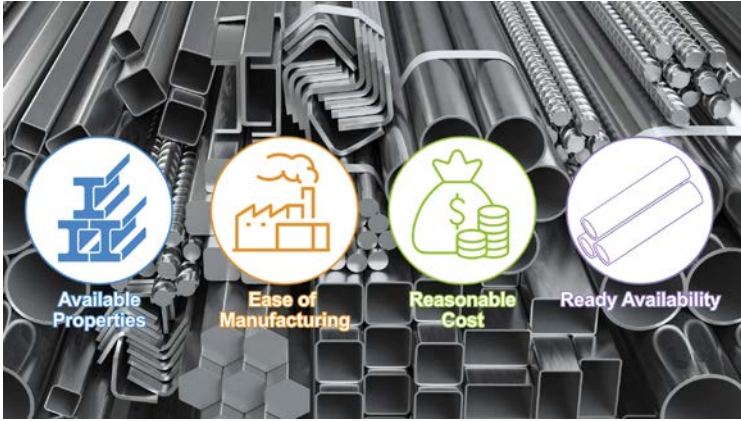


# STEEL TUBING BASICS

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Learning made Simple, Visual, and Interactive

Credit Hours 1.5



The THORS *Steel Tubing Basics* course explains the various primary and secondary specifications of steel tubes. The size and material specifications are discussed under the primary specifications of steel tubes. The various heat treat conditions are explained, along with the microstructural and chemical changes that happen at different stages of heat treatment. The secondary specifications, such as finished condition, corrosion resistance, and industry standards, are explored in detail. This introductory course offers an interactive learning experience that allows learners to gain an in-depth understanding of steel tubes.

## Learning Objectives

- 💡 Compare and contrast the difference between tubes and pipes.
- 💡 Identify the key characteristics and specifications that define the nature and strength of steel tubes.
- 💡 Gain a broader understanding of various steel tube heat treat conditions, advantages, limitations, and applications.
- 💡 Relate the change of property and microstructure in steel tubes subjected to various finished conditions.
- 💡 Understand the corrosion test mandates specific to steel tubes.
- 💡 Learn and comprehend the final product specifications of steel tubes.

## Table of Contents

### I. Primary Specifications

- Size Specifications
- Material Specifications
  - Grade and Chemistry
    - Restrictions on Steel Grade
      - Restriction on Sulfur
      - Restriction on Tramp Elements
      - Restriction on Alloying Elements
    - Strength and Ductility

### I. Primary Specifications (continued)

- Other Material Characteristics
  - Hardness
  - Hardenability
  - Microstructure
  - Weldability
- Heat Treat Condition
  - Annealing
  - Normalizing
  - Quenching and Tempering
  - Stress Relieving

### II. Secondary Specifications

- Finished Condition
  - Hot Rolled Finish
  - Cold Finish
    - Machining
    - Cold Draw
    - Cold Pilger
  - Combination Finish
- Corrosion Resistance
  - Factors Inducing H<sub>2</sub>S Corrosion
  - Corrosion Test Mandates
  - Corrosion Tests
- Industry Standards

