

Torch Brazing for Marine Mechanical Corporation

Dongkeun Yi and Brad Martensen, The Ohio State University

Abstract:

Marine Mechanical Corp. is concerned about whether their welders can qualify for the strict brazing standards of NAVSEA (Nuclear Navy Welding Code). Currently, their welders pass rate on mock-up tests of copper-to-copper tubing (couplings and U-bends) and copper to copper/nickel block (70% Cu, 30% Ni) brazed joints is just 12-14%. A matrix of parameters including heat input, tolerance, and joint access restrictions should be developed that would produce quality braze joints that meet NAVSEA standards. This was done by running experiments varying the parameters and plotting the results.

Brad Martensen, and Dongkeun Yi were performed the project. Del Molnar is the advisor from Marine Mechanical Corp. Prof. Tsai is the academic advisor from The Ohio State University. The project was taken place at the Edison Joining Technology Center. The experiment was started mid November of 2001 and finished around mid May.

From the results, the pass rates on the mock-up tests were about 50%. This is due to a changing the brazing temperature within the current brazing temperature range does not have a significant effect. This would save Marine Mechanical Corp. about \$3,500 to \$5,250 for every ten mock-up tests performed.