



Work Execution

WE216 Machine Tool Reliability

Recommended for

Machine tool repair personnel, machine tool builders, maintenance supervisors, maintenance personnel, spindle room personnel, millwrights, plant engineers, and reliability engineers.

Course objective

To train personnel in the area of precision bearings and spindle repair. This training will improve the service life and the reliability of precision bearings and spindles and increase productivity.

2009 course schedule

On-site only

2009 tuition

On-site	
per class	\$10,995
# people	16
17+ people	\$295 per person

2 days

A written examination is included with this course and is conducted on the afternoon of the final day of class.

Course description

The Machine Tool Reliability course uses a combination of hands-on training, audio visual, lecturers and discussion opportunities. Specific topics include:

Precision bearing basics

- Function of precision bearings
- Fundamentals of precision bearing technology, types, nomenclature, terminology, components and materials used, and application
- Proper care, handling, and storage
- Ceramic bearings

Spindles

- Spindle types: block, cartridge, belt driven, gear driven, direct drive and motorized
- Design criteria
 - Accuracy
 - Stiffness
 - Speed
 - Preload
- Dimensional criteria
 - Cleanliness
 - Disassembly
 - Shaft and housing fits
 - Mounting and locating
 - Balancing and shaft alignment
 - Set preload on NN cylindrical bearings
 - Sealing methods

Lubrication

- Grease, type and quantity
- Air-oil, type and quantity
- Run-in procedures

Failure analysis

- Identify and interpret actual samples of bearing failures
- Contamination
- Imbalance
- Misalignment
- Dimensional and handling errors

Condition monitoring

- Methods and practices