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AR400 Wear Plates

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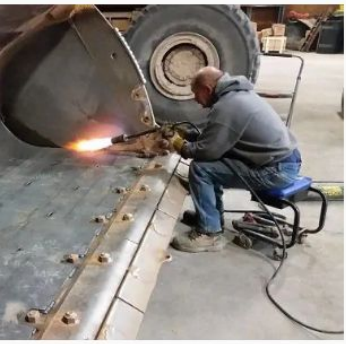
Wear Plates

Eliminating Abrasion

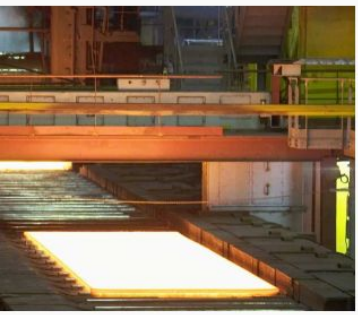


Why are wear plates needed?

Wear resistance is a coveted property across several mechanical system applications. However, materials that exhibit excellent wear resistant properties are few and far between. To address this problem, AR400 was examined to determine what metallurgical characteristics allowed the steel alloy to perform so well against wear, specifically during its use as a wear resistant plate.

Properties and Performance

To better understand wear resistance as a material characteristic, the first area of focus was the mechanical properties that AR400 exhibits. By analyzing lab testing data and other research for AR400, it was determined that hardness was the main determining factor for abrasive wear. Under Rockwell Hardness testing, AR400 has a hardness rating of 42 HRC, which is roughly 5 units higher than other comparable steels.



Structure and Composition

The grain size of wear resistant plates varies due to the type of material that is desired and the thickness of the material. Adding different elements and changing the dimensions cause the sizes at the microstructure level to range. AR400 can be made up of many different chemical elements: C, Si, Mn, P, S, Cu, Al, Ni, Cr, Mo, V, Ti, Nb, and B. Each component serves a certain duty for the properties of wear plates. For example, Carbon is the main hardening component for abrasion resistant wear plates like AR400.

How are wear plates made?

Casting and solidification are the general terms for how metallic alloys are made. Specifically for wear plates, it requires the alloy to have a very hard surface with abrasion resistance. Techniques for hardening wear plates include strain hardening, solid solution strengthening, precipitation hardening, and quenching and tempering.