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The potential application of resistance spot welding with projection in joining PHS steel sheets for automotive structural applications

Jesus, E.R.B.(1); Mucsi, C.S.(2); Lara, J.A.C.(2); Nogueira, E.J.(2); Furlanetto, V.(3); Bastos, V.M.(2); Rossi, J.L.(4);

(1) IFSP; (2) IPEN; (3) WS; (4) IPEN - CNEN/SP;

Although many other welding processes have become evident in recent years, with the potential to complement or replace, in many cases, the traditional resistance spot welding widely used in joining automotive structural sheets; the latter still continues to play a prominent role. The objective of this work was to evaluate the potential application of a variation of conventional resistance spot welding, here called projection resistance spot welding. The steel evaluated was PHS (press hardened steel) class 22MnB5 coated with AlSi. Specimens for shear tests and cross tests of conventional and projection welds were prepared for evaluation, in the steel conditions as received and after hot pressing. The results culminated in the approval of all welds in accordance with reference parameters established by the AWS standard. In the case of projection welding, there was a tendency to facilitate the expulsion of the coating from the sheet during the welding process, which resulted in more reliable welds, as the possibility of contamination of the welding button by the coating was minimized. of the plate.