# DC Brushless Motor
## AM-BL2040A/B Series

**2015 edition. Specifications are subject to change without notice.**

### BRUSHLESS MOTOR

<table>
<thead>
<tr>
<th>MOTOR MODEL</th>
<th>1226</th>
<th>1220</th>
<th>1216</th>
<th>1820</th>
<th>1817</th>
<th>2420</th>
<th>2417</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOMINAL VOLTAGE (V)</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>18</td>
<td>18</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>NO LOAD SPEED (±12%) (rpm)</td>
<td>26000</td>
<td>20360</td>
<td>16260</td>
<td>19500</td>
<td>17350</td>
<td>20000</td>
<td>16400</td>
</tr>
<tr>
<td>NO LOAD CURRENT (Max 150%) (mA)</td>
<td>350</td>
<td>190</td>
<td>180</td>
<td>150</td>
<td>140</td>
<td>110</td>
<td>95</td>
</tr>
<tr>
<td>TERMINAL RESISTANCE (±12%) (mΩ)</td>
<td>5.4</td>
<td>7.3</td>
<td>8.5</td>
<td>7.4</td>
<td>6.4</td>
<td>6.7</td>
<td>7.5</td>
</tr>
<tr>
<td>STARTING CURRENT (mA)</td>
<td>24482</td>
<td>18605</td>
<td>14445</td>
<td>17760</td>
<td>15721</td>
<td>18454</td>
<td>14905</td>
</tr>
<tr>
<td>STALL TORQUE (mN.m)</td>
<td>1600</td>
<td>1500</td>
<td>1400</td>
<td>1000</td>
<td>800</td>
<td>700</td>
<td>650</td>
</tr>
<tr>
<td>MAXIMUM POWER OUTPUT (W)</td>
<td>14.0</td>
<td>14.2</td>
<td>12.8</td>
<td>13.7</td>
<td>10.6</td>
<td>12.9</td>
<td>11.8</td>
</tr>
<tr>
<td>MAXIMUM EFFICIENCY (%)</td>
<td>78</td>
<td>79</td>
<td>76</td>
<td>77</td>
<td>74</td>
<td>78</td>
<td>76</td>
</tr>
<tr>
<td>MAXIMUM CURRENT (mA)</td>
<td>25000</td>
<td>15385</td>
<td>11111</td>
<td>9677</td>
<td>7171</td>
<td>7742</td>
<td>5530</td>
</tr>
<tr>
<td>MECHANICAL TIME CONSTANT (ms)</td>
<td>0.034</td>
<td>0.061</td>
<td>0.097</td>
<td>0.17</td>
<td>0.22</td>
<td>0.29</td>
<td>0.42</td>
</tr>
<tr>
<td>INDUCTANCE (1kHz) (mH)</td>
<td>2.9</td>
<td>2.9</td>
<td>2.5</td>
<td>2.8</td>
<td>3.0</td>
<td>2.7</td>
<td>2.7</td>
</tr>
<tr>
<td>INDUCTION (Ω)</td>
<td>2.9</td>
<td>2.9</td>
<td>2.5</td>
<td>2.8</td>
<td>3.0</td>
<td>2.7</td>
<td>2.7</td>
</tr>
<tr>
<td>MOMENT OF INERTIA (gcm²)</td>
<td>4.3</td>
<td>5.6</td>
<td>6.9</td>
<td>8.7</td>
<td>9.7</td>
<td>11.3</td>
<td>13.6</td>
</tr>
<tr>
<td>TORQUE CONSTANT (mN.m/A)</td>
<td>2197</td>
<td>1718</td>
<td>1377</td>
<td>1100</td>
<td>983</td>
<td>845</td>
<td>704</td>
</tr>
<tr>
<td>SPEED CONSTANT (rpm/V)</td>
<td>242.7</td>
<td>241.1</td>
<td>214.5</td>
<td>235.8</td>
<td>254.0</td>
<td>232.0</td>
<td>225.1</td>
</tr>
<tr>
<td>SPEED/TORQUE GRADIENT (rpm/mN.m)</td>
<td>22.4</td>
<td>4.0</td>
<td>16.7</td>
<td>10.7</td>
<td>10.0</td>
<td>12.0</td>
<td>10.0</td>
</tr>
</tbody>
</table>

### ADDITIONAL INFORMATION

#### MAXIMUM ROLLING BEARING LOADS

<table>
<thead>
<tr>
<th>LOAD TYPE</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>AXIAL (DYNAMIX)</td>
<td>2.5 N</td>
</tr>
<tr>
<td>PRESS-FIT FORCE</td>
<td>50N</td>
</tr>
<tr>
<td>MAXIMUM RADIAL PLAY</td>
<td>≤0.02mm</td>
</tr>
<tr>
<td>MAXIMUM WINDING TEMPERATURE</td>
<td>85°C</td>
</tr>
<tr>
<td>RADIAL (5mm FROM HEAD FACE)</td>
<td>16.0 N</td>
</tr>
<tr>
<td>L: MAX ALLOWABLE SCREW DEPTH INTO FLANGE</td>
<td>3.0 mm</td>
</tr>
<tr>
<td>AXIAL PLAY</td>
<td>0 (&lt;4.0N)</td>
</tr>
<tr>
<td>AMBIENT TEMPERATURE RANGE</td>
<td>-30 to 65°C</td>
</tr>
</tbody>
</table>

### CONNECTION (AWG26#)

<table>
<thead>
<tr>
<th>CABLE 1</th>
<th>WINDING A</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1:22P</td>
<td>22.4</td>
</tr>
<tr>
<td>L2:BL16</td>
<td>4.0</td>
</tr>
<tr>
<td>L3:EN16-S</td>
<td>16.7</td>
</tr>
<tr>
<td>L3:EN16-T</td>
<td>10.7</td>
</tr>
</tbody>
</table>

### TOTAL LENGTH (GEARBOX AND MOTOR):

<table>
<thead>
<tr>
<th>TOTAL LENGTH</th>
<th>L = L1 + L2 + L3</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1:22P</td>
<td>12.0</td>
</tr>
<tr>
<td>L2:BL16</td>
<td>32.5</td>
</tr>
<tr>
<td>L3:EN16-S</td>
<td>25.2</td>
</tr>
<tr>
<td>L3:EN16-T</td>
<td>42.6</td>
</tr>
</tbody>
</table>

### PLUG DEFINITION

<table>
<thead>
<tr>
<th>PLUG</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLUG 1 HALL V</td>
<td>MOLEX: 51021-0500</td>
</tr>
<tr>
<td>PLUG 2 HALL GND</td>
<td></td>
</tr>
<tr>
<td>PLUG 3 HALL A</td>
<td></td>
</tr>
<tr>
<td>PLUG 4 HALL B</td>
<td></td>
</tr>
<tr>
<td>PLUG 5 HALL C</td>
<td></td>
</tr>
</tbody>
</table>

### REMARKS

Clients can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.

Motor Data Tested at 25°C.
Motor Operation exceeds continuous limits of operating range will compromise the life of the device.

ASSUN MOTOR

www.assunmotor.com | info@assunmotor.com