BH DÖVME METAL SANAYİ ve TİCARET LTD. ŞTİ.
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Grade	Code	UNS	Nickel Alloys
A286	Alloy A-286(1.4980)	S66286	

Nickel Alloy Properties

A286 is a precipitation-hardenable, iron-nickel-chromium based superalloy designed for heat and corrosion resistance while achieving high strength levels. With titanium, molybdenum and vanadium additions, it provides high-temperature strength, creep-rupture resistance and good oxidation resistance after aging. Thanks to its ability to be used in applications requiring high strength up to approximately 704°C, it is widely preferred for aircraft engine fasteners, gas turbine parts, afterburner components and high-temperature structural equipment.

Chemical Analysis (A286)

C %	Si %	Mn %	S %	Cr %	Mo %	Ni %	Ti %	V %	Fe %
0.08 max.	1.00 max.	2.00 max.	0.015 max.	13.50 – 16.00	1.00 – 1.50	24.00 – 27.00	1.90 – 2.35	0.10 – 0.50	Balance

Mechanical Properties

Product Form	Condition	Rp0.2, MPa	Rm, MPa	Elongation [%]	Hardness	Density [g/cm³]
Bar	Solution treated / solution annealed, typical	~275	~620	~40	140–180 HB	7.94–7.98
Plate	Solution annealed, ATI plate specification value	—	max. 724	min. 25	max. 90 HRB	7.98

Application Areas

Sector	Products
Aerospace and Jet Engines	Aircraft engine fasteners, afterburner parts, turbine/compressor components
Industrial Gas Turbines / Energy	Turbine fasteners, shafts, turbine disk/rotor-related components
Automotive / High-Performance Engine Systems	Exhaust manifold fasteners, turbo/supercharger parts, high-temperature bolts and nuts
Offshore / Oil & Gas	Flange fasteners, stud/bolt-nut assemblies, springs and special connecting parts
Cryogenic / Non-Magnetic Equipment	Non-magnetic fasteners, cryogenic shaft/part assemblies, special springs

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Description

A286 is a precipitation-hardenable superalloy whose performance is largely determined by the correct heat-treatment condition. The aging treatment applied after solution annealing increases A286's yield and tensile strength while improving creep-rupture resistance and dimensional stability at elevated temperatures. Although its formability is better in the solution-treated condition, it tends to work-harden during machining; therefore, proper tool selection, rigid fixturing and controlled cutting parameters are required.

Specification

A286, Alloy A286, 1.4980, S66286,

Norm

Product Form	AMS	ASTM	Short Description
Round Bar / Bar	AMS 5731	ASTM A638 Grade 660 Type 2	1800°F / 982°C solution-treated condition; used for bar, forging, tube/tubing and ring forms.
Round Bar / Bar	AMS 5732	ASTM A638 Grade 660 Type 2	1800°F / 982°C solution-treated + aged condition; preferred for applications requiring high creep-rupture resistance.
Round Bar / Bar	AMS 5734	ASTM A638 Grade 660 Type 1	1650°F / 899°C solution-treated condition; used when better ductility and room-temperature strength are targeted.
Round Bar / Bar	AMS 5737	ASTM A638 Grade 660 Type 1	1650°F / 899°C solution-treated + aged condition; used to obtain a combination of high room-temperature strength and good ductility.
Round Bar / Bar for Fastener Applications	May be ordered depending on AMS 5732 / AMS 5737	ASTM A453 Grade 660 Class A / Class B	ASTM standard used for bolts, studs, nuts and high-temperature fasteners; it is a bolting standard, not a general-purpose bar standard.
Plate / Plate	AMS 5525	—	One of the most common AMS specifications for A286 sheet, strip and plate. Generally used for the solution heat-treated condition.
Plate / Plate	AMS 5858	—	A286 specification for sheet, strip and plate, particularly requiring weldability / welding-grade controlled analysis.

Alternative Grades

1. Inconel 718
2. Inconel X-750
3. Inconel 625

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