

Pengembangan model penilaian kompleksitas proses manufaktur produk press part = Assessment model development of manufacturing process complexity for press part product

Riky Adhianto, author

Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=20308480&lokasi=lokal>

Abstrak

Sheet metal forming adalah salah satu klasifikasi dari proses manufaktur yang membentuk sebuah lembaran logam yang bertindak sebagai benda kerja menjadi produk yang diinginkan melalui serangkaian proses cutting bahan (shearing, blanking, punching) dan/atau pembentukan material (bending, drawing, deep drawing, dll).

Indeks kompleksitas proses sheet metal forming (PIproses) merupakan indikator dari suatu proses manufaktur sebuah produk dengan tingkat kerumitan atau kompleksitas tertentu, faktor kesulitan yang terdapat dalam langkah proses sheet metal forming (pcx) ditambah dengan kompleksitas produk (CIproduk). Untuk mengetahui dan mengeliminasi parameter bebas dan parameter terikat dilakukan pembobotan dengan metode AHP berdasarkan data kuisisioner yang didapat dari ahli, didapatkan ranking terbaik yaitu pcin process, feature : material, geometri material inprocess, geometri dies dan jumlah deformasi dan pcin process, specification : gaya dan aliran material.

Setelah diperoleh model penilaian kompleksitas proses produk press part, dilakukan pengujian terhadap produk yang ada di industri dan produk dengan keseluruhan nilai bobot 0, 0,5 dan 1. Hasil dari pengujian model adalah sebagai berikut: PI (bobot keseluruhan 0) = 11,76; PI (bobot keseluruhan 0,5) = 14,16; PI (bobot keseluruhan 1) = 16,57; PI (blanking panel roof) = 12,47; PI (panel roof) = 34,83; PI (front door) = 36,30; PI (rear door) = 36,69.

Sheet metal forming is one of the classification of manufacturing processes forming a sheet of metal which acts as the workpiece into the desired product through a series of material cutting process (shearing, blanking, punching) and/or the material forming (bending, drawing, deep drawing, etc.).

Sheet metal forming process complexity index (PIprocess) is an indicator of a manufacturing process of a product with the complexity level or a certain complexity, the complexity factor which found in sheet metal forming process step (pcx) added with the product complexity (CIproduct). To find and eliminating free parameters and tied parameters will be performed the weighting by the AHP method based on data obtained from the expert questionnaire, and then obtained the best ranking pcin process, feature : material, inprocess material geometry, dies geometry and amount of deformation and pcin process, specification : force and material flow.

After obtained the complexity of the process of product valuation models press part, and then testing to industry product and the overall value of products with a total weight of "0", "0.5" and "1". Results of testing the model are as follows: PI (total weight of "0") = 11.76; PI (total weight of "0.5") = 14.16; PI (total weight of "1") = 16.57; PI (blanking panel roof) = 12.47; PI (panel roof) = 34.83; PI (front door) = 36.30; PI (rear door) = 36.69.