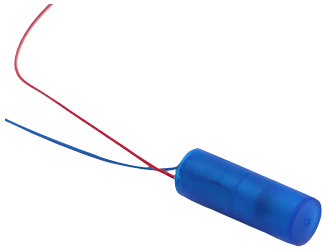
NEED-FOR-POWER MOTOR™



**Model No.**

**NFP-E0716**

## 1. Application

This article regulates the relevant technical requirements of model NFP-E0716 Vibration DC Motor.

## 2. Standard Operating Conditions

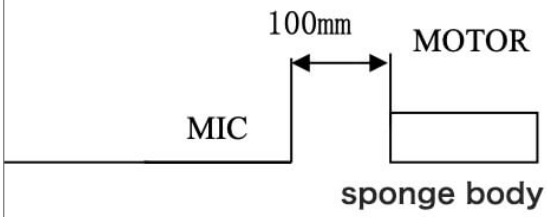
| NO. | Item | Specification |
|---|---|---|
| 2-1 | Rated Voltage | 3.0V DC |
| 2-2 | Rated Load | R2.7mm x 5.0mm |
| 2-3 | On-load Speed | 12,500 ± 2,500r.p.m. |
| 2-4 | Rotation Direction | CW/CCW (clockwise or counter clockwise) |
| 2-5 | Operation Position | Any direction |
| 2-6 | Operation Voltage | 2.0 to 3.6 V DC |
| 2-7 | Operation Conditions | -10 to +60°C Normal humidity |
| 2-8 | Storage Conditions | -0 to+80°C Normal humidity |

## 3. Construction

| NO. | Item | Test Conditions | Specification |
|---|---|---|---|
| 3-1 | Appearance | Visual | No excessive scratches, dents or Deformation |
| 3-2 | Dimension | Caliper or micrometer | Conform to drawing |
| 3-3 | Weight | Scale | Approx.2.15g |
| 3-4 | Shaft End-Play | With dial gauge | 0.1-0.3mm |

## 4. Electrical Characteristics

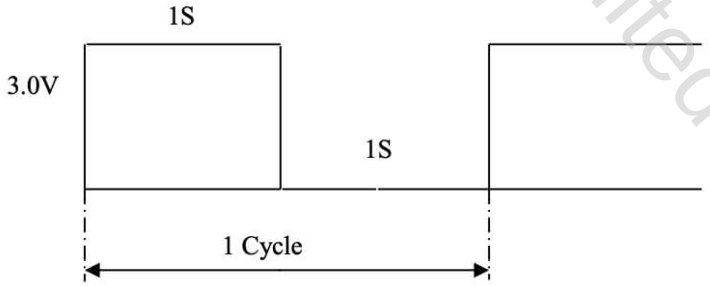
| NO. | Item | Test Conditions | Specification |
|---|---|---|---|
| 4-1 | On-load Speed | At rated voltage, no load. | 12,500±2500r.p.m. |
| 4-2 | On-load Current | At rated voltage, rated load. | 280mA MAX |
| 4-3 | Starting Torque | At rated voltage, 2 point Method i.e.0 | ≥1.2g.cm |

| NO. | Item | Test Conditions | Specification |
|---|---|---|---|
| 4-4 | No Load Staring V | Rated load | 1.0V MAX |
| 4-5 | Stall Current | No load | 0.55 A MAX |
| 4-6 | Terminal Resistance | 20°C, rotor at 2R/3 Position | 6.8 Ω±20% |
| 4-7 | Insulation Resistance | DC 100V apply between motor casing & supply terminal | 1.0MΩ MIN |
| 4-8 | Mechanical Noise | At rated voltage, no load, at a distance of 10cm from the motor   | 50db MAX<br>Background Noise: 28db |
| 4-9 | Current Waveform | At rated voltage, no load | No off-point |
| Standard test condition for 20±2°C temperature, humidity 60% to 70% | | | |

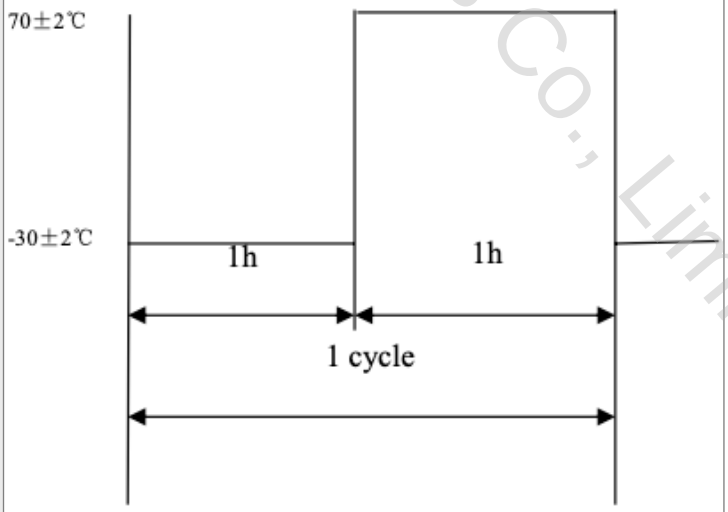
## 5. Reliability & Special Test

| NO. | Item | Test Conditions | Specification |
|---|---|---|---|
| 5-1 | Life Test | Motor test conditions are listed as below.A motor is considered as meeting life expectation when either of the criteria described met. | |

| Position | Test model | Load | Environment | Target Lift Cycle |
|---|---|---|---|---|
| Shaft level | As below | Ecctric mass | 20℃±2℃ 60%~65% | 5000Cycles |




Acceptance:
①Rated load speed varies within ±60% from the initial.
②Rated load current varies within ±50% from the initial.

<table>
<tr><th>NO.</th><th>Item</th><th>Test Conditions</th><th>Specification</th></tr>
<tr><td>5-2</td><td>Withstand Vibration Test</td><td>Smallest packaging subjected to 1.5mm amplitude & (10/55)Hz vibration for 2h each Up-Down, Left- Right & Back-Front.</td><td rowspan="2">Rated load speed varies within ±60% from the initial<br><br>Rated load current Varies within ±50% from the initial</td></tr>
<tr><td>5-3</td><td>Shock Test</td><td>Smallest packaging dropped on wooden block of 10mm thickness from100cm height ,once for each 6 faces of the packaging.</td></tr>
<tr><td>5-4</td><td>Environment Storage Test</td><td>With below each temperature measuration are taken after 2h at room temperature and normal humidity.
<table>
<tr><th>Item</th><th>Temp</th><th>Humidity</th><th>Time</th></tr>
<tr><td>Test-1</td><td>60±2℃</td><td>90~95%</td><td>96h</td></tr>
<tr><td>Test-2</td><td>40±2℃</td><td>60~70%</td><td>96h</td></tr>
<tr><td>Test-3</td><td>-30±2℃</td><td>30±2%</td><td>96h</td></tr>
</table></td><td rowspan="2">①Rated load speed varies within ± 60% from the initial<br>②Rated load current varies within ±50% from the initial</td></tr>
<tr><td>5-5</td><td>Heat Shock</td><td>With below heat shock test mode Heat Shock test is conducted for 10 cycles. Measuration are taken after 2h at room temperature and normal humidity.<br> 
</td></tr>
</table>

## 6. Motor General Instructions & Notes

| NO. | Item |
|---|---|
| 6-1 | For the motor have corrosively harmful gas (for example: sulfur yellow, do glue, silica gel, etc. wink), produce place, environment should avoid, in order to prevent motor outer cover, end son and other metal part from is it corrode to oxidize, Especially organization, working environment use silica gel, to volatilize apt to form SiO2 lead to the fact the reversing device contact obstacle of the motor silica gel, connect place impedance to increase sharply, keep in touch and open a way badly. |
| 6-2 | Avoid bending or wiggling motor terminal while soldering leads to hem. also, soldering time should be short (350°C,  2s max) as possible since prolonged soldering may damage the surrounding area, especially the plastic material. |
| 6-3 | Motor mounting and in cause of using adhesives, please pay attention not to flow them into bearing. Avoid dead point. |
| 6-4 | Do not stall or overload the motor, this will cause motor to be overheated and some parts (For example, wire, brush…etc.) will be damaged. |
| 6-5 | Press-fitting a gear, pully or adhesive agent etc, onto the motor output shaft, please support the shaft at the other end or its metal plate in a proper JIG, avoid influence rotor rotation. |
| 6-6 | The warm humidity of environment when the motor is used should be paid attention to, especially the high temperature is high and wet, should avoid, if go beyond the specification condition, to the characteristic, life-span of the motor, there is influence. |
| 6-7 | 25°C of±10% of environment, under 70% of humidity that the motors are kept, the motor is in have not opened the packing box cases, storage date is 180 days, and motor quality accords with the demands for specification book of the products. |
| 6-8 | Use suitable screw (for example, length, pitch etc) for motor mounting, screw and hole should straight if mounting screw length is too long, this will have a bad influence on the magnetic and rotor. |
| 6-9 | If any trouble question occurs, both parties shall discuss base on this specification to the solve matters. |
| 6-10 | In order to improve the performance within the scope of the specification, parts or materials, tools and factures etc. notice can the your department at but to the great change. |
| 6-11 | Any questions regarding the present specifications or related matters, should be decide by consultation between the user and supplier. |
| 6-12 | Input voltage into motor, do not over the voltage which is exceeding than this standard specification. Otherwise, this will cause the motor to be overheated. |
| 6-13 | If the screw has been fixed by auto-driver, it must has its torque-adjusted equipment and set the torque at 1.2kgf-cm (max). |
| 6-14 | When lock the screw, the equipment of production line should be kept clean and has no other magnetic or plastic powder so that it can prevent those things falling into the position hole. |

## 7. Outline Drawing