

## ABSTRAK

Industri otomotif di Indonesia sekarang ini semakin meningkat. Hal tersebut membuat permintaan *spare part* motor terus meningkat. Salah satu *spare part* motor tersebut adalah *Underbracket*. *Underbracket* dapat diproduksi dengan proses *hot forging*. Setelah melakukan pengamatan saat berlangsungnya proses *hot forging* terdapat masalah. Masalah tersebut terdapat pada *maker material* mana yang akan digunakan dan dimensi potongan *raw material* S35C yang ingin dipakai sehingga produksi *Underbracket* tidak dapat berjalan efisien. *Maker material* dan Dimensi Potongan *Raw Material* saat proses *forging* sangat berpengaruh terhadap hasil *waste*, hasil kualitas dan kuantitas produk *Under Bracket* tipe XYZ. Untuk itu dilakukan penelitian dengan metode berupa kombinasi VDI 2221 dan *Trial*. Metode tersebut dilakukan agar dapat menentukan ukuran dimensi dan *maker* dari *raw material* S35C yang optimal dan efisien agar *waste* dan kecacatan hasil produk dapat berkurang. Tujuan dari penelitian ini adalah mendapatkan ukuran dimensi potongan *material* dan *maker material* yang optimal sebelum produk tersebut di produksi secara massal dan dapat membandingkan beberapa variasi ukuran dimensi potongan *raw material* dan dua *maker material* yang diuji serta mendapatkan kualitas dan kuantitas hasil produk yang baik dan efisien. Penelitian diawali dengan metode VDI 2221 lalu dilakukan komparasi komposisi kimia dan *trial* pada *maker material* dimensi potong hasil dari VDI 2221 lalu dilakukan beberapa pengujian laboratorium sehingga menghasilkan produk yang efisien dalam segi kualitas serta kuantitasnya. Hasil penelitian ini diharapkan mampu menentukan *maker material* dan ukuran dimensi potongan *raw material* dari produk *Underbracket* tipe XYZ yang efisien dan kualitas dan kuantitas yang baik.

**Kata Kunci:** *Hot Forging, VDI 2221, Trial, Underbracket*

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**OPTIMIZATION OF SELECTION OF RAW MATERIAL S35C HOT FORGING  
PROCESS WITH VDI 2221 AND TRIAL METHOD TYPE XYZ  
UNDERBRACKET PRODUCT**

**ABSTRACT**

*The automotive industry in Indonesia is currently increasing. This makes the demand for motorcycle spare parts continue to increase. One of these motor spare parts is the Underbracket. Underbrackets can be produced by the hot forging process. After making observations during the hot forging process, there was a problem. The problem lies in which material maker will use and the dimensions of the S35C raw material pieces that we want to use so that Underbracket production cannot run efficiently. Manufacturing Materials and Raw Materials The dimensions of the pieces during the forging process greatly affect the yield of waste, the results of the quality and quantity of the XYZ type Under Bracket product. For this reason, research was carried out using a method in the form of a combination of VDI 2221 and Trial. This method is carried out in order to be able to determine the optimal and efficient dimensions of the size and manufacture of S35C raw material so that waste and product defects can be reduced. The purpose of this research is to obtain the optimal size of the material pieces and ingredients before the product is mass-produced and to be able to compare several variations in the size of the pieces of raw materials and the two tested materials and to obtain quality and quantity of good and efficient product results. The research began with the VDI 2221 method and then carried out comparisons of chemical compositions and experiments on the dimensions of the cutting material produced from VDI 2221 and then carried out several laboratory tests to produce an efficient product in terms of quality and quantity. The results of this study are expected to be able to determine the manufacturing material and the dimensions of the raw material pieces from the XYZ type Underbracket product that are efficient and of good quality and quantity.*

**Keywords:** Hot Forging, VDI 2221, Trial, Underbracket