OPTICAL FIBER WINDING MACHINE

Introduction

LEOS, ISRO is developing Fiber Optic Gyroscope (FOG) for various communication and remote sensing satellite applications. In order to wind precision quadrupolar fiber gyro coils for FOG, LEOS is indenting a high precision semi-automatic fiber winding machine whose specifications are mentioned below.

<table>
<thead>
<tr>
<th>S1No:</th>
<th>Specification</th>
<th>Details</th>
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<tbody>
<tr>
<td>1.</td>
<td>Maximum Coil diameter</td>
<td>275mm</td>
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<tr>
<td>2.</td>
<td>Maximum Coil height</td>
<td>75mm</td>
</tr>
<tr>
<td>3.</td>
<td>Wind types</td>
<td>Both Wet and Dry</td>
</tr>
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<td>4.</td>
<td>Maximum Fiber length of the coil</td>
<td>5.5km</td>
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<td>5.</td>
<td>Fiber diameter</td>
<td>50 um to 300um</td>
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<td>6.</td>
<td>Tension control</td>
<td>3-50g with 0.5g accuracy</td>
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<td>7.</td>
<td>Winding Speed</td>
<td>5 to 60 rpm</td>
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<tr>
<td>8.</td>
<td>Position repeatability of the traversing system for take up spool</td>
<td>≤ 3µm</td>
</tr>
<tr>
<td>9.</td>
<td>Power supply</td>
<td>230±50 V,50±10 Hz AC with power cord of Indian Standards</td>
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</table>

10. MACHINE CAPABILITIES

a. The machine should be capable of winding bidirectional.

b. It should be capable of producing wet and dry wound normal, bipole, quadrupole and octupole coils.

c. Controls should be provided for manually jogging each axis on the machine

d. Operator should be given full control over winding parameters such as winding speed, winding pitch, tension, starting position, spool width, total spool length and leader length.
11. OPERATOR INTERFACE
   a. A touch screen interface should be provided
   b. A foot pedal/hand knob based control that gives the operator smooth control over
      the starts and stops and the winding speed should be provided.
   c. PC based control and interface should be provided; The PC Specs are as follows.
      1. PC monitor size should be more than 21 inches.
      2. Windows 7 operating System.

12. VISUAL AIDS
   a. A colour camera system has to be given. The model and make of the camera to
      be mentioned in the quote
   b. Microscope with following specs to be provided
      1. Microscope with magnification more than 5X
      2. Digital Camera to record images from the microscope
      3. Microscope monitor to display the recorded images.

13. WARRANTY AND COC & OPERATING MANUAL
   a. Provide 1 year Warranty with Certificate.
   b. Quote for Extended Warranty for 1 year/2 year/5 year slab. Extended Warranty
      charges will be paid after the completion of the warranty period.
   c. Quote for Post warranty AMC. Acceptance is purely under LEOS discretion
      during Purchase Order release.
   d. Provide Certificate of Conformance
   e. Provide operating manual and troubleshooting guidelines.

14. INSTALLATION AND TRAINING
   a. Installation and training to be provided at LEOS by the original manufacturer.
   b. This includes unpacking, machine assembly, installation, commissioning and
      training to one batch.
   c. Fiber will be provided by LEOS and the specifications of the machine has to be
      demonstrated
   d. The Footprint of the machine and supporting systems that are necessary for the
installation to be mentioned in the quote.

15. OPTIONAL
1. Quote for Automatic Glue dispensing system with make and model no:
2. Quote for Fume Extraction system with make and model No:
   The acceptance of optional items is under the discretion of LEOS during the release of Purchase Order.

16. MANDATORY REQUIREMENTS
   • Compliance against each specification should be supported by relevant information (in numericals) achieved by the equipment.
   • An authorised Indian distributor must be available.
   • The manufacturer should provide the heritage of their item supplied to any Indian Aerospace / Space Industry. Purchase Order reference can be provided along with the quote

Delivery Date: 16 weeks from the Date of release of P.O.
Installation at LEOS: Within duration of 6 weeks from the time of intimation from LEOS