CAM

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NC Machines

Numerical Control

- A system in which actions are controlled by the direct insertion of numerical data at some point.

- Numerical control (NC) is a form of programmable automation in which the processing equipment is controlled by means of numbers, letters, and other symbols.

Historical Aspect

- 1948   Numerical Control (NC)
                    Idea conceived by John T. Parsons; taken up by USAF
- 1952   MIT demonstrated the first prototype
- 1959   Automatically Programmed Tools (APT) language first used at MIT
- 1968   Direct Numerical Control (DNC) developed
- 1970   Computer Numerical Control (CNC) developed
- 1980   Hybrid DNC/CNC, Graphical NC (GNC)

Component of NC machine

(a)   (b)   (c)
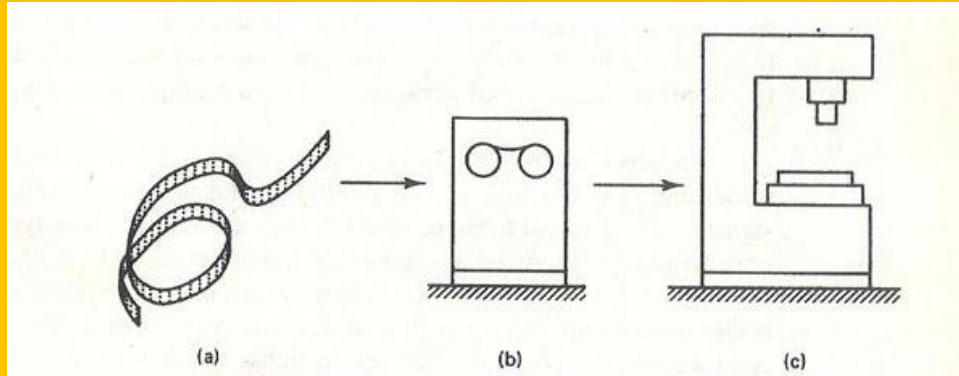
a)Part Program
Detail step by step instructions
b)Machine Control Unit (MCU)
Read and interpret instructions and convert them into mechanical actions
c)Machine Tool
Performs the useful work

Where NC/CNC is Most Suitable

- **Parts are processed in small lot sizes**
- **Part Geometry is complex**
- **Many operations to be performed on the part**
- **Setup is numerous and costly**
- **Engineering design changes are likely**
- **Close tolerances**
- **Expensive part where mistakes in processing are costly**
- **Parts requires 100% inspection**

COMPERISION OF CONVENTIONAL, NC/CNC, AND SPM'S
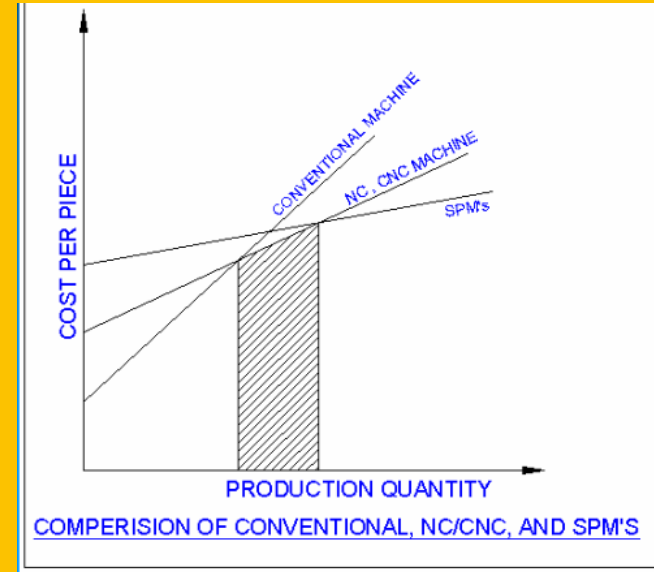
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Thank You