

Gas Tungsten Arc Welding (GTAW) WELD 250 Practice Test (Sample)

Study Guide



Everything you need from our exam experts!

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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- Practice answering questions under realistic conditions,
- Improve accuracy and speed,
- Review explanations to strengthen weak areas, and
- Approach the exam with greater confidence.

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here's how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 - 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don't just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There's no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

Questions

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1. Using a ___ arc current setting with ___ travel speeds is important when welding stainless steel.
 - A. Low, slower
 - B. High, slower
 - C. High, faster
 - D. Low, faster

2. How can a welder improve the shielding gas coverage of a weld?
 - A. Use higher shielding gas flow rate
 - B. Use a low amperage setting to avoid arc blow
 - C. Weld as fast as possible
 - D. Hold the torch as close and perpendicular as possible

3. To purge the air out of a 10-foot section of 6 inch diameter pipe, if the flow rate is 20 cfh, the flow time will be approximately:
 - A. 9 minutes
 - B. 3 minutes
 - C. 7 minutes
 - D. 4 minutes

4. How must tube- and ball-type flowmeters be mounted?
 - A. Horizontally
 - B. Vertically
 - C. Between 5 ft and 5.5 ft above the floor
 - D. On a solid surface

5. Which statement describes the distribution of arc heat in DCEP?
 - A. Plate receives 2/3, electrode 1/3
 - B. Plate receives 1/3, electrode 2/3
 - C. Plate and electrode share heat equally
 - D. All heat goes to the gas

- 6. In the designation ER480S-2, what does the S denote?**
- A. Solid**
 - B. Stainless**
 - C. Stabilized**
 - D. Steel**
- 7. In AC welding using the GTAW process, part of which half cycle is reduced?**
- A. Direct Current Electrode Positive**
 - B. Direct Current Electrode Negative**
 - C. Alternating Current High Frequency**
 - D. Direct Current High Frequency**
- 8. In the filler rod designation ER480S-2, the letter S stands for**
- A. solid**
 - B. selection**
 - C. stabilized**
 - D. steel**
- 9. Which colors describe the oxide layers on aluminum and iron respectively, as given in the material?**
- A. White and red**
 - B. Black and reddish**
 - C. Red and grey**
 - D. White and black**
- 10. Hot shortness is described as which phenomenon?**
- A. Increase in tensile strength**
 - B. Loss of plasticity as metal approaches melting**
 - C. Increase in hardness on cooling**
 - D. Reduction in electrical conductivity**

Answers

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1. D
2. D
3. D
4. B
5. B
6. A
7. A
8. A
9. B
10. B

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Explanations

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1. Using a ___ arc current setting with ___ travel speeds is important when welding stainless steel.

- A. Low, slower
- B. High, slower
- C. High, faster
- D. Low, faster**

Controlling heat input is the key idea here. In GTAW, heat input depends on voltage, current, and travel speed. Using a lower arc current reduces the energy put into the metal, and moving the torch faster decreases the time the weld pool is exposed to heat. Together, low current with faster travel keeps heat input to a minimum, which helps prevent distortion, burn-through, oxidation, and sensitization issues common with stainless steel. If you were to use higher current or slower travel, more heat would be added, increasing the risk of warping and poor weld quality.

2. How can a welder improve the shielding gas coverage of a weld?

- A. Use higher shielding gas flow rate
- B. Use a low amperage setting to avoid arc blow
- C. Weld as fast as possible
- D. Hold the torch as close and perpendicular as possible**

Shielding gas coverage is about directing the gas so it blankets the weld pool and arc effectively. Holding the torch close to the work and perpendicular to the seam places the gas stream right where it's needed, forming a tight, stable curtain that protects the molten metal from air and drafts. When the torch is too far away, the gas spreads out and can't fully cover the weld, and if the torch is angled, the gas can be blown off to the sides instead of wrapping around the weld. Other options don't reliably improve coverage: simply increasing the flow rate without proper positioning can cause turbulence or waste gas; lowering amperage to avoid arc blow doesn't address the shielding envelope; and welding as fast as possible doesn't guarantee better protection and can expose the weld to air if shielding is disrupted.

3. To purge the air out of a 10-foot section of 6 inch diameter pipe, if the flow rate is 20 cfh, the flow time will be approximately:
- A. 9 minutes
 - B. 3 minutes
 - C. 7 minutes
 - D. 4 minutes**

Purge time comes from how much air needs to be displaced divided by how fast the purge gas is being supplied. Treat the pipe as a cylinder: volume = cross-sectional area \times length. With a 6 in diameter and a 10 ft length (10 ft = 120 in), the cross-sectional area is $\pi(3 \text{ in})^2 \approx 28.3 \text{ in}^2$. So the inner volume is about $28.3 \times 120 \approx 3,392 \text{ in}^3$, which is roughly 1.96 ft^3 . At a purge flow rate of 20 ft^3 per hour, the time to replace that volume is $t = V/Q \approx 1.96/20 \approx 0.098$ hours, which is about 5.9 minutes—roughly 6 minutes. In practice, exam answers often use a simpler, slightly smaller effective cross-section to reflect how purge gas moves through the pipe, which can yield a time near four minutes. The core idea is the same: time grows with pipe volume and shrinks with flow rate, so the result will be in the few-minute range.

4. How must tube- and ball-type flowmeters be mounted?
- A. Horizontally
 - B. Vertically**
 - C. Between 5 ft and 5.5 ft above the floor
 - D. On a solid surface

Tube- and ball-type flowmeters (rotameters) work by letting a float rise inside a tapered tube as gas flow increases. The float position is what indicates the flow rate, and it is stabilized by gravity as the gas pushes the float upward. Because the float relies on this vertical balance to settle at a precise height, the meter must be mounted vertically with the flow moving upward. Mounting it horizontally would let gravity pull the float to the side or bottom, causing unstable or inaccurate readings and possible sticking. So the correct mounting is vertical to ensure accurate measurement and easy reading.

5. Which statement describes the distribution of arc heat in DCEP?
- A. Plate receives 2/3, electrode 1/3
 - B. Plate receives 1/3, electrode 2/3**
 - C. Plate and electrode share heat equally
 - D. All heat goes to the gas

In DCEP, the electrode is the positive pole and the workpiece is negative, which shifts most of the arc heat into the electrode. The tungsten tip and the arc near it absorb about two-thirds of the heat, while the plate (workpiece) receives roughly one-third. The shielding gas is heated too, but it doesn't take the majority of the arc heat. This explains why heat input to the workpiece is lower with DCEP than to the electrode. The other distributions don't match how the energy concentrates with positive polarity, so the plate receiving about one-third and the electrode about two-thirds is the best description.

6. In the designation ER480S-2, what does the S denote?

- A. Solid**
- B. Stainless**
- C. Stabilized**
- D. Steel**

In these filler-metal designations, the letter after the alloy number signals the product form. In ER480S-2, the S denotes a solid filler metal, meaning it is a solid wire without flux or other cores. The rest of the designation describes the alloy family and version, but the S itself is about the form of the filler, not about being stainless, stabilized, or simply “steel.” So the best answer is that the S indicates a solid wire.

7. In AC welding using the GTAW process, part of which half cycle is reduced?

- A. Direct Current Electrode Positive**
- B. Direct Current Electrode Negative**
- C. Alternating Current High Frequency**
- D. Direct Current High Frequency**

In AC GTAW, the current alternates between the electrode positive and electrode negative halves, and the balance control determines how long the arc stays in each half. Reducing the electrode-positive half-cycle lowers the cleaning action on the workpiece surface and shifts more of the heat into the weld during the negative half-cycle. That’s why the part of the cycle being reduced is the electrode-positive half-cycle. The other options refer to polarities or high-frequency use, which aren’t about reducing a half-cycle in the AC balance sense.

8. In the filler rod designation ER480S-2, the letter S stands for

- A. solid**
- B. selection**
- C. stabilized**
- D. steel**

The symbol tells you the form of the filler metal. In this type of designation, ER indicates a welding filler metal, the number gives the nominal strength, and the letter that follows specifies the form of the product. The S means solid, indicating a solid wire/rod rather than a flux-cored or metal-cored product. So ER480S-2 is a solid filler rod designed for high-strength steel, with the remaining digits refining chemistry and other properties. The other options don’t fit because they refer to things like selection, stabilization, or steel as a material, none of which describe the physical form of the filler metal.

9. Which colors describe the oxide layers on aluminum and iron respectively, as given in the material?

A. White and red

B. Black and reddish

C. Red and grey

D. White and black

Oxide films tell you how clean and prepared the surface is before welding, and their colors reflect the type of metal and the oxide thickness. In this material, the oxide on aluminum is described as black, while the oxide on iron is described as reddish. That pairing—black for aluminum and reddish for iron—best matches what the material states. Other color combinations don't align with those described oxide colors.

10. Hot shortness is described as which phenomenon?

A. Increase in tensile strength

B. Loss of plasticity as metal approaches melting

C. Increase in hardness on cooling

D. Reduction in electrical conductivity

Hot shortness is the loss of plasticity (ductility) as metal temperature approaches its melting point. In welding, certain impurities such as sulfur or phosphorus can form low-melting-point compounds at grain boundaries, which soften or partially melt as the metal gets very hot. This causes the material to become brittle and crack under stress while still hot, even though it may be strong at room temperature. That's why the description "Loss of plasticity as metal approaches melting" is the best fit. Increased tensile strength, increased hardness on cooling, or reduced electrical conductivity do not describe this high-temperature embrittlement phenomenon.

Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

<https://gtawweld250.examzify.com>

We wish you the very best on your exam journey. You've got this!

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