APEX QUALITY ASSURANCE

3-Day

Geometric Dimensioning and Tolerancing

(GD&T) Fundamentals

Aerospace Quality Management Systems

Register by phone

919-635-5581

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www.apexqualityassurance.com

GD&T Fundamentals (3-Day)

At A Glance

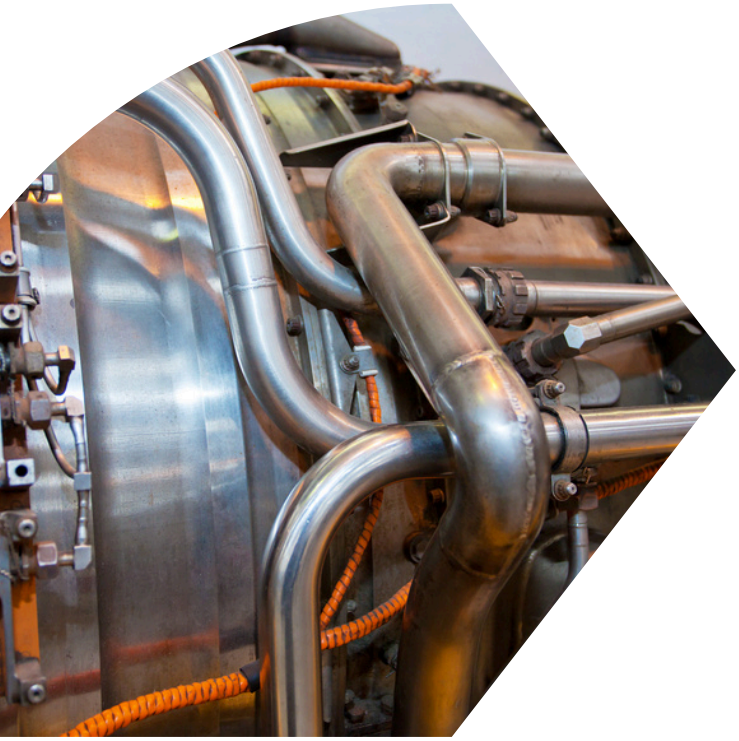
Training for Aerospace Quality Management Systems

To better define a product to a customer or supplier, Geometric Dimensioning and Tolerancing (GD&T) is often used as a symbolic way of showing specific tolerances on drawings. GD&T is a valuable tool that effectively communicates the design intent to manufacturing and inspection. It is governed by the technical standard ASME Y14.5-2018, published by the American Society of Mechanical Engineers.

This three-day seminar covers all aspects of GD&T. In additional to presenting the theory, multiple examples will be provided to show specific applications. Participants are welcome to bring sample prints to the class for discussion or private consultation.

Seminar Goals

- Determine Whether to Include GD&T Controls on Drawings Based on its Benefits and Consequences
- Compute Bonus Tolerance for a Given Application
- Apply Form Controls Based on Part Requirements and Tolerance Zone
- Select Appropriate Datum Features Based on Fit and Function
- Apply Datum Features on an MMB Basis to Provide
- Additional Tolerance When Applied Appropriate Based on
- Functional Requirements
- Apply Profile Control Based on Relations, Clarity, Cost, Fit and Function
- Apply Orientation Controls Based on Relations, Clarity, Cost, Fit and Function
- Apply Position Controls Based on Relations, Clarity, Cost, Fit and Function
- Apply Other Location Controls (Runout, Symmetry,
- Concentricity Based on Relations, Clarity, Cost, Fit and Function



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Who Should Attend

Training for Aerospace Quality Management Systems

This seminar is designed for product engineers, CAD designers, manufacturing supervisors, quality personnel, program managers, and others who either create or read mechanical drawings.

Participants should have a basic understanding of blueprint reading.

Seminar Goals

Training for Aerospace Quality Management Systems

- **Chapter 1: The Need for GD&T**
  - GD&T and its Importance in Drawings
- **Chapter 2: Definitions and Rules**
  - Relevant Definitions, Rules and Exceptions
  - Define and Calculate Bonus Tolerance and Virtual Condition
  - Breakout Exercise 1: MMC and RFS Use
- **Chapter 3: Form**
  - Tolerance Zone for Form Controls
  - Interpret Form Controls Applied to Surface and to FoS
  - Breakout Exercise 2: Form Controls
- **Chapter 4: Datums**
  - Differences Between Datum, Datum Feature, Datum Feature Simulator, and Datum Targets
  - Select Appropriate Datums Based on Function
  - Degrees of Freedom Constrained by Different Datum Feature Geometries and Sequences
  - Identify if a Datum is being Applied to a Surface or to a Feature of Size
  - When to Use Datum Shift and How It Works
  - Breakout Exercise 3: Datum Figures
  - Breakout Exercise 4: Datum Selection
  - Breakout Exercise 5: Datum Shift
- **Chapter 5: Profile Tolerances**
  - Application of Profile Tolerance and the Effect on Form, Size, Location and Orientation While Adding Different Datums to the Feature Control Frame
  - Breakout Exercise 6: Profile
- **Chapter 6: Orientation**
  - Orientation Controls Applied to Surface and to FoS
  - Tolerance Zone for Orientation Controls
  - Breakout Exercise 7: Orientation
- **Chapter 7: Position**
  - Interpret Position Control RFS with Tolerance at MMC
  - Tolerance Zone for Position Control
  - Interpret Composite Control, Relations, and Tolerance Zones Degrees of Freedom
  - Breakout Exercise 8: Position
- **Chapter 8: Other Types of Locations**
  - Location Controls
  - Free and Restrained States, the Elements of a Complete Restraint, and the Use of the Free State Modifier
  - Breakout Exercise 9: Dimensioning and Tolerancing