

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202031003800 A

(19) INDIA

(22) Date of filing of Application :28/01/2020

(43) Publication Date : 30/07/2021

(54) Title of the invention : A METHOD FOR THE MANUFACTURE OF ELLIPTICAL ROD/TUBE FROM CIRCULAR ROD/TUBE WORKPIECE USING CNC MILLING MACHINE.

(51) International classification :G05B0019180000,  
B23C0003000000,  
B23P0015000000,  
A44C0027000000,  
B23Q0003080000

(31) Priority Document No :NA  
(32) Priority Date :NA  
(33) Name of priority country :NA  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number:NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

(71)Name of Applicant :  
**1)INDIAN INSTITUTE OF TECHNOLOGY  
BHUBANESWAR**  
Address of Applicant :Indian Institute of Technology  
Bhubaneswar Samantapuri, Bhubaneswar, Orissa, India. PIN-  
751013

(72)Name of Inventor :  
**1)MOHANTY, Rajiva Lochan  
2)DAS, Dr. Mihir Kumar**

(57) Abstract :

The present invention relates to a method to develop an elliptical rod/tube from a circular section rod/tube using 3-axes CNC milling machine. The method uses the end and ball mill cutters to remove the unwanted material from the workpiece with a view to get the desired shape of elliptical surface with proper dimensions implemented in two symmetric halves in sequence, by moving the cutter in z-axis, y axis and x axis over the bed corresponding to the workpiece based on numerical code feed to the CNC machine, while the job is held firmly on horizontal machine bed. The raw material is initially processed to provide flattened surface on opposite faces on vice. The flattened portion favours holding the work piece easily and rigidly over the machine bed for final machining process. The method is user friendly with small effort and less skill involving conventional CNC milling machine considering easy availability and lower cost.

No. of Pages : 24 No. of Claims : 11