

Geometric Dimensioning and Tolerancing (GD&T) – Level 1

Rationale

Geometric Dimensioning and Tolerancing, or "GD&T", is a symbolic language applied to mechanical part drawings (whether 2D or 3D) to define the allowable imperfection of every controllable characteristic of each part feature.

Since simple " \pm " tolerancing does not assure a part to get rid of ambiguities, of itself or of an assembly, "GD&T" was developed. "GD&T" resolves such elusiveness and limited capabilities of " \pm " tolerances.

Further, ASME standard, as such, removes uncertainty arising out of imperfect geometric specifications and assures theoretical perfect geometry of a part or assembly.

"GD&T" is necessary when part complexity, precision, production volumes are high, or if geographic or organizational dispersions exist.

"GD&T" is applied as a risk management tool.

Benefit(s)

Participants shall be ensured to:

1. Learn the fundamental concepts of GD&T
2. Gain an understanding of geometric symbols including:
 - a. each symbol's requirements
 - b. tolerance zones
 - c. limitations
3. Discover the terms, rules, symbols, and applications of GD&T
4. Interpret drawings produced in accordance with ASME Y14.5M-1994 standard

Target Participants

Individuals who create or interpret engineering drawings.

Geometric Dimensioning and Tolerancing (GD&T) – Level 1

Pre-requisite

Participants should have basic print reading skills.

Course Content: (Level-1)

1. Introduction

- a) The History and Evolution of Geometric Dimensioning and Tolerancing (GD&T)
- b) GD&T Nomenclature
- c) GD&T Key Terminologies
- d) Coordinate Dimensioning Comparison

2. Terminology

- a) GD&T Modifiers and Symbols, Rule(s)
- b) Basic Dimensions
- c) Virtual Condition
- d) Bonus Tolerance

3. Form Controls

- a) Flatness
- b) Straightness
- c) Circularity
- d) Cylindricity

4. Datums

- a) The Datum System
- b) Interpreting Datum Targets
- c) Feature of Size Datum Specifications

5. Orientation Controls

- a) Perpendicularity
- b) Angularity
- c) Parallelism

Geometric Dimensioning and Tolerancing (GD&T) – Level 1

6. Tolerance of Position Controls (TOP)

- a) Definitions
- b) Conventions
- c) Advantages
- d) Basic Theories
- e) Axial Relationships
- f) RFS and MMC
- g) TOP Applications
- h) Cartoon Gages for TOP Applications
- i) TOP Special Applications
- j) Calculating Distances on Parts
- k) Dimensioned with TOP
- l) Fixed and Floating Fastener Formulas

7. Concentricity and Symmetry Controls

8. Run out Controls

- a) Circular Run out
- b) Total Run out

9. Profile Controls

- a) Profile of a Surface
- b) Profile of a Line

Duration

16 hours spread over 2 days

Geometric Dimensioning and Tolerancing (GD&T) – Level 1

Other Details:

- Payment to be made within 15 days from the date of the invoice.
- All payments must be made by cheque/online transfer etc., drawn in favour of Sieger Training India. Sieger will charge on INR basis only.
- Overseas clients will have to take care of all the training materials directly as briefed by Sieger Training. However, Sieger can procure some (which can be transited) not all, on behalf of the client but any additional charges for custom clearance must be taken care by client only.
- Facilitators Travel, accommodation & Food must be taken care by the client (wherever necessary)
- Clients will have to arrange LCD, Speakers, Mike on their own.
- Cancellation of confirmed programmes shall be intimated one week in advance else 50% of the total charges shall be applicable.
- Client will recognize the intellectual property rights of Sieger Training and such materials are not to be copied without prior written approval of Sieger Training.
- Take all responsible steps to hold all Sieger Training copyrighted materials confidential to Client.
- Guarantee that no training will be conducted using Sieger Training concepts or material is carried out for employees of Client and Client shall not use Sieger Trainer's without the knowledge of Sieger Training Consultants (P) Limited.
- Ensure that any materials of Sieger Training supplied to internal employee(s) are retained by Client and or returned to Sieger Training if the employee(s) ceases to be employed by the company;
- Ensure that no substantive modification of course design or content occurs without the prior written permission of Sieger Training, which shall not be withheld unreasonably;
- Treat this agreement as confidential and not divulge its contents to third parties;
- Inform Sieger Training of any internal procedures for the payment of invoices.