

Computerized numerical control (CNC)

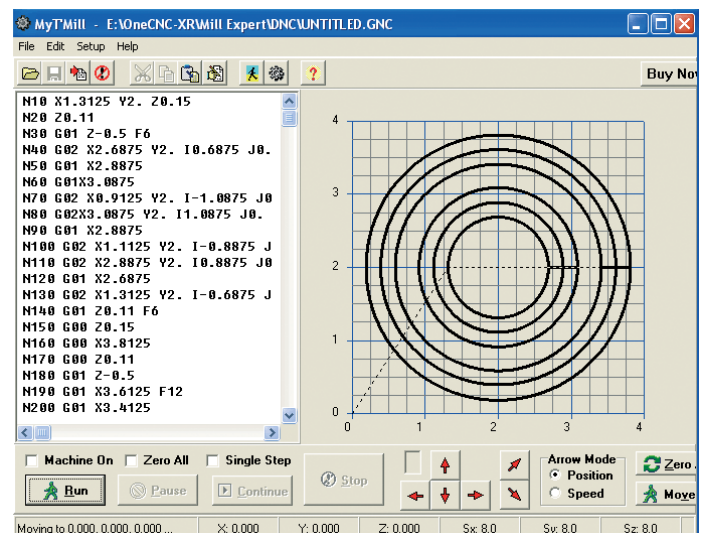
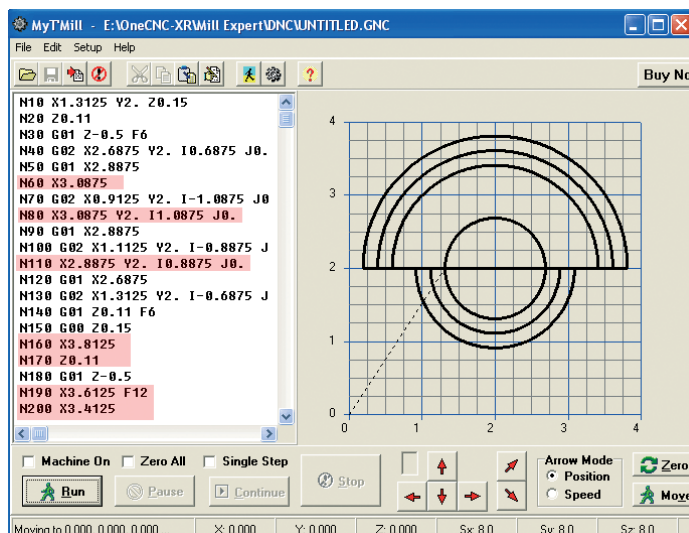
CNC is an acronym for *Computerized Numerical Control* and refers to the use of computers to create metal parts and products for equipment and machines.

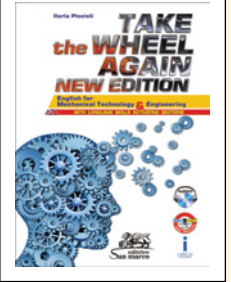
With the advent of information technology in the 1970s, machining was combined with computers, and the result was more efficient output operations, higher endurance, and greater accuracy.

In CNC a machine tool is controlled using text strings which represent specific motions and actions. Programmed numeric values are directly inserted and stored on some form of input medium, and automatically read and decoded to cause a corresponding movement in the machine which it is controlling.

Here are the first fifteen G-Codes with definitions and examples for both turning and milling. The complete listing includes more than sixty codes.

	milling		turning
G00	Positioning in Rapid	G00	Positioning in Rapid
G01	Linear Interpolation	G01	Linear Interpolation
G02	Circular Interpolation (CW)	G02	Circular Interpolation (CW)
G03	Circular Interpolation (CCW)	G03	Circular Interpolation (CCW)
G04	Dwell	G04	Dwell
G07	Imaginary axis designation	G07	Feedrate sine curve control
G09	Exact stop check		
G10	Program parameter input		
G10	Data setting		
G11	Program parameter input cancel		
G11	Data setting cancel.		
G12	Circle Cutting CW		
G13	Circle Cutting CCW		
G17	XY Plane	G17	XY Plane
G18	XZ Plane	G18	XZ Plane
G19	YZ Plane	G19	YZ Plane
G20	Inch Units	G20	Inch Units





ACTIVITIES

- 1 Answer the following questions.
 - 1 What is CNC?
 - 2 To what extent did computers improve the manufacturing process?
 - 3 How does CNC operate?
 - 4 What are the programmed numeric values?
- 2 The machine tool JomaX 265 designed by Jobs represents the new frontier of automated milling technology. Read the following machine specifications and translate them into Italian.

JomaX 265

The JomaX new family of medium-large size, mobile gantry milling centres, for exceptionally flexible machining with 3/3+2/4/5 axes, is pre-arranged for a wide range of customizations.

This machine features:

- high dynamics of acceleration and speed (up to 36 m/min);
- structural rigidity;
- high-volume chip removal capacity;
- volumetric precision;
- wide possibilities of configuration;
- production automation;
- compactness.

The performance of JomaX remarkably improves the competitiveness of the end-user in:

- high-power machining for general precision mechanics, such as the energy and heavy mechanics industries;
- machining of dies, with particular reference to die-holders and large-size dies;
- heavy machining of large titanium structural parts.

