

عنوان مقاله:

Experimental Investigation of the Effect of Process Parameters on the Surface Roughness in Finishing Process of Chrome Coated Printing Cylinders

محل انتشار:

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خلاصه مقاله:

One of the challenges in the printing industry is the presence of extra lines in printing design. This problem is due to the improper surface roughness of carved cylinders. This research endeavors to specify and optimize the effective parameters on the surface roughness of chrome coated printing cylinders in the finishing process that is done using a finish star machine. Investigated parameters include lubricant volume, feed rate of machine head, emery feed rate, emery compressive force, emery vibration and peripheral speed. By performing some experiments designed by response surface methodology, suitable ranges for the parameters were determined using contour plots and desirability function approach. Results show that the head feed rate, peripheral speed of the part and emery force are the significant parameters on the surface roughness. Surface roughness decreases by reducing the head feed rate. By increasing the emery force up to ten kilogram, surface roughness increases but afterwards gradually decreases. The roughness decreases by increasing the peripheral speed of the part up to 40 m/min, but increases after this value. At last, suitable range and optimal value of the effective process parameters was achieved for the desirable surface roughness that is between 0.32 to 0.37 micron

کلمات کلیدی:

,Printing Cylinders, Roughness, Finishing, Response Surface Methodology

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