

ANALYSIS OF WELDING HEAT INPUT TO DISTORTION, MICROSTRUCTURE AND MECHANICAL PROPERTIES OF A36 STEEL

by Heri Wibowo

ABSTRACT

The minimization of weld distortion has become an important subject of research in welding. Severe distortion can cause undesirable influence on the cost of fabrication since additional work or repair needs to be performed. In addition, distortion also reduce dimensional accuracy and even loss of structural integrity. The present investigation aims to reduce welding distortion on A36 steel by controlling heat input during Metal Inert Gas (MIG) welding. The welding process was carried out by maintaining constant voltage and current of 23 Volt and 145 Ampere respectively whereas travel speed was varied in the range of 3.9 to 4.9 mm/s giving heat input of 678 to 936 J/mm. Result of this investigation showed that the welding distortion was achieved at the heat input of 756 J/mm. At this heat input, the percentage of acicular ferrite is maximized resulting in good weld impact toughness.

Kata Kunci: *heat input, distortion, microstructure*