SUNXIN

Specialized medical materials distribution and manufacturing center

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TECHNICAL DATASHEET

[S13800/XM-13]

Datasheet No. SX-0017 · Version 260723

GENERAL DESCRIPTION

UNS S13800 is a premium martensitic precipitation-hardening stainless steel engineered for ultra-high strength, exceptional fracture toughness, and superior resistance to stress-corrosion cracking. Produced via advanced dual-vacuum melting, this material ensures ultra-high purity and uniform mechanical properties, making it highly reliable for critical, high-load applications across key industries.

It is the ideal material choice for manufacturing high-strength medical tools, surgical instrument supports, and precision shafts, as well as aircraft structural and landing gear components, actuators, and fasteners. Furthermore, it is widely utilized for high-strength shafts, pump/valve parts, corrosion-resistant components, and high-performance robotics components such as high-load joint shafts, drive shafts, and structural connectors.

DESIGNATIONS & STANDARDS

ASTM	UNS	EN 10088
A564/F899/AMS5629	S13800	13-8MoPH

PRODUCT FORMS & APPLICABLE STANDARDS

Product Form	Applicable Standards
Plate / Sheet	ASTM F899 Class 5; ASTM A693 Type XM-13; AMS 5864
Bar / Rod	ASTM F899 Class 5; ASTM A564 Type XM-13; AMS 5629
Wire	ASTM F899 Class 5; ASTM A564 Type XM-13; AMS 5629
Tube / Pipe	ASTM F899 Class 5;

CHEMICAL COMPOSITION (MASS %) *In accordance with: [ASTM F564]*

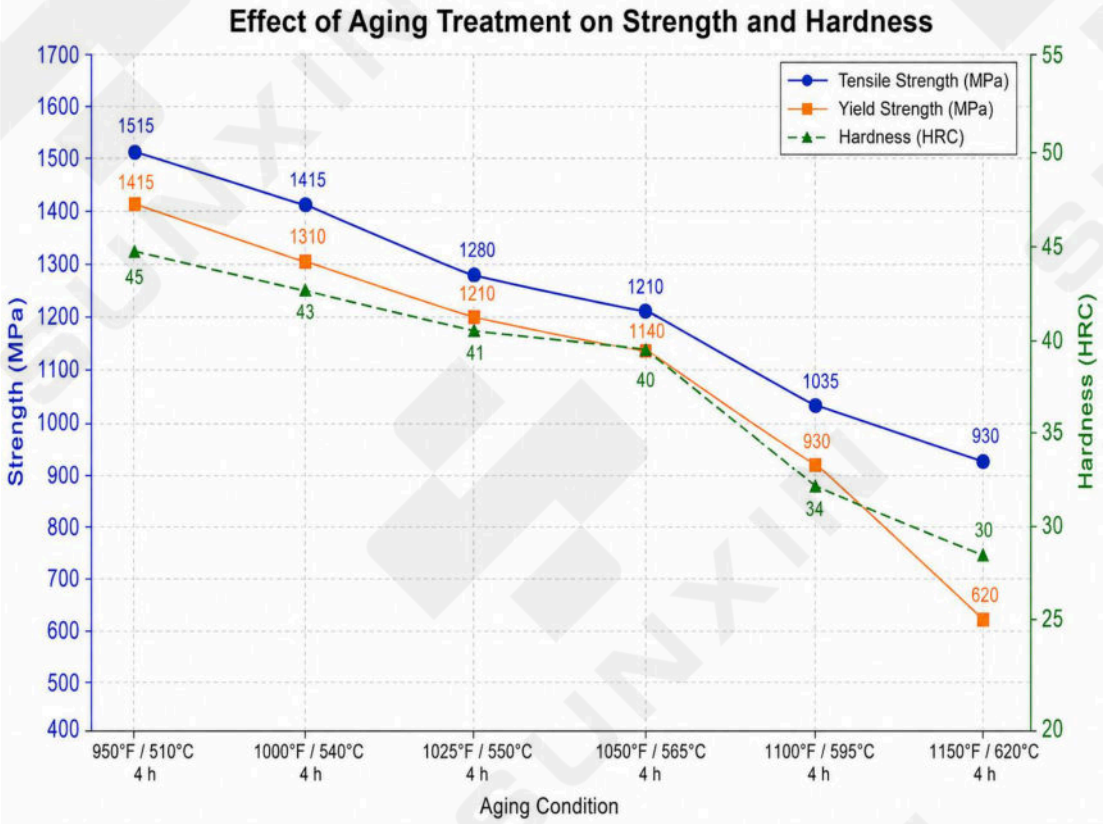
Element	C	Mn	P	S	Si	Cr	Ni	Al	Mo	N	Fe
Content (%)	≤0.05	≤0.20	≤0.010	≤0.008	≤0.10	12.25-13.25	7.50-8.50	0.90-1.35	2.00-2.50	≤0.01	Balance

SOLUTION TREATMENT

Condition	Heating Temperature	Holding Time (h)	Tensile Strength (MPa)	Yield Strength (MPa)	Elongation (4D)	Reduction of Area (%)	Hardness (HRC)
Solution Annealed	1700 ± 25 °F/925 ± 15 °C	1	/	/	/	/	≤38

AGING TREATMENT

Condition	Heating Temperature	Holding Time (h)	Tensile Strength (MPa)	Yield Strength (MPa)	Elongation (4D)	Reduction of Area (%)	Hardness (HRC)
Aged	950°F/510°C	4	≥1515	≥1415	10	45	≥45
Aged	1000°F/540℃	4	≥1415	≥1310	10	50	≥43
Aged	1025°F/550°C	4	≥1280	≥1210	11	50	≥41
Aged	1050°F/565°C	4	≥1210	≥1140	12	50	≥40
Aged	1100°F/595°C	4	≥1035	≥930	14	50	≥34
Aged	1150°F/620°C	4	≥930	≥620	14	50	≥30



APPLICATIONS

Condition	Dimension
Medical	High-strength medical tools / Surgical instrument support components / Precision shafts / Medical equipment structural components
Aerospace	Aircraft structural components / Landing gear components / Actuator parts / Pin shafts / Fasteners / Valve components
Industrial	High-strength shafts / Pump parts / Valve stems / Pressure equipment parts / Corrosion-resistant mechanical components
Mechanical engineering	High-load joint shafts / Drive shafts / Structural connectors / Locating pins / Precision fixture parts

AVAILABLE FORMS

Available Form	Size Range	Surface Finish	Length (Customizable)	Tolerance (Customizable)	Delivery Condition
Plate	T0.5-T200.0mm	Milled	L:200/250/300 W:200/300/500/1000	-0.0/+1.0mm	Solution Annealed
Bar	φ1.0-φ200.0mm	Ground / Precision Polished	3M/PCS	h6-h9	Solution Annealed
Wire	φ1.0-φ3.0mm	Ground / Precision Polished	1M/PCS	h6-h9	Solution Annealed

Materials/ specifications or special requirements not shown in the table can all be customized. Please contact our sales team.

TESTING & CERTIFICATION

TESTING CAPABILITIES	QUALITY & TRACEABILITY
• Chemical: OES · O/N/H analyzer • Mechanical: tensile · Rockwell/Vickers · impact • NDT: ultrasonic testing (UT) • Metallography: optical & electron microscope • Dimensional: straightness / roundness / coaxiality	• ERP full-process traceability · heat-number control • Batch consistency control • Third-party testing: on request/ at extra cost • Standards: ASTM · ISO · EN · AMS · DIN • MTC with each shipment

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CERTIFICATION: ISO 13485 · ISO 9001 **THIRD-PARTY TESTING:** SGS


CERTIFICATE


CERTIFICATE


SGS

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