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VARIETIES OF COLD WELDING ON COGGED SURFACES

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ABSTRACT

Direct welding by cold pressing on cogged surfaces, produces the joint of a component made from an easy deformable metal by pressing on the cogged surface of a harder metal component. Different welds between aluminium (the easy deformable component) and copper, brass, steel, stainless steel (harder component, cogged on the contact surface) can be obtained. The experimental results show that the weld can be achieved at lower deformation rates than in the classical cold welding case. The weld is obtained only by deforming the aluminium component at a deformation rate of 20 ... 20%. The welding on cogged surfaces of materials with different plasticity makes possible the production of bimetallic or multilayer elements. The weld tensile strength is up to 10% of aluminium ultimate tensile strength, better results being obtained for the shearing strength. The weld contact electric resistance is negligible, recommending the process for producing dissimilar elements used in electrotechnics.

KEYWORDS: Cold welding, pressure welding, aluminium joints.

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