

HAYNES[®] 625 alloy

Welding

HAYNES[®] 625 alloy is readily welded by Gas Tungsten Arc (GTAW), Gas Metal Arc (GMAW), electron beam welding, and resistance welding techniques. Its welding characteristics are similar to those for HASTELLOY[®] X 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 welding surface and adjacent regions should be thoroughly cleaned with an appropriate solvent prior to any welding operation. All greases, oils, cutting oils, crayon marks, machining solutions, corrosion products, paint, scale, dye penetrant solutions, and other foreign matter should be completely removed. 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 625 alloy. For dissimilar metal joining of 625 alloy to nickel-, cobalt-, or iron-base materials, 625 alloy itself, 230-W[™] filler wire, 556[™] alloy, HASTELLOY[®] S alloy (AMS5838), or HASTELLOY[®] W alloy (AMS 5786, 5787) 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 X alloy. For further information, please [click here](#).

Nominal Welding Parameters

Details for GTAW, GMAW and SMAW welding are given [here](#). Nominal welding parameters are provided as a guide for performing typical operations and are based upon welding conditions used in our laboratories.