

Description

Duplex stainless steel grade **2304/1.4362** is a lean duplex alloy characterized by a balanced microstructure of ferrite and austenite. It offers an excellent combination of corrosion resistance and mechanical strength, making it suitable for various industrial applications.

Chemical Composition

The typical chemical composition of Duplex 2304 is as follows:

Element	Content (%)
Carbon (C)	0.03 max
Manganese (Mn)	2.5 max
Phosphorus (P)	0.04 max
Sulfur (S)	0.03 max
Silicon (Si)	1.0 max
Chromium (Cr)	21.5 - 24.5

Nickel (Ni)	3.0 - 5.5
Molybdenum (Mo)	0.05 - 0.6
Copper (Cu)	0.05 - 0.6
Nitrogen (N)	0.05 - 0.2
Iron (Fe)	Balance

Mechanical Properties

The mechanical properties of Duplex **2304/1.4362** are summarized below:

Property	Value
Yield Strength (0.2% offset)	400 MPa (58 ksi)
Tensile Strength	600 MPa (87 ksi)
Elongation (% in 50mm)	25%
Hardness (Brinell)	293 HB

Thermal & Physical Properties

The thermal and physical properties include:

Property	Value
Density	7800 kg/m ³ (0.28 lb/in ³)
Coefficient of Thermal Expansion	13 - 14 x 10 ⁻⁶ /°C
Thermal Conductivity	17 - 20 W/m·K
Electrical Resistivity	80 - 92 nΩ·m

Other Designations

- UNS S32304
- DIN EN 1.4362
- X2CrNiN23-4

Fabrication and Heat Treatment

Duplex 2304 can be fabricated using standard methods including welding (TIG, MIG, etc.), machining, and forming. It does not require pre-heating or post-weld heat treatment, making it easier to work with compared to some other stainless steels.

Applications

Duplex **2304/1.4362** is commonly used in various industries, including:

- Chemical process industries
- Pulp and paper production
- Oil and gas equipment
- Water treatment systems
- Construction and architecture
- Food processing

Supplied Form

Duplex **2304/1.4362** is available in various forms, including:

- Round, square, and hexagon bars
- Seamless and welded pipes
- Hot and cold rolled plates and sheets
- Forged bars and fittings

Features

- Good general corrosion resistance, comparable to Alloy 316L
- High strength, nearly double that of austenitic grades
- Excellent resistance to stress corrosion cracking
- Suitable for use in chloride-containing environments

DIN Number

The DIN number for Duplex 2304 is 1.4362.

This datasheet provides a comprehensive overview of Duplex Stainless Steel Grade 2304, highlighting its properties, applications, and advantages in various industrial settings.