>
<td>L</td>
<td>0.018 mH</td>
</tr>
<tr>
<td>15 Mechanical Time Constant</td>
<td>τm</td>
<td>1.85 ms</td>
</tr>
<tr>
<td>16 Electrical Time Constant</td>
<td>τe</td>
<td>0.474 ms</td>
</tr>
</tbody>
</table>

**General Data**

**Notes:**
- Wire Description:
  - Blue: Phase A
  - Brown: Phase B
  - Violet: Phase C
  - Red: 4.5 to 24 Vdc
  - Yellow: Hall 1
  - Orange: Hall 2
  - White: Hall 3
  - Black: Supply RTN

**Efficiency Performance**

**Speed - Current Performance**