

HEAT TREATING RACKING AND STACKING

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Learning Made Simple, Visual, and Interactive

The THORS Heat Treating Racking and Stacking course is designed to provide learners with a comprehensive understanding of the principles, techniques, and practices of racking and stacking materials for heat treating operations. This course covers various process variables, such as part characteristics, heat treating equipment, heat treatment process, and loading considerations, along with the common defects and their preventive and corrective measures.

Credit Hours **2**

Learning Objectives

- 💡 Understand the part characteristics and their influence in the racking and stacking process.
- 💡 Identify the impact of heat treating equipment and heat treatment process on racking and stacking.
- 💡 Examine the loading considerations during racking and stacking of parts for heat treatment.
- 💡 Recognize the defects that occur on parts due to improper racking and stacking.
- 💡 Determine the preventive and corrective measures to prevent cracking and distortion during heat treating.

Table of Contents

I. Process Variables

- Part Characteristics
- Heat Treating Equipment
 - ▣ Fixtures
 - Trays
 - Racks
 - Baskets
 - Custom Fixtures
 - ▣ Furnaces
 - ▣ Other Equipment
- Heat Treatment Process
 - ▣ Through Hardening
 - Austempering
 - Martempering
 - Neutral Hardening

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I. Process Variables (Cont.)

- ▣ Surface Hardening
 - Carburizing
 - Nitriding
 - Boriding
 - Carbonitriding
 - Nitrocarburizing
- ▣ Tempering
- Loading Considerations
 - ▣ Furnace Factor
 - ▣ Part Spacing
 - Part Spacing Requirements
 - Part Loading Arrangements

II. Defects and Troubleshooting

- Part Cracking
- Part Distortion
 - ▣ Support and Restraint Fixtures
 - ▣ Quenching Fixtures
- Corrective Measures
 - ▣ Straightening
 - ▣ Flattening
 - ▣ Other Corrective Measures

