PD734
ASME Y14.5 GD&T Training Workshop

Day One

Introduction

- GD&T defined: Size, Form, Orientation, and Location (SFOL) — What we want and what we will take.
- Three boxes for GD&T: Feature Control Frames (FCFs), Datum Feature Identification (DFI) symbols, basic dimensions.
- Exercise: Control symbols, names, and feature control frame examples.
- Modifiers: Free State, Statistical Tolerance (ST), Continuous Feature (CF), and others
- Exercise debrief: Overview of everything

Features of Size vs. Surfaces (Big Map of the GD&T World)

- Size defined
- Feature of size defined
    - Round / square
    - Internal / external
- MMC
- Rule #1
- Exercises & debrief

Controlling Surface Form

- Flatness & Straightness
    - Definition
        - Rule #1
        - Inspection
    - Surface
        - Definition
        - Rule #1
        - Inspection
    - Feature of Size (FOS)
        - Rule #1 vs. FOS application
        - To M or not to M (Bonus)
        - Round and square examples
        - Inspection
- Cylindricity & Roundness
    - Definition

- Rule #1
- 2-Dimensions vs. 3-Dimensions

- Profile of a Surface as a Form Control
  - Equal bilateral
  - Unequal

- Exercises (Homework)

Day Two

- Surface form exercise debrief

Datums

- Terminology: datums, datum features, fixtures, and gages
- FOS datums
- MMC: Shift happens
- Regardless of Material Boundary (RMB): No shift
- Patterns of features used as a datum
- Exercises and applications
- Selecting datums
- Simulating datums
- Exercises & debrief

Controlling Surface Orientation

- Perpendicularity
  - Definition
  - Inspection
- Angularity
  - Definition
  - Inspection
- Parallelism
  - Definition
  - Inspection
- Tangent Plane Modifier
- Exercises & debrief

Profile of a Surface as an Orientation Control

- Referencing Datums
- Controlling size, SFOL
- Composite vs. Two Single-Segment

- Dynamic profile modifier

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Day Three

- Debrief
  - FOS
    - Definition
    - To M or not to M
    - Round and square examples
    - Inspection

Location

- Position
  - Definition
  - To M or not to M (bonus)
  - Inspection
  - Round and square
  - What's included?
  - To M or not to M (to apply the MMC modifier or not, datum shift)
  - To L or not to L (to apply the LMC modifier or not)
  - To Project or not to project
  - Patterns of features
  - Exercises & debrief
- Runout
  - Definition
  - Circular & Total
    - Controlling a surface of revolution
    - Controlling a perpendicular surface
- Concentricity & Symmetry-Legacy controls. How to get along without them?
  - Definition
  - Using modifiers
  - Use in stacks

Applications using customer drawings (highly recommended!)

Close

- Review
- Post-test
- Other resources
- ASME Certification info