

HAYNES[®] 188 alloy

Welding

HAYNES[®] 188 alloy is readily welded by Gas Tungsten Arc (GTAW), Gas Metal Arc (GMAW), Shielded Metal Arc (SMAW), electron beam welding, and resistance welding techniques. Its welding characteristics are similar to those of HAYNES[®] 25 alloy. Submerged Arc welding is not recommended, as this process is characterized by high heat input to the base metal and slow cooling of the weld. These factors can increase weld restraint and promote cracking.

Base Metal Preparation

The joint surface and adjacent area should be thoroughly cleaned before welding. All grease, oil, crayon marks, sulfur compounds, and other foreign matter should be removed. Contact with copper or copper-bearing materials in the joint area should be avoided. It is preferable, but not necessary, that the alloy be in the solution-annealed condition when welded.

Filler Metal Selection

Matching composition filler metal is recommended for joining alloy 188. For joining section thicknesses greater than 3/8 inch (9.5 mm), HAYNES[®] 230-W[®] filler wire (AWS A5.14 ERNiCrWMo-1) is suggested. For shielded metal arc welding, HAYNES[®] 25 alloy electrodes (AMS 5797) are suggested. For dissimilar joining of 188 alloy to nickel-, cobalt-, or iron- base materials, 188 alloy itself, 230-W[®] filler wire, HAYNES[®] 556[®] alloy (AMS 5831), HASTELLOY[®] S alloy (AMS 5838), or HASTELLOY[®] W alloy (AMS 5786) welding products are suggested, depending upon the particular case. Please [click here](#) or see the [Haynes Welding SmartGuide](#) for more information.

Preheating, Interpass Temperatures, and Postweld Heat Treatment

Preheat is not required. Preheat is generally specified as room temperature (typical shop conditions). Interpass temperature should be maintained below 200°F (93°C). Auxiliary cooling methods may be used between weld passes, as needed, providing that such methods do not introduce contaminants. Postweld heat treatment is not generally required for 188 alloy. For further information, please [click here](#).

Welded Tensile – Room Temperature

Condition	0.2% Yield Strength		Ultimate Tensile Strength		Elongation
	ksi	MPa	ksi	MPa	
Sheet	68	469	133	917	65
Welded Transverse	70	483	123	848	31
All Weld Metal	79	545	117	807	46