

# How to Streamline Your Process for Heat Treat Success

By Joel Robinson, Continuous Improvement Project Manager, Advanced Heat Treat Corp.



*Continuous improvement efforts result in cost reductions such as turnaround time, reduction of defects, and elimination of waste.*

## About the Author

Joel Robinson has been with Advanced Heat Treat Corp. since 1999, where he is the Continuous Improvement Project Manager. Joel recently obtained his MBA from Upper Iowa University and has held positions in operations and quality at Advanced Heat Treat Corp. His recent streamlining efforts have saved the company hundreds of thousands of dollars.



Joel Robinson

In every major industry companies are taking notice of the positive effects that streamlining can have on their internal processes, and economic returns. Through these continuous improvement efforts, companies see cost reductions in categories such as turnaround time, reduction of defects, and elimination of waste, to name just a few. While these concepts are just getting a foothold in industries such as retail and medical, they have an established history in manufacturing. The heat treat industry, and specifically the ion/gas nitriding subset, is not an exception. With that in mind this paper will explain some of the steps that can be taken to ensure that a company's parts flow through the heat treating process as efficiently as possible. The primary focus will be on ways to reduce turnaround time, while still delivering the highest quality part possible.

The first step happens before the parts ever show up at the heat treat facility for ion/gas nitriding. It would be advisable to have contact with the experts at the heat treat facility so that they can explain how the ion/gas nitriding process will affect critical part dimensions before the part design is finalized. This team will also be able to discuss the specific quality requirements of the specification that you will be referencing, and as applicable help you find a specification that will suit your company's needs. They will also be able to make sure any other specific quality concerns you may have are addressed before the parts arrive for the ion/gas nitriding process.

The next step is making sure that the purchase order your company sends in contains all of the relevant information the heat treat facility will need. The company you choose to send your parts to will undoubtedly be certified under an accredited system such as ISO/TS, Nadcap, or preferably both. These systems are designed to make sure you receive a quality part back from your supplier, as they are audited for compliance on a regular basis.

Purchase Order	
Number 24735 ✓	Date: 05-Jul-16
To ADVANCED HEAT TREAT CORP. 2825 MIDPORT BLVD WATERLOO, IA 50703	Ship To
Ph: 319-232-5221	Fax: 319-232-4952
Terms	Ship Via
Quantity	Description
1 ea	AHT1981-002 ✓ SHAFT ION NITRIDE MATERIAL: 4340 STEEL HEAT TREATED TO 1103-1241 MPA TENSILE STRENGTH. (36 - 39.5 HRC). + LAB SAMPLE (USE ANY PART) MASK ALL AREAS, EXCEPT THE EXTERNAL ACME THREAD ONLY PER OPERATION SKETCH SHEET OP #190 - NITRIDE. ION NITRIDE THE ACME THREAD ONLY AT 900°F MAX PER AMS 2759/8 'A'. EFFECTIVE CASE DEPTH = .005/.010 INCH COMPOUND LAYER = .0000/.0003 INCH ✓ HANG PARTS TO MINIMIZE DISTORTION. ***PARTS ARE FINISH GROUND WITH TIGHT ACME THREAD TOLERANCE. PLEASE KEEP ABRASIVE BLASTING TO A MINIMUM TO PRESERVE ACME THREAD SURFACE INTEGRITY***

## Example

With that in mind your company should make sure to include a minimum of the following items, listed in bulleted format below, with the purchase order packet:

- Part number
- Material
- Processing requirements (i.e. case depth, compound zone)
- Masking requirements
- Required specifications
- Print revision (and a copy of the current print revision)
- A listing of all quality requirements
- A copy of the prior heat treat certification (if applicable)

Both you and your heat treat provider have a vested interest in reducing the turnaround time associated with the heat treat process. By following the steps outlined above you will be able to receive the highest quality part quickly.

