

# Alloy 188

A cobalt-based alloy, Alloy 188 has excellent high temperature strength.

Alloy 188 combines excellent strength at high temperature, superb resistance to oxidising environments and good resistance to sulphate deposit hot corrosion. It is readily weldable with good hot and cold forming characteristics.

## PRODUCT FORMS

PRODUCT FORM	SIZE RANGE FROM	SIZE RANGE TO
Alloy 188 round bar	10 mm	168 mm
Alloy 188 sheet & plate	0.38 mm	50.8 mm
Alloy 188 welding wire	0.635 mm	2.36 mm

Can't find the size you need? **Please contact us at [onlinesales@neonickel.com](mailto:onlinesales@neonickel.com)**

## CHEMICAL ANALYSIS

%	CR	NI	CO	W	LA	B	C	FE	MN	SI	P	S
Min	20	20	-	13	0.02	-	0.05	-	-	0.2	-	-
Max	24	24	Balance	16	0.12	0.015	0.015	3	1.25	0.5	0.02	0.015

## APPLICATIONS

- Gas turbine engine combustor cans
- Spray bars
- Flame holders
- Afterburner liners

## ABOUT ALLOY 188

Alloy 188 is a cobalt-based superalloy with a unique combination of high temperature strength and oxidation resistance up to 1093°C, along with good post-aging. The alloy maintains its ductility after prolonged exposure to high temperatures. Alloy 188 is also particularly resistant to sulphate-deposit hot corrosion. Alloy 188 is readily fabricated, being welded by both manual and automatic methods including electron beam, gas tungsten arc and resistance welding. For more information, please [contact us](#) today!

## PROPERTIES

**Density:** 8.97 g/cm<sup>3</sup>

**Melting range:** 1302-1410°C

## MECHANICAL & PHYSICAL PROPERTIES

MECHANICAL & PHYSICAL PROPERTIES	21°C	427°C	538°C	649°C	760°C	871°C	982°C	1093°C
Ultimate Tensile Strength /MPa	944.6	-	-	710.2	620.5	413.7	241.3	131
0.2% Yield Strength /MPa	462	-	-	275.8	268.9	248.2	131	62.1
Elongation %	53	-	-	59	63	64	59	-
Coefficient of Thermal Expansion µm/m°C	-	14	14.8	15.5	16.2	16.9	17.8	-
Thermal Conductivity /kcal/(hr.m.°C)	-	15.5	17.1	18.9	20.7	21.6	23.5	-
Modulus of Elasticity/ x10 <sup>5</sup> MPa	2.34	2	1.93	1.79	1.72	1.65	1.52	-

## TYPICAL STRESS RUPTURE STRENGTH

TEMPERATURE, °F	1400	1500	1600	1700	1800
100 hours, ksi	32	22	14	9	5
1000 hours, ksi	23	15	9	6	2

## **SPECIFICATIONS**

<b>UNS Number:</b>	UNS R30188
<b>Werkstoff Number:</b>	2.4683
<b>Standards:</b>	AMS 5608, AMS 5801, AMS 5772