HONGCHEN METAL
INDUSTRIAL METAL MATERIALS


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PRODUCT SPECIFICATIONS · PIPE

# Incoloy 825 Pipe

Chemical composition, mechanical properties and material characteristics

### Features

- Incoloy 825 coil is made of a nickel-based alloy with excellent corrosion resistance and good processability.
- The excellent properties of Incoloy 825 alloy make it widely used in the fields of petroleum, chemical industry, pharmaceutical, food and marine engineering.

### Typical Applications

- Used in sulfuric and phosphoric acid systems, oil & gas production and pollution-control equipment needing resistance to both reducing and oxidizing acids plus chloride stress-corrosion cracking.

## Product Parameters

| | |
|---|---|
| Product Name | Incoloy 825 Pipe |
| Type | Ni-Fe-Cr-Mo-Cu Alloy (Incoloy 825) |
| Standard | UNS N08825; ASTM B424 / B423 / B425 |
| Surface | Black, Bright Polished, Rough Turning, Matt Surface Treatment, No.4, BA, etc. |
| Delivery Condition | Annealed / solution annealed; other tempers available by agreement. |
| Scope of Application | Used in sulfuric and phosphoric acid systems, oil & gas production and pollution-control equipment needing resistance to both reducing and oxidizing acids plus chloride stress-corrosion cracking. |
| Certificate | ISO / SGS / BV and EN 10204 3.1 MTC available; third-party inspection and PMI can be arranged per purchase order. |
| Production Technology | Hot rolling or cold rolling / drawing according to product form; solution treatment and pickling / passivation applied where corrosion performance or surface quality require it. Seamless or welded supply routes depending on size; cut-to-length and end preparation available. |
| Edge Processing | Plain, beveled or threaded ends available on request; end finishing and length tolerance per order. |
| Outer Diameter | Round Pipe |
| Square Pipe | 10*10mm-100*100mm |
| Rectangular Pipe | 10*20mm-50*100mm |
| Wall Thickness | 0.6mm-6.0mm |
| Length | 1-6 meters, Length can be customized |

## Chemical Composition

| C | Al | Si | S | Ti | Cr | Mn | Fe | Ni | Cu | Mo |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.05 max | 0.2 max | 0.5 max | 0.03 max | 0.6 - 1.2 | 19.5 - 23.5 | 1.0 max | 22.0 min | 38.0 - 46.0 | 1.5 - 3.0 | 2.5 - 3.5 |

## Mechanical Properties

| Tensile Strength (ksi) | 0.2% Yield Strength (ksi) | Elongation% in 2 inches |
|---|---|---|
| 85 | 35 | 30 |

## Physical Performance

| | Units | Temperature in°C |
|---|---|---|
| Density | 8.14 g/cm³ | Room |
| Specific Heat | 0.105 Kcal/kg.C | Room |
| Melting Range | 1370-1400°C | - |
| Modulus of Elasticity | 196 KN/mm² | 20° |
| Electrical Resistivity | 113 μΩ.cm | 25° |
| Coefficient of Expansion | 14.1 μm/m °C | 25 - 100° |
| Thermal Conductivity | 11.1 w/m-° K | 25° |

*Selection note: match grade to medium, temperature, chloride level and whether as-welded corrosion service is required.*

## Related Properties

| | |
|---|---|
| **Corrosion Resistance** | Provides practical corrosion resistance in atmospheric exposure, fresh water, food-contact environments and many mild chemical media. Resistance drops when chlorides, reducing acids or high-temperature concentrated solutions become dominant—match the grade to the real medium, temperature and oxygen level. |
| **Formability** | Most austenitic corrosion grades form well by bending, rolling, deep drawing and stamping when tooling radii, lubrication and springback are set for the thickness and temper. Work hardening raises strength during cold work; intermediate anneal may be needed for severe multi-stage forming. |
| **Weldability** | Generally weldable with common fusion processes. For as-welded corrosive service, prefer low-carbon (L) or stabilized grades, control heat input, and specify filler that preserves corrosion resistance in the weld metal and HAZ. Post-weld cleaning and passivation improve finished performance. |
| **Surface & Cleanliness** | Final corrosion behavior is strongly affected by surface finish, free iron contamination and weld discoloration. Pickling, passivation or electropolishing after fabrication is often as important as grade selection for sanitary, marine and chemical equipment. |
| **Selection Notes** | Use molybdenum-bearing or higher-alloy variants when pitting, crevice attack or stronger chemical media are expected. Confirm product form (plate, tube, bar, wire) and heat-treatment condition against the project specification before ordering. |

**Material guidance for your next project**

Send your grade, size and application requirements to our team.

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