Data Sheet
ZERON® 100 Super Duplex Stainless Steel

ZERON® 100 is a highly alloyed super duplex stainless steel for use in aggressive environments. ZERON 100 offers strength levels exceeding that of standard duplex grades like 2205. ZERON 100 is highly resistant to corrosion in a wide range of organic and inorganic acids. The copper content gives excellent resistance to corrosion in many non-oxidizing acids. This alloy is also highly resistant to strong alkalis. ZERON 100 is not recommended for uses which involve extended exposure to temperatures greater than 600°F as this causes a substantial reduction in toughness. ZERON 100 is welded using ZERON 100X filler metal.

Specifications

UNS: S32760 **W. Nr./EN:** 1.4501 **EN:** 10028-7, 10088-2, 10088-3, 10272, 10216-5, 10217-7
ASTM: A 182 (Grade F55), A 240, A 276, A 314, A 473, A 479, A 789, A 790, A 815, A 890, A 928, A 988, A 995
ASME: B16.5, B16.34, B16.47, B31.3, Section VIII Division 1 Case 2244-2, 2245-1, Section III Division 1 Case N-564-2, SA-240, SA-182 (Grade F55), SA-479, SA-815, SA-789, SA-790 **NACE:** ISO 15156 / MR0175 Part 3 **API:** 5LC **BSI:** PD 5500 - Enquiry Case 5500/87

Chemical Composition, %

	Ni	Cr	Mo	Mn	Cu	Si	C	N	S	P	W	Fe
MIN	6.0	24.0	3.0	–	0.5	–	–	0.2	–	–	0.5	–
MAX	8.0	26.0	4.0	1.0	1.0	1.0	0.03	0.3	0.01	0.03	1.0	balance

**UNS and ASTM are not identical. Limits shown meet both.*

Features

- Guaranteed corrosion performance (PRE_N = %Cr + 3.3%Mo + 16%N ≥ 40)
- Provides excellent resistance to chloride pitting and crevice corrosion
- Excellent resistance to sulfuric acid
- Excellent resistance to stress corrosion cracking in both chloride and sour environments
- High resistance to erosion corrosion and corrosion fatigue
- Excellent mechanical properties and good weldability

Applications

- Subsea manifolds and pipework
- Umbilical tubing
- Wireline
- Flue gas desulfurization equipment
- Reverse osmosis desalination equipment
- Sulfuric acid plants
- Marine fasteners

Physical Properties

Density: 0.283 lb/in³ **Poisson's Ratio:** 0.32 **Melting Range:** 2510-2650°F **Electrical Resistivity at 68°F:** 0.851 10^{-6} ohm • m

Temperature, °F	70	212	302	392	482	572
Coefficient* of Thermal Expansion, (in/in°F x 10^{-6})	–	7.0	–	7.4	–	7.7
Thermal Conductivity, Btu • ft/ft² • hr • °F	7.5	8.3	8.9	9.5	10.1	10.6
Modulus of Elasticity Dynamic, psi x 10^6	29	28.1	–	27.0	–	26.1
Electrical Resitivity, 10^{-6} ohm • m	0.851	0.897	0.927	0.956	0.985	1.014

**70°F to indicated temperature*

Mechanical Properties

Minimum Specified Properties, ASTM A 240

Ultimate Tensile Strength , ksi	109
0.2% Yield Strength, ksi	80
Elongation, %	25
Hardness MAX, HRC	28

Typical Tensile Properties Forgings, Bar, Plate up to 1.2″

Temperature, °F	70	122	212	302	392	482	572
Ultimate Tensile Strength, ksi	109	105	102	99	97	94	92
0.2% Yield Strength, ksi	80	73	68	65	62	58	56

Typical Tensile Properties Plate 1.2″-2.75″

Temperature, °F	70	122	212	302	392	482	572
Ultimate Tensile Strength, ksi	109	102	97	90	88	87	86
0.2% Yield Strength, ksi	80	68	62	58	55	54	52

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

Temperature, °F	100	200	300	400	500	600
ZERON® 100	31.1	31.0	29.4	29.0	29.0	29.0
2507	33.0	33.0	31.2	30.1	29.6	29.4
2205	25.7	25.7	24.8	23.9	23.3	23.1
AL-6XN®	27.1	27.1	25.7	24.6	23.8	23.3

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