HONGCHEN METAL
INDUSTRIAL METAL MATERIALS

PRODUCT DATA SHEET
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PRODUCT SPECIFICATIONS · COIL

# Stainless Steel 441 Coil

Chemical composition, mechanical properties and material characteristics

### Features

- Stainless Steel 441 is a ferritic stainless steel designed for elevated-temperature service.
- It offers oxidation resistance, ductility, and magnetic properties for exhaust, heat-treatment, and industrial component applications.

### Typical Applications

- Intended for furnace parts, radiant tubes, exhaust hardware, kiln components and thermal processing equipment where resistance to high-temperature oxidation and scaling is the primary requirement. Continuous and intermittent temperature limits should follow the grade standard.

## Product Parameters

| | |
|---|---|
| Product Name | 441 Coil |
| Type | Ferritic Stainless Steel (441 / UNS S43940) |
| Standard | EN 1.4509; ASTM A240 |
| Surface | No.1 / pickled, sandblasted or shot-blasted; brighter finishes on request. |
| Delivery Condition | Annealed / solution annealed suitable for elevated-temperature fabrication. |
| Scope of Application | Intended for furnace parts, radiant tubes, exhaust hardware, kiln components and thermal processing equipment where resistance to high-temperature oxidation and scaling is the primary requirement. Continuous and intermittent temperature limits should follow the grade standard. |
| Certificate | EN 10204 3.1 MTC; high-temperature oxidation / scaling data can be referenced from grade standards on request. |
| Production Technology | Hot- or cold-rolled and annealed; formed and welded with procedures matched to the heat-resistant grade. Avoid prolonged holds in restricted embrittlement ranges unless grade data allow it. Slitting, cut-to-length and recoiling available to ordered width and length. |
| Edge Processing | Mill or slit edge; trimmed edge available. Coil ID / OD and packing method confirmed with the order. |
| Thickness | 0.3-6.0 mm |
| Width | 600-1500 mm |

## Chemical Composition

| C | Cr | Ti | Nb | Mn | Si | N |
|---|---|---|---|---|---|---|
| ≤0.03 | 17.5-18.5 | 0.1-0.6 | 0.3+4*(C+N) | ≤1.0 | ≤1.0 | ≤0.03 |

## Mechanical Properties

| Tensile (MPa) | Yield (MPa) | Elongation (%) |
|---|---|---|
| ≥430 | ≥250 | ≥18 |

## Physical Performance

| Density | Thermal Cond. | Modulus |
|---|---|---|
| 7.7 g/cm³ | ~25 W/m·K | ~220 GPa |

*Reference: EN 1.4509 / Grade 441 datasheet*

## Related Properties

| | |
|---|---|
| **Oxidation Resistance** | Intended for furnace parts, radiant tubes, exhaust hardware and similar hot-air service where resistance to scaling is the primary requirement. Protective behavior depends on chromium level, peak temperature and whether the atmosphere is oxidizing or reducing. |
| **Temperature Capability** | Supports elevated continuous and intermittent service temperatures beyond common structural stainless. Always separate continuous-use limits from short peak excursions, and follow the grade standard for both. |
| **Weldability** | Weldable with common processes when filler chemistry and any required post-weld heat treatment match the base metal. High-alloy heat-resistant welds can be crack-sensitive if restraint and preheat / interpass control are ignored. |
| **Formability** | Can be formed by rolling, pressing and bending with conventional equipment, though higher-alloy grades need more force and careful radius control. Hot forming followed by suitable heat treatment may be preferred for heavy sections. |
| **Service Stability** | Long holds in certain intermediate temperature bands can cause embrittlement or sigma-phase formation in some grades. Review the grade's restricted temperature ranges when planning continuous furnace duty. |

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