

1) Detailed specification for linear stage co-ordinate

Measurement:

a) Driver specification:

- **Computer Interfaces** : USB, RS-232, IEEE-488-1
- **Compensation** : Linear error and backlash compensation
- **Control Algorithm** : Digital PID servo loop with velocity and acceleration feed forward
- **Drive Type** : 2 or 4-phase stepper and Brush DC
- **ESP Compatibility** : ESP Stage Detection
- **Contouring** : 2D Contouring with continuous buffer loading, Trapezoidal velocity profile, S-curve velocity profile
- **Motion** : Synchronized pt to pt, 3D Linear and 2D circular interpolation, Master-slave, Electronic Gearing
- **Motor Control** : 16 bit DAC resolution, 5 MHz maximum encoder input frequency, Digital PIDFF servo loop, 0.4 ms update rate

- **Error Compensation** : Linear, Backlash
- **Number of Axis**: 3
- **Interface** : Front Panel Keypad, 80 Character Alpha-Numeric LCD Display

b) X and Y motorised linear stage: Specification

Technical Specification:

- **Travel Range** : 150 mm
- **Maximum Speed** : 40 mm/s
- **Minimum Incremental Motion** : 300 nm
- **Centered Load Capacity** : 200 N
- **Axial Load Capacity (+Cx)** : 50 N
- **Inverse Axial Load Capacity (-Cx)** : -10 N
- **Accuracy, Typical** : $\pm 2.0 \mu\text{m}$
- **Accuracy, Guaranteed** : $\pm 3.25 \mu\text{m}$
- **Uni-directional Repeatability, Typical** : $\pm 0.30 \mu\text{m}$
- **Uni-directional Repeatability, Guaranteed** : $\pm 0.5 \mu\text{m}$
- **Bi-directional Repeatability, Typical** : $\pm 0.8 \mu\text{m}$
- **Bi-directional Repeatability, Guaranteed** : $\pm 1.75 \mu\text{m}$
- **Pitch, Typical** : $\pm 25 \mu\text{rad}$
- **Pitch, Guaranteed** : $\pm 60 \mu\text{rad}$
- **Compliance in Pitch** : $15 \mu\text{rad/Nm}$

- **Yaw, Typical** $\pm 30 \mu\text{rad}$
- **Yaw, Guaranteed** : $\pm 45 \mu\text{rad}$
- **Compliance in Yaw** : $15 \mu\text{rad/Nm}$
- **Compliance in Roll** : $10 \mu\text{rad/Nm}$

- **Drive Type** : DC Motor
- **Origin Repeatability** : $\pm 0.5 \mu\text{m}$
- **Cable Length** : 3 m
- **Vacuum Compatibility** : No
- **MTBF** : 20,000 h (25% load, 10% duty cycle)
- **Maximum Power Consumption** : 40 W
- **Compliance** : RoHS 3, CE

c) Motorized Vertical Stage, 4.5 mm Travel, Full Step Drive:

- **Travel Range** : 4.5 mm
 - **Minimum Incremental Motion**: 0.20 μm
 - **Maximum Speed** : 2 mm/s
 - **Centered Load Capacity** : 30 N
 - **Accuracy, Typical** : $\pm 0.35 \mu\text{m}$
 - **Accuracy, Guaranteed** : $\pm 2.0 \mu\text{m}$
 - **Bi-directional Repeatability, Typical** : $\pm 0.5 \mu\text{m}$
 - **Bi-directional Repeatability, Guaranteed** : $\pm 2.2 \mu\text{m}$
 - **Uni-directional Repeatability, Typical** : $\pm 0.25 \mu\text{m}$
 - **Uni-directional Repeatability, Guaranteed** : $\pm 0.7 \mu\text{m}$
 - **Drive Screw Pitch** : 0.8 mm
 - **Limit Switches** : Optical
 - **Origin** : Optical, centered
 - **Origin Repeatability** : $\pm 2 \mu\text{m}$
-
- **Cable Length** : 3 m
 - **Connectors** : DB15 Male
 - **Pitch, Typical** : $\pm 37 \mu\text{rad}$
 - **Pitch, Guaranteed** : $\pm 75 \mu\text{rad}$
 - **Compliance in Pitch** : 100 $\mu\text{rad/Nm}$
 - **Roll, Typical** : $\pm 50 \mu\text{rad}$
 - **Roll, Guaranteed** : $\pm 100 \mu\text{rad}$
 - **Compliance in Roll** : 80 $\mu\text{rad/Nm}$
 - **MTBF** : 20,000 h (25% load, 10% duty cycle)

1. The bidder should quote as one unit (a,b,c) and these item has to work as one unit.

2. Warranty : 1 year