Optimization Of Turning Parameters Using Taguchi Method

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Optimization Of Turning Parameters Using

Recently, the concept of smart manufacturing systems urges for intelligent optimization of process parameters to eliminate wastage of resources, especially materials and energy. In this context, the current study deals with optimization of hard-turning parameters using evolutionary algorithms. Though the complex programming, parameters selection, and ability to obtain the global optimal solution are major concerns of

evolutionary based algorithms, in the present paper, the optimization was ...

Intelligent Optimization of Hard-Turning Parameters Using ...

With a specific goal to develop an extension among quality and efficiency, the present study highlights the optimization of turning cutting parameters to provide less power, higher surface finish and high chip reduction coefficient. In the present investigation, cutting parameters have been optimized in the hot turning of Inconel 625 with uncoated carbide insert.

Optimization of hot turning parameters using principal ...

Today in manufacturing and metal industries customer satisfaction is very important to make own place in competitive market and also to make mirror image with faith in the heart of customer, because customer gives preference to buy good

quality

(PDF) Optimization of Turning Parameters Using Taguchi ...

of rotation. Turning is carried out on a lathe that provides the power to turn the work piece at a given rotational speed and to feed the cutting tool at a specified rate and depth of cut. Therefore, three cutting parameters, i.e. cutting speed, feed rate and depth of cut need to be determined in a turning operation.

Optimization of turning parameters for surface roughness

RSM optimization procedure has been employed to optimize the output responses, surface roughness and metal removal rate subjected to turning parameters namely speed, feed, depth of cut and type of material using multi objective function model.

Analysis And Optimization Of Turning Process Parameters

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M.Naga Phani Sastry, K.Devaki Devi This paper explains an optimal setting of turning parameters (Cutting speed, Feed and Depth of Cut) which results in an optimal value of Surface Roughness and maximum Metal Removal Rate while machining Aluminium bar with HSS tool.

OPTIMIZATION OF MACHINING PARAMETERS FOR TURNING OF ...

Optimization of Turning Process Parameters of A7075/ZrO2 Metal Matrix Composites. K. Durga, G. Rajeswara Rao and G. Srinivasa Rao Abstract. Traditional practices such as engineering verdict, expert information and customer requirements that result in local solutions (i.e. higher quality for one production while sacrificing with the rest ...

Optimization of Turning Process Parameters of

A7075/ZrO2 ...

1. Introduction. Turning process was the traditional method to convert the raw material in to desired product. In CNC machining process used to upgrade the efficiency and output parameters compare with the manual methods like manually and semi-automatic lathe.

Optimization of machining process parameters in CNC ...

In the current work, some experiments were performed based on a design of experiment (DOE) technique called full factorial design. The experimental results are discussed in statistical analysis, and the system was modeled using the artificial neural network (ANN) and subsequently optimized by a genetic algorithm (GA). The statistical analysis shows that the main effects and some 2-interaction ...

Optimization of turning process using artificial ...

Sahoo: Optimization of Turning Parameters for Surface Roughness Using RSM and GA 201 3.2 Equipment used The machine used for the turning is a JOBBERXL CNC lathe having the control system FANUC Series Oi Mate-Tc and equipped with maximum spindle speed of 3500 rpm, feed rate 15-20 mm/rev and KVA rating-16 KVA.

OPTIMIZATION OF TURNING PARAMETERS FOR SURFACE ROUGHNESS ...

Controlling the effective parameters is the need of the hour in any product manufacturing system. In the present work three different turning process parameters such as Cutting Speed, Feed rate and Depth of cut are considered for optimization study by varying them with three levels.

131 Optimization of Turning Process Parameters for EN24 ...

Optimum machining parameters of turning operations are greatly influenced with concern along with manufacturing environment. In this experimental work turning parameters on EN-8 steel with different parameters such as cutting speed, feed and depth of cut are greatly influenced by response parameters.

OPTIMIZATION OF TURNING PARAMETERS OF EN-8 STEEL ...

optimization technique, based on genetic algorithmsto optimize the cutting parameters in turning processes: cutting depth, feed and speed. The proposed model used microgenetic algorithm in order to obtain the non-dominated points and build the Pareto front graph. Two conflictingobjectives, tool life and operation time, are

OPTIMIZATION OF CUTTING PARAMETERS IN TURNING PROCESS

Bansal et al. studied the optimization of cutting parameters in turning operation of aluminium 2024 alloy with Al2O3 reinforcement and observed that feed observed that tool wear increases with the process variables whether it is coated or uncoated tool, however tool wear is less in coated tool as compared to uncoated due to the coating.

Multi objective Optimization of CNC Turning Parameters for ...

Taguchi approach is used to analyze the effect of turning parameters such as speed, feed, and depth of cut. Optimization of process parameters for individual performance characteristics is found here and is verified by confirmation tests. Also statistical analysis of variance (ANOVA) is performed to judge the significance of factor for responses.

Multiresponse Optimization of Process Parameters in ...

In this study, the multi-objective integration and parameter optimization technique for CNC turning operations on Aluminium Alloy are proposed using Taguchi method. TAGUCHI METHOD The Taguchi method is a robust design method technique, which provides a simple way to design an efficient and cost effective experiment.

Optimization of input parameters of cnc turning operation ...

The objective is to optimize the turning parameters and maximize the MRR (Material Removal Rate). A L16 orthogonal array based on Taguchi experiments consisting of three controlling factors viz. spindle speed, feed rate, and depth of cut, each with four levels as required in traditional DOE setting is used here.

Optimization of Turning Process Parameters by Taguchi

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Abstract and Figures Design of experiments has been used to study the effect of the main turning parameters such as feed rate, tool nose radius, cutting speed and depth of cut on the surface...

(PDF) Optimisation of machining parameters for turning ...

Multi-Objective Optimization of CNC Turning . All experiments are conducted using EMCO Concept Turn 250 machine tool with carbide insert cutting tool. The optimization result shows that feed is the most significant turning machining parameter for surface roughness while depth of cut has high influence on material removal rate followed by ...

cnc cutting in journal machine optimization parameter tool

The optimization of process parameters to develop an anodic aluminium oxide nanopore (AAO-np) structure on an Al5052 alloy substrate using an electrochemical process (two-step anodization) is proposed based on the Taguchi orthogonal array (L9). The four major parameters are the electrolyte, anodization time, bath temperature, and applied ...