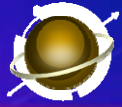




# **Introduction of Tool-Machine Inspective Lab. and Quality Inspection & Test Lab.**



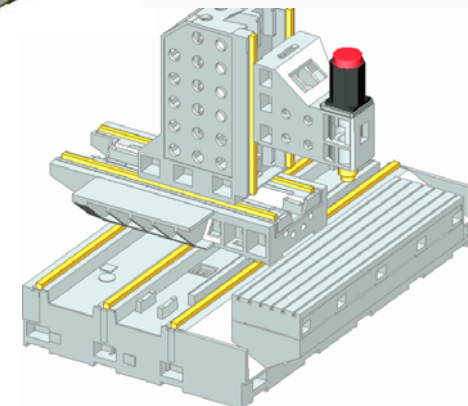
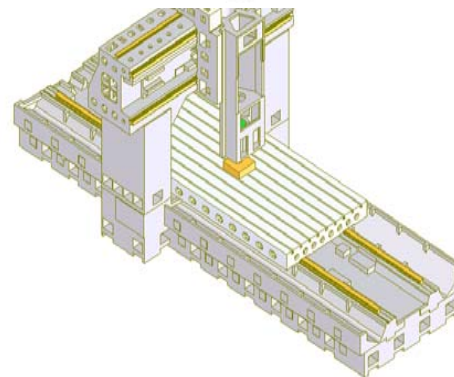
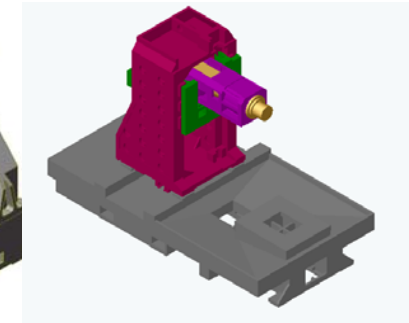
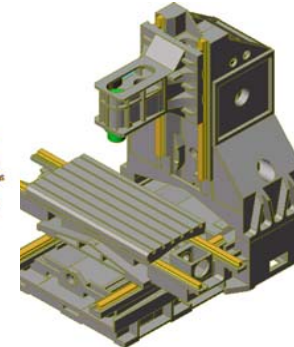
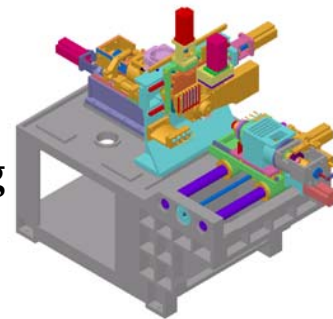
# Tool-Machine Inspective Laboratory

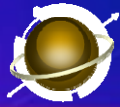


## Capability

We can test linear positioning accuracy, angle positioning accuracy, and geometry accuracy of **28** kinds of tool machines ( **24** of them are included in accreditation items ) which can be characterized as follows:

- (1) Lathes, Milling machines, Shaping machines, Grinding machines, Drilling & Milling machines.
- (2) Boring machines.
- (3) Vertical Machining centers.
- (4) Horizontal Machining centers.
- (5) Electric discharging machines.
- (6) Coordinate measuring machines.
- (7) Precision surface platforms.



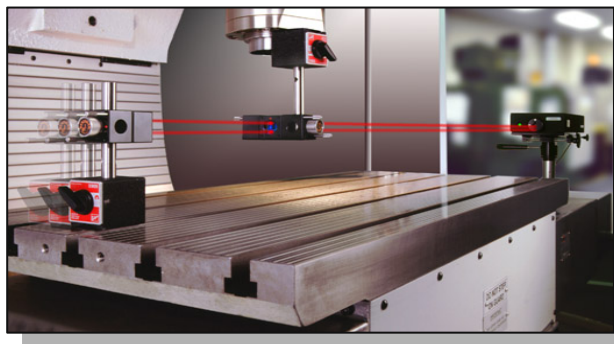


# Tool-Machine Inspective Laboratory



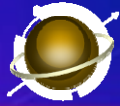
## Apparatus

| Item                                    | Capability | Accuracy        | Calibration period |
|---|------------|-----------------|--------------------|
| Laser Interferometer Systems (HP)       | 0~40M      | $\pm 0.5 \mu m$ | One Year           |
| Laser Interferometer Systems (RENISHAW) | 0~40M      | $\pm 1.1 \mu m$ | One Year           |





# Quality Inspection & Test Laboratory



## Capability

---

### 1. Nondestructive test of surface finishing:

(1) Coating thickness measurement (accredited):

- a. Magnetic method (ASTM B499): Zn/Fe (0~50  $\mu\text{m}$ ), Cr/Fe (0~60  $\mu\text{m}$ ), Phosphate/Fe (0~15  $\mu\text{m}$ )、Paint/Fe (0~300  $\mu\text{m}$ ).
- b. Eddy Current method (ASTM B244): Anodic Coating/Al (0~60  $\mu\text{m}$ ), Paint/Al (0~200  $\mu\text{m}$ )
- c. X-Ray Spectrometry method (ASTM B568): Zn/Fe (0~25  $\mu\text{m}$ ), Ni/Fe (0~25.4  $\mu\text{m}$ )

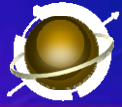
(2) Gloss test: Paint's gloss testing

### 2. Destructive test of surface finishing

1. Corrosion test : Salt Spray (Fog) Test (ASTM B117).
2. Adhesion Test : Measuring Adhesion by Tape Test (ASTM D3359).
3. Abrasion Test: Abrasion resistance test by Taber Abraser (ASTM D4060).

### 3. Dimensions & geometric tolerance measurements by CMMs (accredited)

Length, Straightness, Flatness, Roundness, Parallelism, Perpendicularity, Symmetry, Position, Cylindricity, Concentricity, Angularity.



## Apparatus



**X-Ray Spectrometry**

Technical spec. :

- (1) Capability: depends on different coatings and substrates
- (2) Environment requirement:  
Temperature : 10 ~ 30 °C  
Humidity : 30 ~ 65% RH



**3D Coordinate Measuring Machine**

Technical spec. :

- (1) Meas. Range : X/Y/Z=1500 mm/3000 mm /1000 mm
- (2) Resolution : optical meter  $\leq 0.039 \mu\text{m}$
- (3) Accuracy :  $2.2+L/333 \mu\text{m}$
- (4) Loading : 2200 kg.
- (5) Environment requirement :  
Temperature : 20 °C  $\pm$  1 °C  
Humidity : 50%  $\pm$  10 %