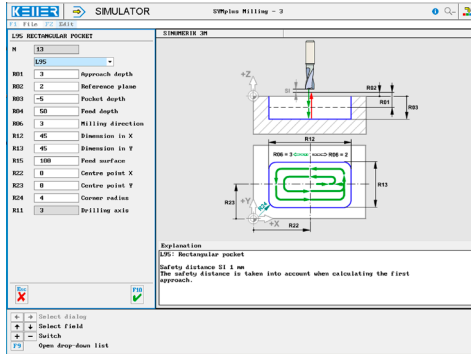
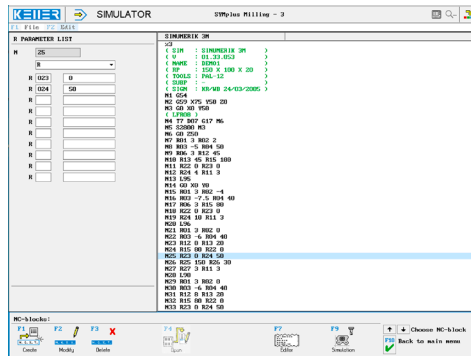


The control related simulator is an additional module for SYMplus. This simulator is used to learn the control system programming. A program generated by a postprocessor can also be edited and simulated.

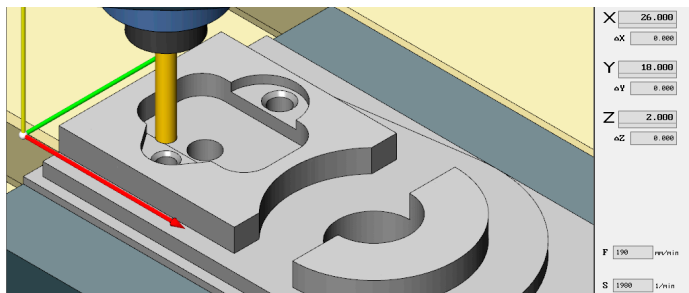
### Help pictures and texts (for all input dialogues)



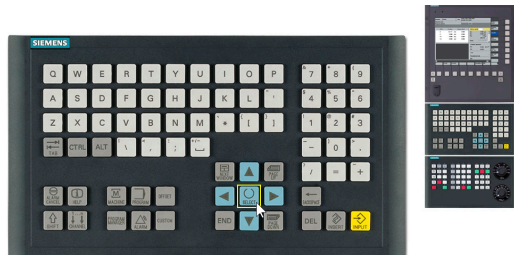
### NC editor incl. input dialogue and syntax control



### Perfect control due to simulation with position indicator (real time, fast mode, single block with path preview, measurement function, ...)



### Keyboard information system: Getting familiar with the meaning of all keys of the control system by moving the mouse cursor over the keys



## COMMANDS/ FUNCTIONS/CYCLES

- G0 Rapid traverse
- G1 Line
- G2 Arc, clockwise
- G3 Arc, counter-clockwise
- G4 Dwell time
- G17 Plane
- G33 Threading
- G40/G41/G42 Radius compensation
- G53-G57 Zero offset
- G60/G64 Exact posit./Smooth. Corners
- G75 Approach to fixed point
- G90/G91 Exact positioning
- G94 Feed per minute
- CFC/CFTCP/CFIN Feed compensation
- Comment Explanations
- MSG Message
- UP-CALL Sub-program call
- LABEL Set
- REPEAT Program part repetition
- T Tool call
- MIRROR Mirroring
- ROT Rotation absolute
- AROT Rotation incremental
- SCALE Scaling
- TRANS Zero offset absolute
- ATrans Zero offset incremental
- CYCLE81 Drilling/centering
- CYCLE82 Drilling/countersinking
- CYCLE83 Deep-hole drilling
- CYCLE84 Tapping without
- CYCLE840 Tapping with
- CYCLE85...89 Boring 1...5
- HOLES1 Holes on a line
- HOLES2 Holes on a circle
- CYCLE801 Holes on matrix
- LONGHOLE Long-holes on a circle
- SLOT1 Slots on a circle
- SLOT2 Circular slots on a circle
- POCKET1 Rectangular pocket 1
- POCKET2 Circular pocket 1
- POCKET3 Rectangular pocket 2
- POCKET4 Circular pocket 2
- MCALL Modal deselection
- X/Y/Z/F/S/M Modal commands
- R Parameter assignment
- GOTO Unconditional jump
- IF Conditional jump
- WHILE Conditional loop
- ENDWHILE End of while loop



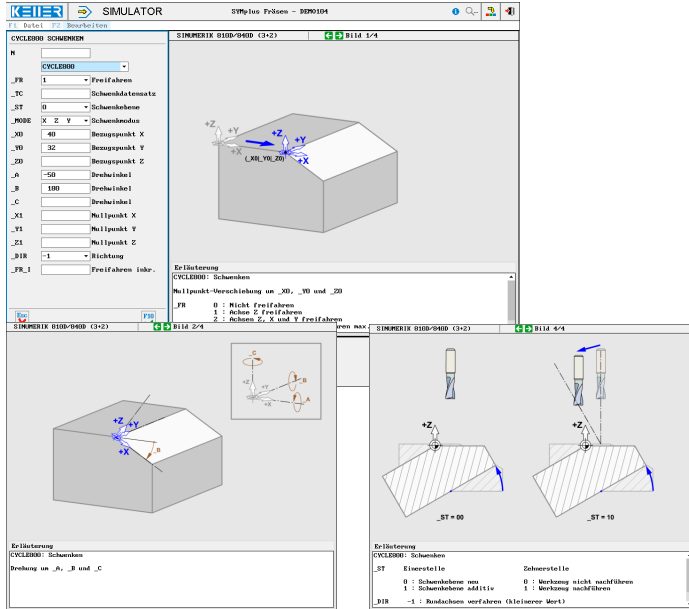
# CONTROLS

Control simulator SINUMERIK 810D/840D (milling)



As an extension to the 810D/840D simulator, the CYCLE800 function for programming and simulating a plane tilt (multi-sided processing) is optionally available.

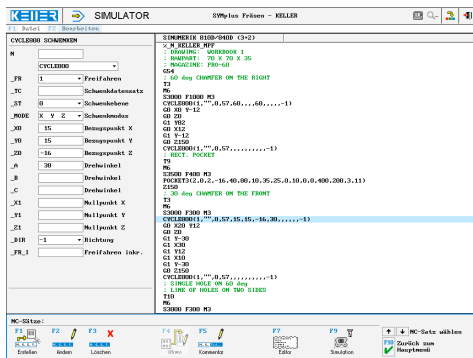
## Help pictures and texts (for all parameters)



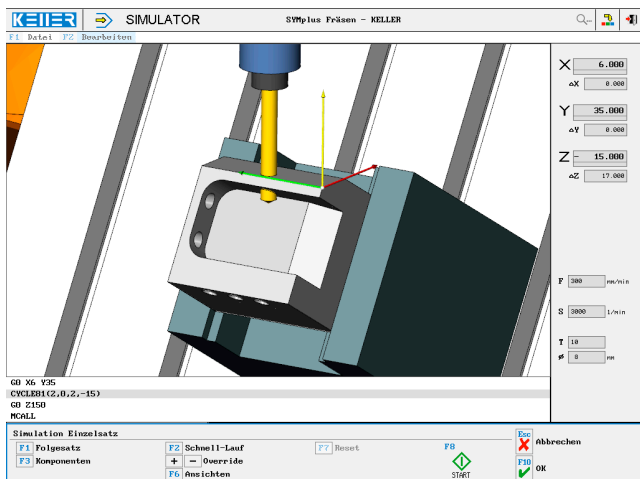
```

%_N_KELLER_MPF
; RP: L90 X B60 X H80
; SFR25
T2 M6
F400 S5000 M3
G54
CYCLE800(1,"",0,57,0,0,0,60,0,0,0,0,-1)
POCKET3(100,0,2,-16,140,60,0,60,-8,0,4,0,0,200)
CYCLE800(1,"",0,45,0,60,0,-60,0,0,0,0,-1)
POCKET3(100,0,2,-16,140,60,0,60,8,0,4,0,0,2000,400,2,12,18)
; LFR08
T8 M6
F400 S5000 M3
CYCLE800(1,"",0,54,0,0,0,-90,0,0,-30,30,0,-1)
POCKET4(100,0,2,-6,22,0,0,6,0,0,500,300,2,12,1)
; VBO34
T47 M6
F400 S5000 M3
CYCLE83(100,0,2,-84,,24,,4,0,,0,,8)
; SPB6.8
T11 M6
F500 S4000 M3
MCALL CYCLE81(100,0,2,-24)
CYCLE800(1,"",0,57,0,0,0,60,0,0,0,0,-16,-1)
HOLES1(20,-8,0,0,25,3)
CYCLE800(1,"",0,57,0,60,0,-60,0,0,0,0,-16,-1)
HOLES1(20,8,0,0,25,3)
MCALL
; VBO19
T45 M6
F400 S5000 M3
MCALL CYCLE85(100,0,2,-24,,0.5,150,150)
CYCLE800(1,"",0,57,0,0,0,60,0,0,0,0,-16,-1)
HOLES1(20,-8,0,0,25,3)
CYCLE800(1,"",0,57,0,60,0,-60,0,0,0,0,-16,-1)
HOLES1(20,8,0,0,25,3)
MCALL
; SFR16
T4 M6
F300 S2800 M3
CYCLE800(1,"",0,57,0,0,0,0,0,0,0,0,-1)
G0 X-10 Y30 Z10
G0 Z-5
G1 X110
; DEPARTURE
G0 X0 Y150 Z150
M30
    
```

## Program listing



## Simulation in 3D (with different types of 5 axis machines)



```

MCALL
; SFR16
T4 M6
F300 S2800 M3
CYCLE800(1,"",0,57,0,0,0,0,0,0,0,0,-1)
G0 X-10 Y30 Z10
G0 Z-5
G1 X110
; DEPARTURE
G0 X0 Y150 Z150
M30
    
```