Data Sheet
LDX 2101® Duplex Stainless Steel

LDX 2101 is a lean duplex stainless steel designed for general purpose use. Like other duplex stainless steels, LDX 2101 provides both superior strength and chloride stress corrosion cracking resistance compared to 300 series stainless steels. The use of manganese ensures proper ferrite-austenite phase balance, while allowing a reduction in nickel content. As a result, LDX 2101 is priced competitively with 304/304L and 316/316L stainless steels.

The combination of a duplex structure and high nitrogen content provide significantly higher strength levels than 300 series stainless steels. Often a lighter gauge of LDX 2101 can be utilized, while maintaining the same strength as a 300 series fabrication. The resultant weight savings can dramatically reduce the material and fabrication costs of a component.

Specifications

UNS: S32101 **W. Nr./EN:** 1.4162 **ASTM:** A 240, A 479, A 276, A 789, A 790
ASME: SA-240, SA-479, SA-790, SA-789 Section IV Code Case 2603, Section VIII Code Case 2418

Chemical Composition, %

	Ni	Cr	Mo	Mn	Cu	Si	C	N	S	P	Fe
MIN	1.35	21.0	0.1	4.0	0.1	–	–	0.2	–	–	–
MAX	1.7	22.0	0.8	6.0	0.8	1.0	0.04	0.25	0.03	0.04	balance

Features

- High resistance to chloride stress corrosion cracking (SCC)
- High strength
- Good fatigue strength
- Chloride pitting resistance comparable to type 316L stainless
- Good general corrosion resistance
- Good machinability and weldability
- Useful up to 600°F

Applications

- Chemical process pressure vessels, piping and heat exchangers
- Pulp and paper mill equipment
- Mixers and agitators
- Storage tanks
- Waste water handling systems
- Ethanol production

Physical Properties

Density: 0.278 lb/in^3 **Melting Range:** 2525- 2630°F **Poisson's Ratio:** 0.3 **Electrical Resistivity:** 481 Ohm-circ mil/ft

Temperature, °F	70	212	392	572
Coefficient* of Thermal Expansion, in/in°F x 10^{-6}	–	7.5	7.8	8.1
Thermal Conductivity Btu • ft/ft^2 • hr • °F	9.2	9.8	11.0	11.6
Modulus of Elasticity Dynamic, psi x 10^6	29.7	29	27.6	26.1

** 70°F to indicated temperature.*

Mechanical Properties

Minimum Specified Properties, ASTM A 240

Ultimate Tensile Strength, ksi	94
0.2% Yield Strength, ksi	65
Elongation, %	30
Hardness MAX, Brinell	290

Minimum Elevated Temperature Tensile Properties, Plate

Temperature, °F	212	302	392	572
Ultimate Tensile Strength, ksi	85.6	81.2	78.3	78.3
0.2% Yield Strength, ksi	55.1	50.8	47.9	43.5

ASME Boiler & Pressure Vessel Code, Section VIII, Division 1, Allowable Stress Values, ksi

Temperature, °F	200	300	400	500	600
LDX 2101	26.9	25.6	24.7	24.7	24.7
304	20.0	18.9	18.3	17.5	16.6
316	20.0	20.0	19.3	18.0	17.0
2205	25.7	24.8	23.9	23.3	23.1

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