DESIGN AND DEVELOPMENT OF DIES AND PUNCHES FOR AUTOMOBILE SILENCER COUPLER

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Abstract: Design sector is very growing sector for every engineering sector now a days. Availability of many developed software like Catia, Creo, solid modality and many more. it has become easy for designer, to design component, structure mechanical design components structure mechanical design and a lot more.

Automobile is highly getting developed sector of engineering field. A lot more designers are willing to be in a automobile design sector due to etc. being complicated but fun for working. Our project is slated to one of the same i.e. to design and developed dies and punches for automobile coupler that is connector between silence and engine which helps non-required waste gases to easily move out through silencer from engine. This project is based on structure analysis.

The research concludes that the experimental study significantly improves the understanding of bending behaviour of EG steel sheets in air bending process. From the industrial point of view, the RSM and ANN models provide a practical, rapid and quite robust prediction of spring back and bend force. The application of prediction models in the industry to predict the responses improves the process and increases the accuracy of the product. These prediction models also eliminate the experimental trials and wastage of time which in turn improves the production and reduces the lead time. Furthermore, some future research directions are suggested to apply these modelling techniques for other responses such as bending allowance and residual stresses for EG steel sheet.

Keywords: Design, dies, punches, sheet metal, EG sheet, ANN models, automobile coupler, manufacturing of dies.

INTRODUCTION

WHAT IS DESIGN?
Design is the selection of material, shape, size and arrangement of mechanical element so that the resultant machine will do the prescribed work.

A plan or drawing product to show the look and function or working of a building, garment or object or system or for the implementation of an activity of an activity or process other object before it is made.

Design can have different connotation on in different fields of application, but there are two basic meaning of design: as a verb and as a noun. Design is the intentional creation of plan or construction of an specification for the

WHAT IS COUPLER?
It is very important for exhaust gases to get out of the automobiles vehicle through silencer.

If they don’t then it may cause hazard to the engine as well as vehicle as vehicle may not work properly and life of engine will reduce and more fuel will be required to drive the vehicle.

The automobile coupler does the work of exhausting the gases from engine through silencer efficiently with the help of connector lies coupler.
LITERATURE SURVEY
The old adage says ‘Knowing the past is the first step for preparing ourselves for the future’. As we enter the next century, it is beneficial to look back and review how technologies evolved through the years. Take sheet metal forming for example, in the past, it heavily depended on the skills of metal workers. Each piece was hammered artistically to provide a personal touch to the product. However, with increased production demands, this procedure was replaced by an automated stamping operation, which today is one of the most widely used manufacturing processes to plastically deform materials into desired shapes.

With the advancement in the area of computer graphics, CAD/CAM and Artificial Intelligence (AI), some researchers [Schaffer 1971, Nakahara 1978, Nee 1986, Shirai 1989, Duffy 1991, Prasad 1992, Park 1999, Choi 2001 etc ] started to exploit these techniques for the design of stamping tools, especially progressive dies. In this chapter, major published work on the use of CAD and knowledge-based systems in the area of checking of design features of sheet metal parts, strip-layout design, selection of progressive die components, material

FINAL MATERIAL SELECTED
After the overall discussion with Mr. Nikhil Bhamare, we finalized using of material for design and development of dies and punches.

As our work was to develop design procedure the first step after designing dies and punches, we selected for material to be used as mentioned before.

We selected D2 material for manufacturing dies and punches as its properties in below chart matched the properties we needed for dies and punches.

<table>
<thead>
<tr>
<th>Percentage of element</th>
<th>%C</th>
<th>%Cr</th>
<th>%Mn</th>
<th>%Si</th>
<th>%Mo</th>
<th>%V</th>
<th>%Fe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical analysis of experimental sample</td>
<td>1.6</td>
<td>11.84</td>
<td>0.32</td>
<td>0.42</td>
<td>1</td>
<td>1</td>
<td>Bal.</td>
</tr>
<tr>
<td>BöHLER Standard chemical analysis of AISI D2</td>
<td>1.4-1.6</td>
<td>11-13</td>
<td>0.3-0.4</td>
<td>0.1-0.45</td>
<td>0.7-1.2</td>
<td>0.7-1.2</td>
<td>Bal.</td>
</tr>
</tbody>
</table>

TiN films were deposited on AISI D2 steel substrates without and with a titanium intermediate layer using a hollow cathode discharge (HCD) ion plating technique.

CONCLUSION
This project works leaded us to get close to more and more knowledge of personality development as well as technical knowledge. This project has enhanced our knowledge about a lot of technical concepts like: -

i) Types of material
ii) Properties of material
iii) Designing process
iv) Software work of designing.
v) Dies and punches designing.
vi) Quotation work.
vii) Automobile connection.

This project also leads to enhance our non-technical knowledge like: -

i) Communication skills
ii) Writing skills
iii) Industrial knowledge

All over by the perspective of enhancing and increasing the knowledge, it was successfully and at its best.

REFERENCES