ENGINEERING DRAWINGS FOR FORGINGS

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The Engineering Drawings for Forgings course provides a comprehensive overview of how to read and interpret mechanical drawings relevant for the forging industry, with a focus on forging inspection prints. Developed with the help of subject matter experts, this course will give you the practical knowledge to work more efficiently and make better manufacturing decisions.

Credit Hours **3.5**

Learning Objectives

- Distinguish between the various types of mechanical drawings relevant for forging operations, and where in the forge shop process planning workflow each of these prints are developed.
- Identify various types of inspection and testing methods utilized by the forging industry, including 3D inspection and non-destructive testing.
- Relate a variety of forging-specific callouts or notes on inspection prints to the inspection process used to compare measured values against nominal, or design, values.
- Recognize common industry guidelines for tolerances applying to forgings produced on forging machines as well as hammer and press forgings.
- Verify knowledge retention by applying skills learned to additional inspection drawing examples.

Table of Contents

I. Forge Shop Operations

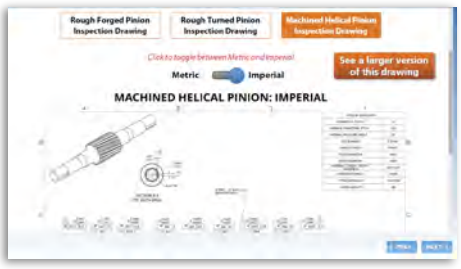
- **What is Forging?**
- **Forge Shop Process Planning**
- **Material Requirements**
- **Material Inspection**
  - o Dimensional Inspection
  - o Metallurgical Inspection
- **Reading Dimensions**
  - o Tolerance
- **Inspection and Testing**
  - o Dimensional & CAD-Based Inspection
  - o Hardness Testing
  - o Non-Destructive Testing for Defects
    - Magnetic Particle Inspection
    - Ultrasonic Inspection
    - Liquid Penetrant Inspection
    - Eddy Current Testing

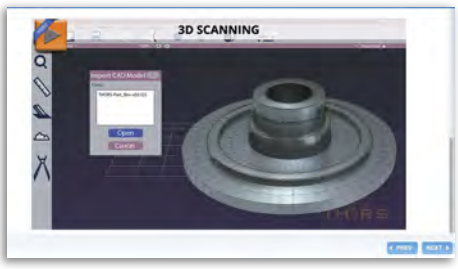
II. Inspection Drawing Focal Points

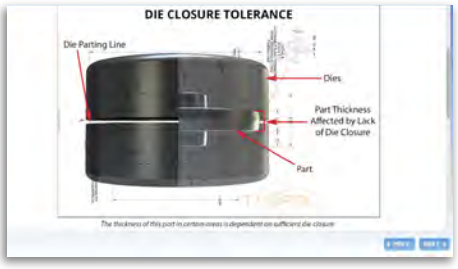
- **"As Forged"**
- **Draft Angle**
- **Flash Extension**
- **Heat Treatment**
- **Machining Allowance**
- **Mismatch**
- **Straightness**
- **Theoretical Sharp Corner (TSC)**
- **Thickness**
- **Underfill**

III. Drawing Examples

- **Arm Forging**
- **Gear Blank Forging Series**
  - o Gear Blank Inspection Drawing
  - o Gear Blank Insert Dies Drawing
- **Helical Pinion Forging Series**
  - o Rough Forged Pinion Inspection Drawing
  - o Rough Turned Pinion Inspection Drawing
  - o Machined Helical Pinion Inspection Drawing
- **Shackle Forging**
- **Shaft Forging**







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