



# CoDeSys CNC functionality

Overview CNC application



## General

CNC (Computerized Numerical Control) is an electronic method for control and regulation of machine (CNC machines), or the equipment used (controller, computer).

The set-up and the numerical address of the sending control information is described in DIN 66025/ISO 6983, usually referred to DIN / ISO programming. DIN A program can run on any CNC machine. However, for almost all machine specific commands, such as cycles, which can only be interpreted by these machines. Cycles are global programs, with parameters / variables that can be used where "pockets" (square contours or similar bags) or describe holes etc.. This makes the programming cycles and increase the clarity.



## G-Code

In order to provide an easy way for programming geometric motion profiles SoftMotion supports parts of the CNC language DIN66025. Since the whole SoftMotion concept is embedded in the much more powerful language IEC61131, only those parts of DIN66025 are supported, which serve to create a path.

Prescribed structure of a CNC program:

N<number> G<number>

Example:

% MyExample

N10 G01 X100 Y100 E100 F100 E-200

N20 G01 Z40 F20

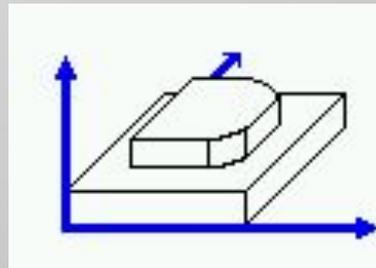
N30 G03 X-100 R200 F100



## Fundamental of CNC-Technology 2D

2-D-control:

Allows machining with two axes in linear and circular movements:



Supported by: C5 with CoDeSys V2.3

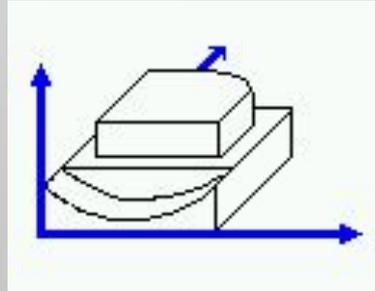
C6 with CoDeSys V3.4 (COMBIVIS studio)



## Fundamental of CNC-Technology 2,5D

2,5-D-control:

Allows linear and circular movements of tool or workpiece in several Working planes. However you can coordinate not more then two axis In their movements at the same time.



Supported by: C5 with CoDeSys V2.3

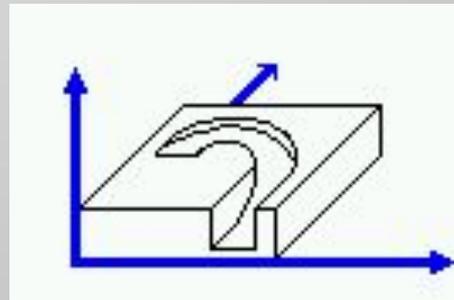
C6 with CoDeSys V3.4 (COMBIVIS studio)



## Fundamental of CNC-Technology 3D

3-D-control:

Allows linear and circular special movements of tool or workpiece. All three axis have a functional interpolation.



Supported by: C6 with CoDeSys V3.4 (COMBIVIS studio)



## Features

- 3 axis for transformation
- additional axis can not transformation (only straight no curves)
- manual generation of contours by g-code and by graphical editor
- import of DXF-files possible
- read NC program as txt-files
- change of the driving speed and direction during runtime
- change of curve coordinates by variable coordinates in the g-code
- different modules for translation to the kinematics
- comfortable visualisation elements