

Alloy 80A

Alloy 80A offers outstanding creep resistance properties.

A precipitation hardened alloy, Alloy 80A offers high tensile and creep rupture properties up to 815°C.

PRODUCT FORMS

PRODUCT FORM	SIZE RANGE FROM	SIZE RANGE TO
Alloy 80A round bar	4.75 mm	185 mm
Alloy 80A sheet & plate	1 mm	3.45 mm

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CHEMICAL ANALYSIS

%	NI	CR	CU	CO	C	MN	SI	S	FE	TI	AL	B	ZR
Min	Balance	18	0	0	0	0	0	0	0	1.8	1	0	0
Max	Balance	21	0.2	2	0.1	1	1	0.015	3	2.7	1.8	0.008	0.15

APPLICATIONS

- Aircraft or marine turbine rotors
- Exhaust valves
- Diesel engine combustion chambers
- High-strength fasteners

ABOUT ALLOY 80A

Alloy 80A demonstrates excellent corrosion resistance combined with high mechanical properties and creep resistance up to 815°C. Good machineability and weldability make the alloy perfect for use in a variety of markets including Aerospace, Oil and Gas and Motorsport. For more information on this alloy, or to get a quote fill in our online quote form or [contact us](#).

PROPERTIES

Density:	8.19 g/cm ³
Melting Range:	1320 - 1365°C
Hardness:	HRB
Specific Heat Capacity:	448 J/kg.°C
Electrical Resistivity:	1.24 μΩ.m
Curie Temperature:	°C

MECHANICAL & PHYSICAL PROPERTIES

MECHANICAL & PHYSICAL PROPERTIES	21.1°C	93.3°C	148.9°C	204.4°C	315.6°C	371.1°C	426.7°C	537.8°C	595°C	648.9°C	705°C	760°C	815°C	982°C
Ultimate Tensile Strength /Mpa, +	1186	1180	1162	1157	1122	1115	1105	1082	1058	996	926	767	625	94
0.2% Yield Strength /Mpa +	751	749	740	749	744	742	745	746	741	725	667	600	464	59
Reduction of area % +	32	32	33	33	34	34	36	36	36	36	35	35	36	>60
Elongation % +	46	45	45	45	46	45	47	47	43	40	42	47	58	75
10,000 hr Rupture Strength, MPa	-	-	-	-	-	-	-	600	440	-	220	130	54	-
Coefficient of Thermal Expansion / $\mu\text{m}/\text{m}^\circ\text{C}^{**}$	12.7	12.7	12.7	13.3	13.7	14.1	14.1	14.4	-	15	-	16.2	16.2	18.1
Thermal Conductivity /kcal/(hr.m. $^\circ\text{C}$) **	9.63	9.98	9.98	12.38	13.85	15.31	15.31	16.68	-	17.89	-	21.07	21.07	24.42
Modulus of Elasticity / GPa	183	179	179	173	168	163	163	157	-	150	-	142	134	112

SPECIFICATIONS
UNS Number: N07080

W.Nr.Number: 2.4952/2.4631

Standards: ASTM B637, MSRR 7004, 7022, 7063, 7070, 7162, 7193, 7952, BS: HR 203, 3HR1, HR3, HR4, BSRHR 601