

Effect of pressure and length of lap joint on shear load and joint clearance during dissimilar metal joining using torch brazing for the shipping industry

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Abstrak

Torch brazing is one method of brazing based on using a heat source for joining metals. This method is classified as a liquid-solid state thermochemical process and is generally used in joining pipes. This process heats the brazing filler metal until it reaches the melting point without exceeding the melting point of the base metals to be joined. After cooling, the filler metal grants a strong joining capacity to the base metal. Depending on the amount of pressure and the length of lap joint in the brazing process the quality of the joint will be affected. This research will investigate the effect of pressure and the length of the lap joint on the material strength properties of BJ DD2 steel and C12000 copper. An optimal configuration between pressure and the length of lap joint will be determined from the result of shear load and joint clearance, which are the factors that affect joint strength and the process of brazing. The greater the shear load and the smaller the joint clearance, the higher the joint strength will be. The result shows that the pressure has a larger effect than the length of the lap joint for dissimilar metal joining using torch brazing.