

How to Produce a CNC Program

What is a CNC Program

A CNC program controls the movement of a CNC machine. It changes the tools starts the spindle.

At the push of a button the program runs and makes a complete machined component.

The program begins with a program number and ends with M30.

M30 tells the machine to stop a jump back to the head of the program ready to start again.

Program numbers.

Each program has a unique number from 1 to 9999

These are stored in the machine's computer memory.

Canned Cycles

A canned cycle is a cycle that contains all the information to do something like drilling a hole.

The cycle works each time a position is given it saves writing out all the individual commands.

G80 will stop the canned cycle.

There are cycles for drilling tapping and peck drill as well as loads of others.

It is a programming aid and makes the programmers job much easier.

Absolute and Incremental

G90 is absolute

G91 is incremental

Absolute positions are from the datum point.

Incremental positions are from the current position.

We normally use this if the drawing dimensions are incremental.

Sub Programs

A sub program is a program within a program.

The control enters the sub program with M98 this means go into a sub program.

M98 P600 would go into program 600

M98 P9 would go into program 9

The sub program ends in M99 and this tells it to return to the main program.

Sub programs are used for things like tool change positions that are repeated many times within a program.

You can use it for hole positions that are required for spot drilling, drilling and tapping.

Most controls do not distinguish between main programs and sub programs.

Macro

Macro is a high-level programming language. You can use it to control a program externally.

The program can have no values for X and Y positions. These are stated externally and can be different each time the program is called

This makes the program very versatile.

Macro programs can also do calculations and access system information about the machine.

It has many uses such as:

- Measuring probes

- Patterns of holes

- Tool change

- Families of parts