

NIMS Inspector Certification

This is a guide intended to help instructors prepare for the NIMS Inspector Credential exam. Individuals who earn this credential will be able to inspect their students' parts for performance validation in earning NIMS credentials.

This guide includes the Body of Knowledge covered in the exam, study resources available and sample questions to assist you in preparing to take the exam.

Body of Knowledge

The NIMS Inspector Certification theory exam validates knowledge in the following areas:

Geometric Dimensioning and Tolerancing (GDT)

Based on ASME Y14.5 - 2009

1. Geometric Control Symbols
 - Understand and interpret GDT symbols
 - Understand GDT terminology
 - Knowledge of how the geometric tolerancing system works and is used in industry
2. Geometric Tolerancing Fundamentals
 - Understand the type and power of the different tolerance categories including form, location, orientation, profile and runout
 - Understand each of the 14 geometric tolerancing characteristics (12 characteristics based on 2018 update), how they are grouped together and the primary use for each
 - Understand how geometric tolerance zones are portrayed and defined
 - Knowledge of both 3D and 2D tolerances
3. Feature Control Frame
 - Understand the components of a feature control frame
 - Knowledge of the symbols associated with a feature control frame
 - Determine if it is a feature of size
 - Understand feature and datum modifiers
4. Datum Reference Frame (DRF)
 - Understand inspection equipment and datum reference frame simulators that use the three plane concept
 - Understand targets and irregular surfaces
 - Degrees of Freedom (DOF)

General Measurement & Inspection

1. Measurement & Test Equipment (M&TE) Selection and Use
 - Vernier scale
 - Calipers
 - Micrometers
 - Dial indicators
 - Drop indicators
 - Steel rule
 - Gage blocks and fixtures
 - Coordinate measuring machine

2. Inspection
 - Feature with Size Verification
 - Feature without Size Verification
 - Flatness Verification
 - Hole Gaging
 - Perpendicularity Verification
 - Position Verification
 - Profile of a Surface Verification
 - Surface Finish Verification
 - Runout Verification
 - Total Runout Verification

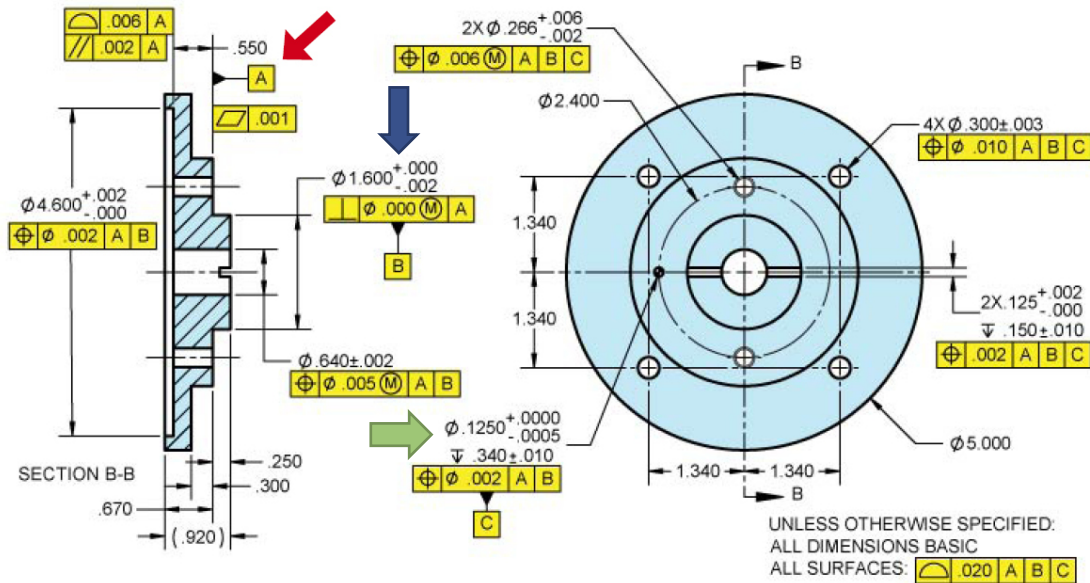
Resources

NIMS recommends training and textbooks provided by Technical Consultants, Inc. They provide textbooks as well as online training courses for GD&T.

www.GeoTol.com

And watch this 5 minute video on how to be a NIMS Evaluator: <https://www.nims-skills.org/resources/video-tutorial/780>.

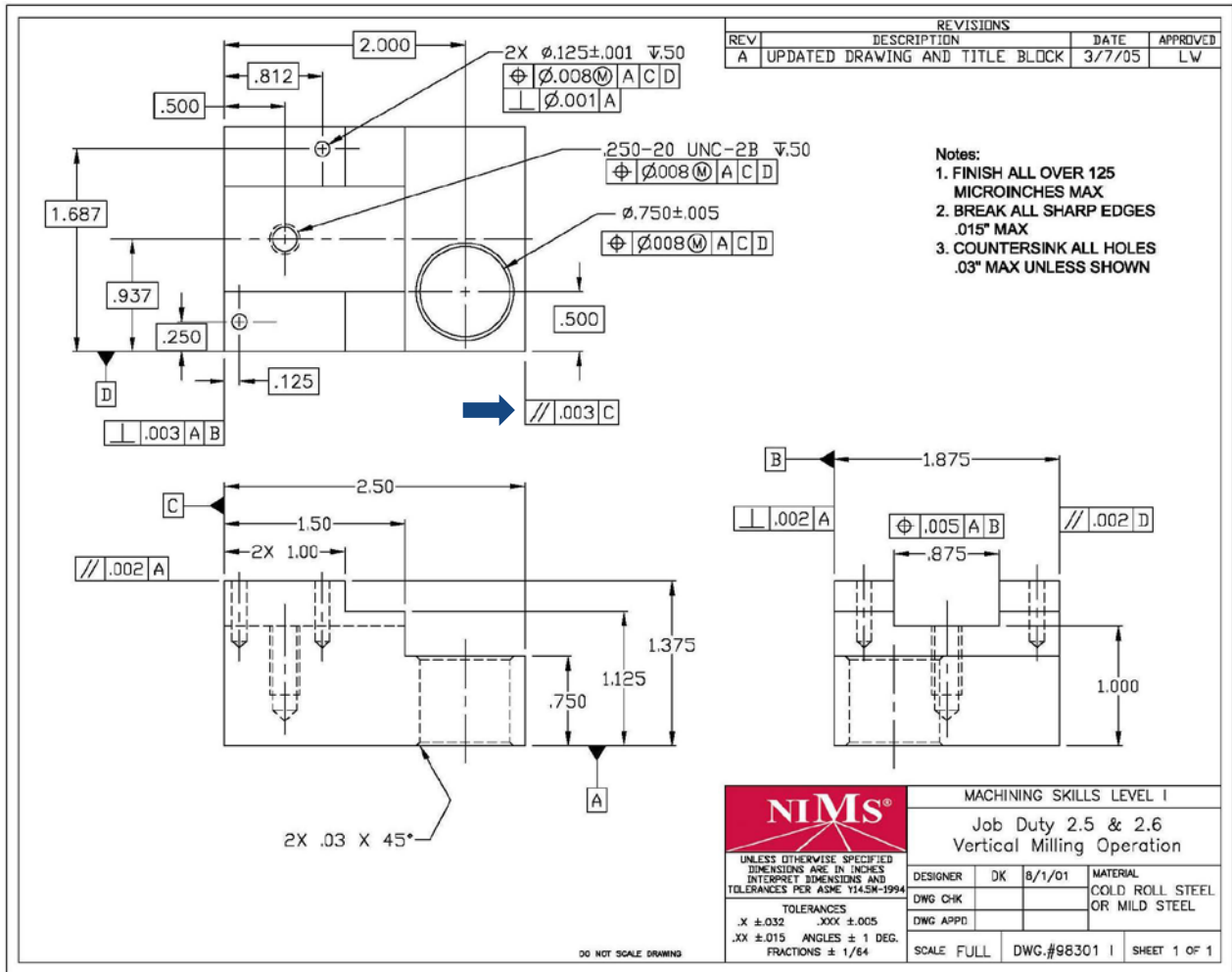
Sample Questions



Using the image above, answer the following 4 questions:

- In the actual measurement process do you measure from the datum, datum feature, simulated datum or surface?
 - Datum
 - Datum feature
 - Simulated datum
 - Surface
- What is the virtual size of the feature identified by the **blue** arrow?
 - 1.598
 - 1.599
 - 1.600
 - 1.602
- What type of tolerance is perpendicularity?
 - Form
 - Orientation
 - Location
 - Profile
- What is the maximum depth of the hole identified by the **green** arrow?
 - 0.340
 - 0.350
 - 0.360
 - 0.362

5. To check the height of multiple parts with gauge blocks, a machinist would use a:
 - a. Digital height gauge
 - b. Depth micrometer
 - c. Dial indicator and digital height gauge
 - d. Vernier caliper and telescoping gauge
6. Dial bore gauges are used to measure:
 - a. Tapered shafts
 - b. Internal threads
 - c. Holes
 - d. Bosses and pads
7. What sizes of gauge pins would a machinist need for a dimension of 0.094 +/- 0.016 inches for a go/no go gauge setup?
 - a. 0.332/0.312
 - b. 0.110/0.094
 - c. 0.094/0.078
 - d. 0.110/0.078



Use the image above to answer the following question:

8. Which combination of measuring and test equipment can be used to inspect the drawing requirement indicated by the **blue** arrow for final product acceptance? Select all that will yield valid results.
- 6" dial caliper
 - Coordinate measuring machine
 - 2-3" micrometer
 - Surface plate, height gage with attached test indicator

Answer Key

1. C
2. C
3. B
4. B
5. C
6. C
7. D
8. B, D

QUESTIONS?

If you have any questions about the requirements and process to earn the Inspector Credential and inspect your students' parts, please contact us:

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