

Nitriding Tips for Purchasing Professionals

From size capabilities to cost to logistics, Advanced Heat Treat Corp (AHT) covers ion and gas nitriding FAQs.



What materials are commonly nitrided?*

Alloy steels, carbon steels, cast irons, tool steels, stainless steels, inconel and titanium

What are the size capabilities of AHT's nitriding services?

Parts of all sizes can be nitrided, however the specific size may determine which type of nitride can be utilized. For instance, Advanced Heat Treat Corp. can nitride parts up to 32' tall, 13' wide and 60,000 lbs.

How long does the nitride process take?

The nitride process varies based on multiple factors including material, requirements, and part size/weight, to name a few. Processing time can range from several hours to several days. Please consult your AHT representative for details.

Will my parts distort during the process?

There is typically minimal to no movement during the process as nitriding is considered a low temperature thermal process.

Is it necessary to machine/grind/polish parts after nitriding?

Due to this process's inherently low distortion, post-machining is typically not required except in cases of very small tolerances or high surface finish requirements. We encourage discussion with your AHT representative to ensure surface hardness and case depth will meet design expectations on the finished part.

Can you nitride a part more than once?

Yes. Unlike conventional treatments, nitriding does not transform the core structure of a part under normal circumstances. Therefore, repeat treatments cause much less stress and distortion.

What is the difference between ion and gas nitriding?

This topic is covered in detail in the AHT white paper, "[Gas and Ion \(Plasma\) Nitriding: What's the Difference?](#)". This can be found by visiting www.ahtcorp.com and clicking on the menu navigation link "Technical Resources."

What temperatures are typically used with the nitride processes?

800-1100° F

What are AHT's quality standards and certifications?

AHT has Nadcap, ISO, FFL and various other accreditations. View them on our website at www.ahtcorp.com/quality/.

Does nitriding require fixturing?

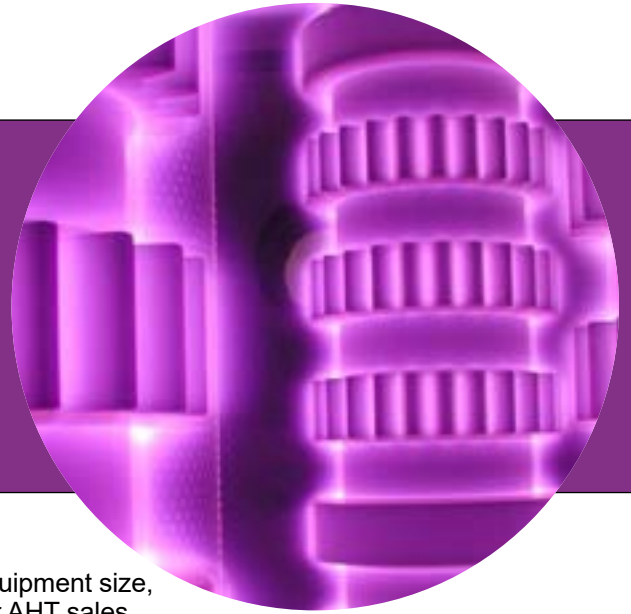
Most jobs do not require custom fixturing, but there are circumstances where we take advantage of the ability to utilize reusable, part-specific tooling to mask certain areas. Even though there may be an upfront cost, in the end it may produce cost savings over alternatives such as painting or copper plating.

Visit www.ahtcorp.com or contact your sales representative to learn more.



*Download our helpful chart at www.ahtcorp.com:

"Typical Materials & Their Corresponding Surface
Hardness & Case Depths when Using UltraGlow® Ion Nitriding"



Does it matter which AHT plant I use?

Although our plants share common capabilities, there are differences in equipment size, quality accreditations, lead times and other factors. Please check with your AHT sales representative for details.

Our 4 locations include:

- ALABAMA: 1545 County Rd 222, Cullman, AL 35057
- MICHIGAN: 1625 Rose St, Monroe, MI 48162
- IOWA: 2839 Burton Ave, Waterloo, IA 50703
- IOWA (HQ): 2825 MidPort Blvd, Waterloo, IA 50703

What can I do to reduce my costs when nitriding?

The buyer can minimize costs with some of the following measures:

- Optimize lot sizes (send the appropriate number of parts to eliminate minimum lot size charges)
- Proper material selection (AHT will be glad to offer guidance on material and prior treatment for your application)
- Involve AHT early in the process
- Allow flexibility on lead time

Also, when calculating the cost of any heat treatment, the buyer should be mindful of the cost of certs, fixtures, minimum lot size, expedite fees and energy surcharges.

What should I put in my RFQ to get the fastest and best response?

The more information you provide to your heat treater, the faster your quote will get done. It will also be a more accurate quote with a lesser chance for surprises later on. We suggest you include:

- Print (if available)
- Base Material
- Core hardness and previous heat treat history for the part (if applicable)
- Surface hardness (typically a minimum)
- Total case depth (total diffusion depth) or effective case depth (a specific hardness at a specified depth)
- Masking requirements (if applicable)
- Certification requirements
- Lot size and estimated annual usage (EAU)

Additionally, the RFQ could also include:

- Compound zone/white layer thickness
- Formal specifications to be followed (if applicable)
- Packaging requirements
- Need for rust preventative

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