Alloy 255 is a 25% chromium super duplex stainless steel. Alloy 255 contains a copper addition which provides it with greater resistance to sulfuric acid than other super duplex grades. Because of its duplex structure alloy 255 also offers excellent strength characteristics and resistance to chloride ion stress corrosion cracking.

Specifications

UNS: S32550 **W. Nr./EN:** 1.4507 **ASTM:** A 240, A 479 **ASME:** SA-240, SA-479 **NACE:** MR0175/ISO 15156

Chemical Composition, %

	Ni	Cr	Mo	Mn	Cu	Si	C	N	S	P	Fe
MIN	4.5	24.0	2.9	–	1.5	–	–	0.1	–	–	–
MAX	6.5	27.0	3.9	1.5	2.5	1.0	0.04	0.25	0.03	0.04	balance

Features

- High strength
- Chloride stress corrosion cracking resistance
- Lower coefficient of thermal expansion than austenitic stainlesses
- Good sulfuric acid resistance

Applications

- Pulp and paper
- Chemical process
- Flue-gas desulfurization
- Copper smelting
- Mixers and pumps

Physical Properties

Density: 0.282 lb/in^3 **Melting Range:** 2525-2630°F **Poisson's Ratio:** 0.32 **Electrical Resistivity:** 481 Ohm-circ mil/ft

Temperature, °F	70	212	392	572
Coefficient* of Thermal Expansion, in/in°F x 10^{-6}	6.1	6.2	6.4	6.7
Thermal Conductivity Btu • ft/ft^2 • hr • °F	–	8.2	9.4	10.6
Modulus of Elasticity, Dynamic psi x 10^6	28.9	–	–	–

** 70°F to indicated temperature.*

Mechanical Properties

Minimum Specified Properties, ASTM A 240

Ultimate Tensile Strength, (ksi	110
0.2% Yield Strength, ksi	80
Elongation, %	15
Hardness MAX, Brinell	302

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CLAUDIO CZARNOBAI
COMMERCIAL MANAGER
ClaudioCzarnobai@intwinds.com
F +55 11 3825 2966
C +55 11 99112 2703

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