



Swansoft Multi-Axis Machining Simulator(SSMAM)

NANJING SWANSOFT TECHNOLOGY COMPANY

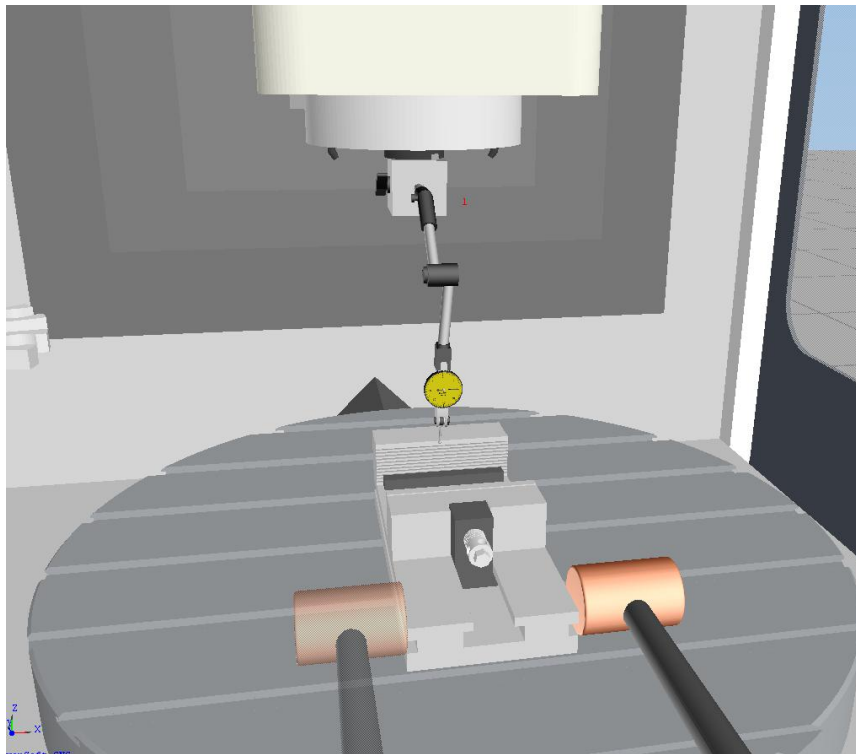
April 2020

Swansoft Multi-Axis Machining Simulator(SSMAM) is developed by Nanjing Swansoft Technology Company. It consists of FANUC, SINUMERIK, MITSUBISHI, HEIDENHAIN, FAGOR, HAAS, HNC, GSK, Multi-Axis CNC controllers. The simulator can emulate the whole machining process of CNC machine such as editing program, preparing blank, choosing cutting tool, mounting tool, presetting cutter, fixing workpiece and machining simulation. SSMAM supports 5-Axis machining simulation and different directions planar positioning machining and it can realize that the A-C axis, B-C axis and A axis as rotary axis emulates 4-Axis or 5-Axis machining simulation with rotary worktable machine structure. It is involved in machining experiences of machine company and training experiences of colleges. Students can operate real NC machine in more short time. Colleges can reduce greatly the expensive equipment investment.

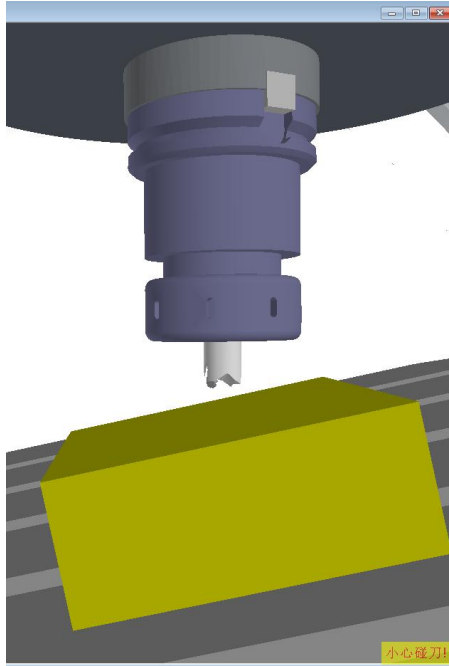
SSMAM is easy to use for students and teacher. You can program by hand or import CAM NC program then simulate in SSMAM. Teacher can get students' operation information through SSMAM Server.

SSMAM MAIN FUNCTION

1.The simulator can emulate the whole machining process of CNC machine such as editing program, preparing blank, choosing cutting tool, mounting tool, presetting cutter, fixing workpiece and machining simulation.



(fixture calibration)



(broken tool)

1.FANUC 0i-M Control Panel-5
2.FANUC 0i-M(NanJing 2nd Automation,Ltd)-
3.FANUC 0i-Mate(JiNan Automation,Inc)-4
4.FANUC 0i-Mate(Taiwan Fair Friend Group)-
5.FANUC 0i-Mate(MyTop Automation,Inc)-4
6.DuoLeng FANUC 0i-Mate-4
7.VDL-1000 FANUC 0i-MC(DaLian Machine To
8.FANUC 0i-MC(NanJing Mashin Automation,
9.FANUC 0i-MC(Tonmac International Co,Ltd)
10.FANUC 0i-MC(Dong Heng Automation Co,
11.FANUC 0i-MB(VICTOR Taichung Machinery
12.FANUC 0i-MC(Shen Yang Machine Tool Pl
13.FANUC 0i-MC(NanJing 2nd Automation,Lt
14.Doosan FANUC 0i-MC Panel-4
15.WIA-VX460 FANUC 0i-MC Panel-4
16.FANUC 0i-MD(NanJing 2nd Automation,Lt
17.FANUC 0i-Mate-MB(Romi)-4
18.FANUC 0i-MD(Nanjing DEUSI)-4
19.FANUC 0i-MD(Skybull 600)-4
20.FANUC 0i-MC(Shen Yang Machine Tool Pl
21.FANUC 0i-MD(Nanjing DEUSI, En)-4
22.Emco FANUC Simulator Panel-4
23.HSCNC FANUC0iM HS955 -4
24.HSCNC FANUC0iM HS1276 -4
25.FANUC 0i-Mate-MC KVC650(ChangZheng
26.FANUC 0i-MD(Nanjing Tema)-4
27.FANUC 0i-MD(NanTong Automation,Ltd)-4
28.FANUC 0i-MD(Shen Yang Machine Tool W
29.FANUC 0i-MD(Skybull 850)-4
30.FANUC 0i-MD(DMTG CKD6136i)-4
31.FANUC 0i-MD(Baoji Machine Tool VMC65
32.FANUC 0i-M(Microcut,Buffalo Machine To
33.FANUC 0i-MD(YunNan Machine CY-KXC65
34.FANUC 0i-MD(BEIJING Machine Tool Plan
1 FANUC 0i-M Control Panel-5

(FANUC operator panels)

2.They are of three different 5-axis machine structure types which include head/head, table/table and table/head and one 4-axis machine structure types which include rotate table.

FANUC 0iM/FANUC0iMF/FANUC0iMF Plus(4-Axis&5-Axis)

4-Axis X, Y, Z, A(table)

5-Axis X, Y, Z, A(table) and C(table); X, Y, Z, B(table) and C(table); X, Y, Z, B(head) and C(table); X, Y, Z, B(head) and C(head).

FANUC 18M(4-Axis)

X, Y, Z, A(table).

FANUC 18iM(4-Axis)

X, Y, Z, A(table).

FANUC 21iM(4-Axis)

X, Y, Z, A(table).

HNC 818BM(4-Axis)

X, Y, Z, A(table).

HNC 210BM(5-Axis)

X, Y, Z, A(table) and C(table); X, Y, Z, B(table) and C(table); X, Y, Z, B(head) and C(table); X, Y, Z, B(head) and C(head).

GSK25iM(5-Axis)

X, Y, Z, A(table) and C(table); X, Y, Z, B(table) and C(table); X, Y, Z, B(head) and C(table); X, Y, Z, B(head) and C(head).

SINUMERIK 828D M(5-Axis)

X, Y, Z, A(table) and C(table); X, Y, Z, B(table) and C(table); X, Y, Z, B(head) and C(table); X, Y, Z, B(head) and C(head).

SINUMERIK 840D M(5-Axis)

X, Y, Z, A(table) and C(table); X, Y, Z, B(table) and C(table); X, Y, Z, B(head) and C(table); X, Y, Z, B(head) and C(head).

MITSUBISHI M70 M(5-Axis)

X, Y, Z, A(table) and C(table); X, Y, Z, B(table) and C(table); X, Y, Z, B(head) and C(table); X, Y, Z, B(head) and C(head).

HEIDENHAIN iTNC 530(5-Axis)

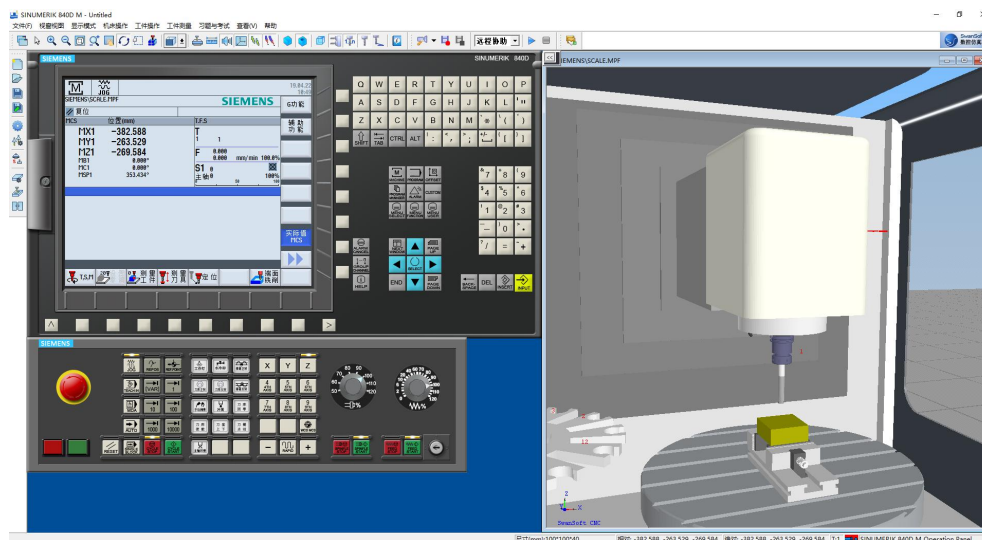
X, Y, Z, A(table) and C(table); X, Y, Z, B(table) and C(table); X, Y, Z, B(head) and C(table); X, Y, Z, B(head) and C(head).

HAAS VM(5-Axis)

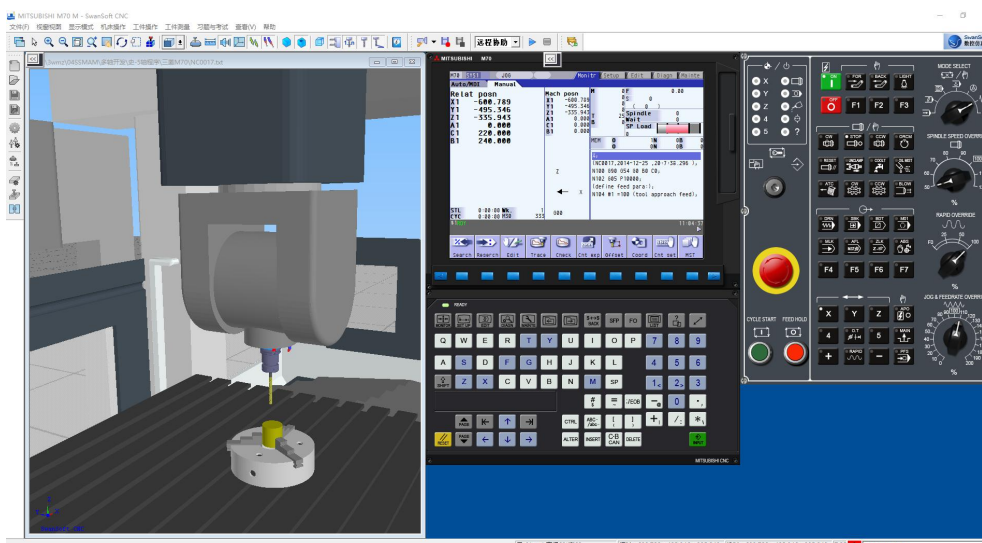
X, Y, Z, A(table) and C(table); X, Y, Z, B(table) and C(table); X, Y, Z, B(head) and C(table); X, Y, Z, B(head) and C(head).

FAGOR 8055 M(5-Axis)

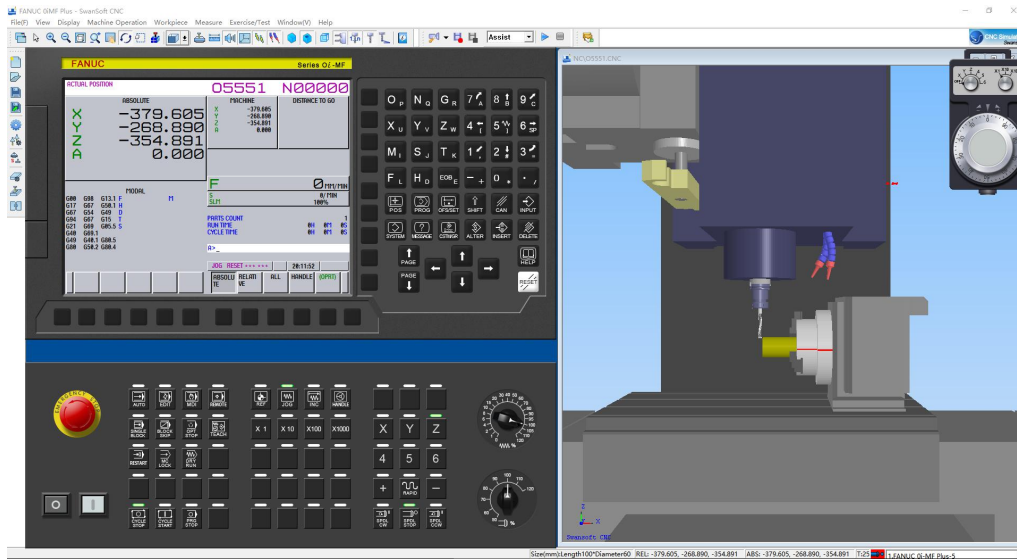
X, Y, Z, A(table) and C(table); X, Y, Z, B(table) and C(table); X, Y, Z, B(head) and C(table); X, Y, Z, B(head) and C(head).



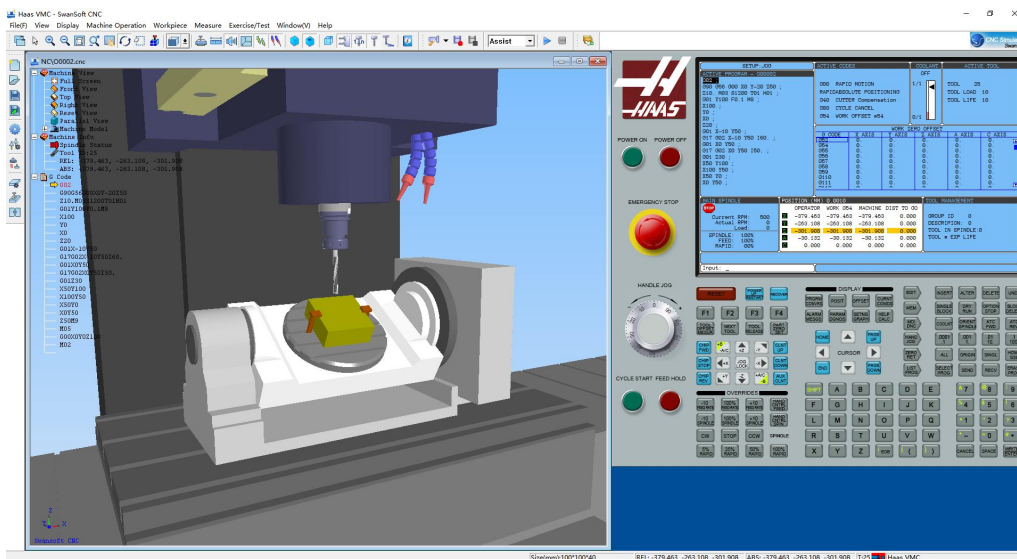
(SINUMERIK CONTROLLER with BC-Axis single swing head and single rotary table)



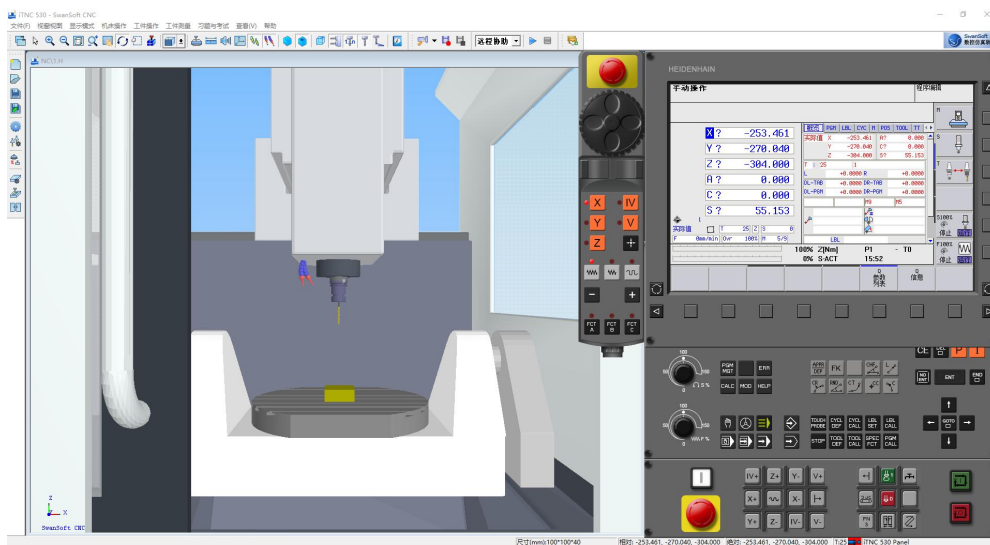
(MITSUBISHI CONTROLLER with BC-Axis two swing heads rotation)



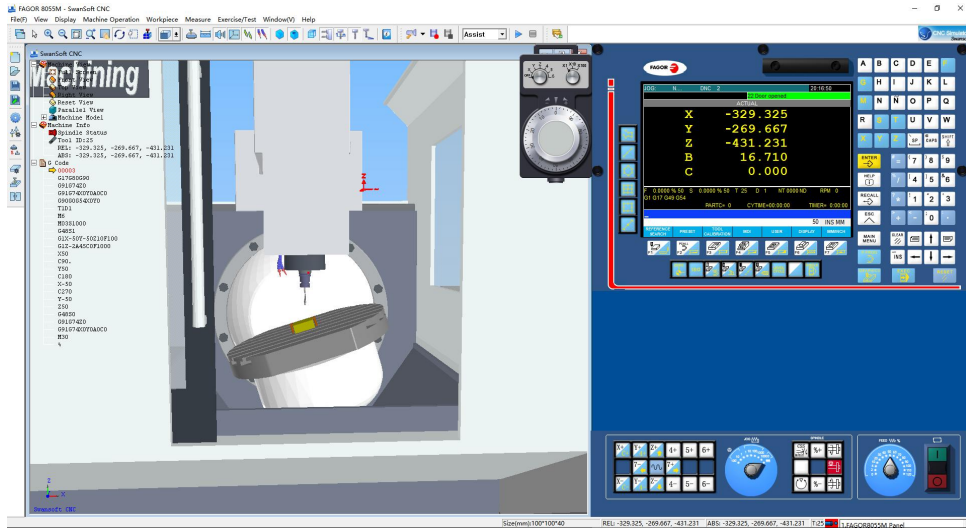
(FANUC OI Plus CONTROLLER with 4-Axis single rotary table)



(HAAS CONTROLLER with 5-Axis AC dual rotary tables)

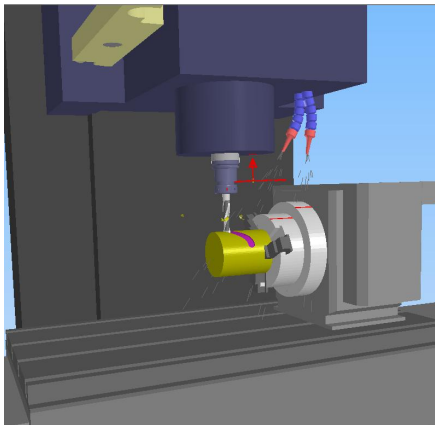


(HEIDENHAIN CONTROLLER with AC cradle structure)

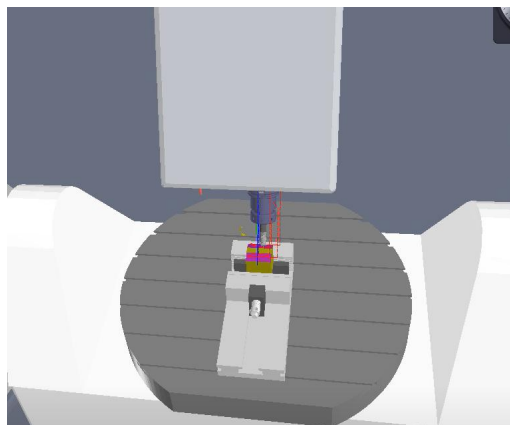


(FAGOR CONTROLLER with BC dual rotary tables structure)

3.The whole machining process of multi-axis CNC machine is covered and one CNC controller supports different operation panels.

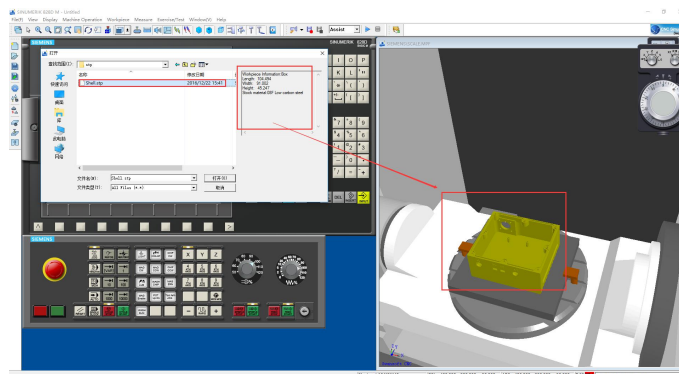


(4-Axis milling)



(5-Axis milling)

4.Hexahedral and cylinder blank are supported and any model imported from CAD software is supported.

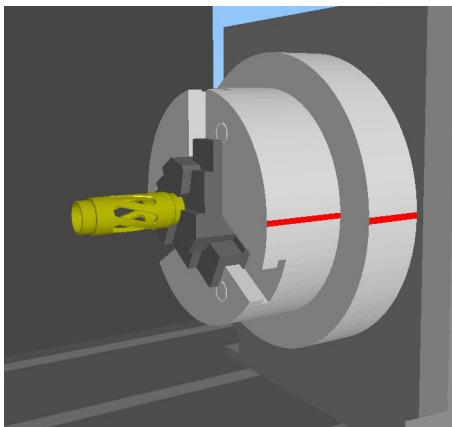


(import step format 3d CAD model)

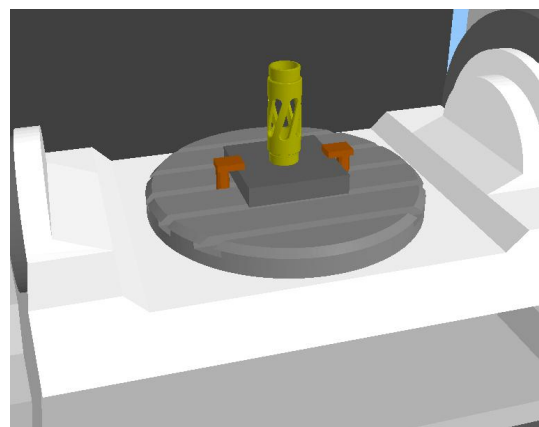
5.It supports ISO-1056 prepare function code(G code), assistant function code(M code) and other instruction. It also can support customized code and CYCLES.

6.CNC Machine supports AUTO, MDI and EDIT mode and set tool compensation and machine coordinate function. The simulator shows the tool-path and machining process realistically and accurately.

7.Turning parts can be imported into Milling center and 4-Axis parts can be imported into 5-Axis CNC machine.

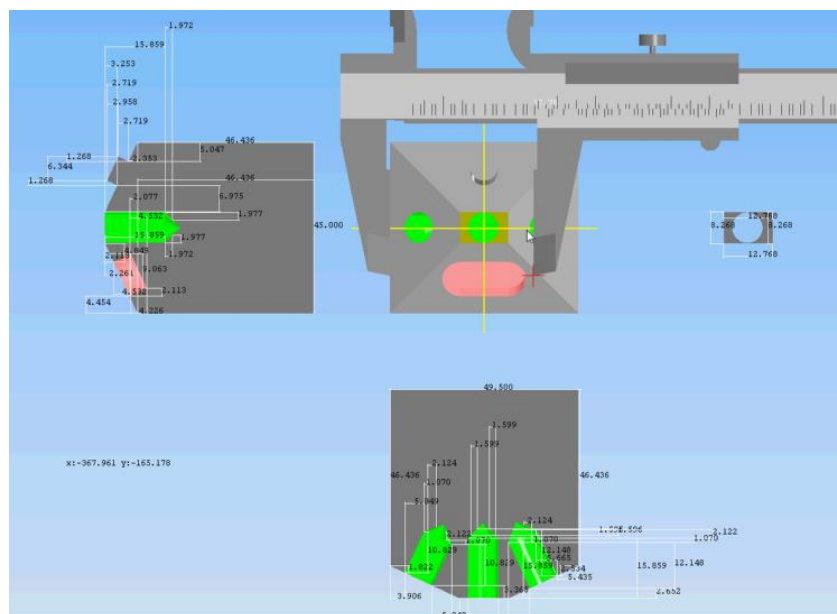


(machining workpiece by 4-Axis machine)



(Import to the 5-Axis machine)

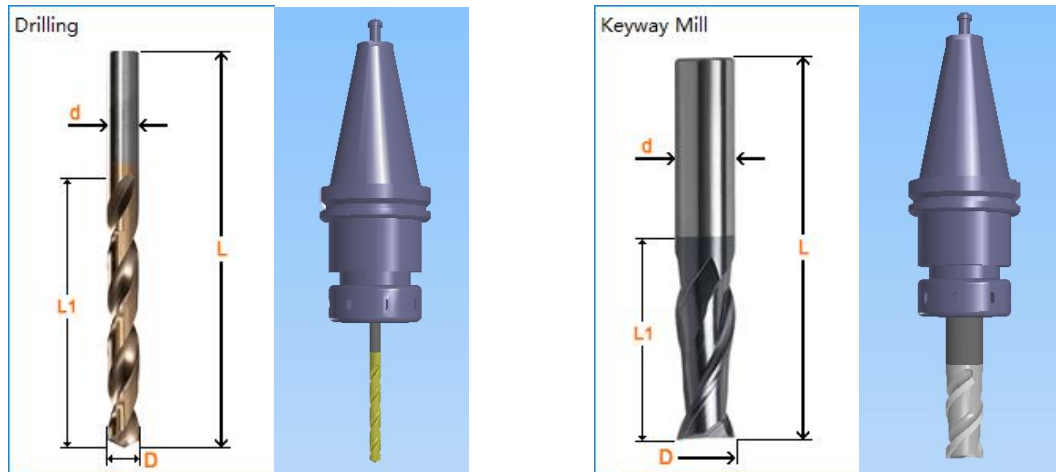
8.The simulator involves commonly used measuring tool such as edge finder, feeler gauge, micrometer and calipers. The workpiece's three-dimensional size can be measured and typical geometric demensions on incline plane also can be measured and get the precision of 0.001mm.



(Measuring workpiece)

9. Vertical and horizontal change tool system automatically switch.

10. Common used milling tools, dilling cutter, flat cutter, corner rounding cutter, ball cutter, boring cutter, dovetail cutter, keyway cutter and chamfer cutter, are preset int the simulator. User can customize cutter size in the tool management.



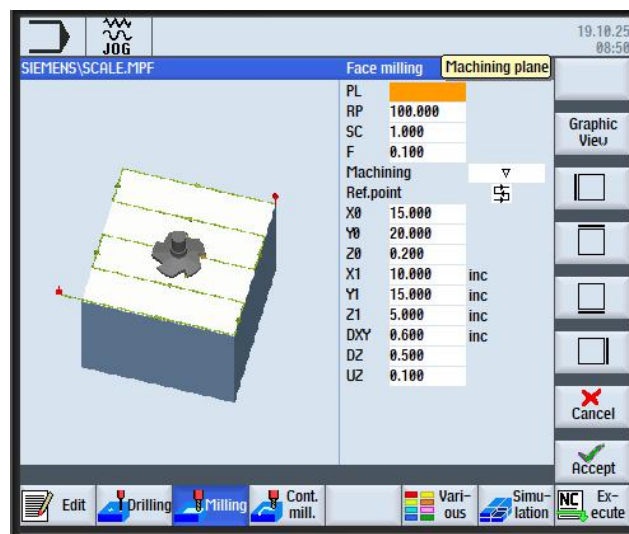
11. Supporting multiple programming methods.

a. SINUMRIK CONTROLLER supports ISO G-Code, Variable programming, tool compensation and all kinds of CYCLE.

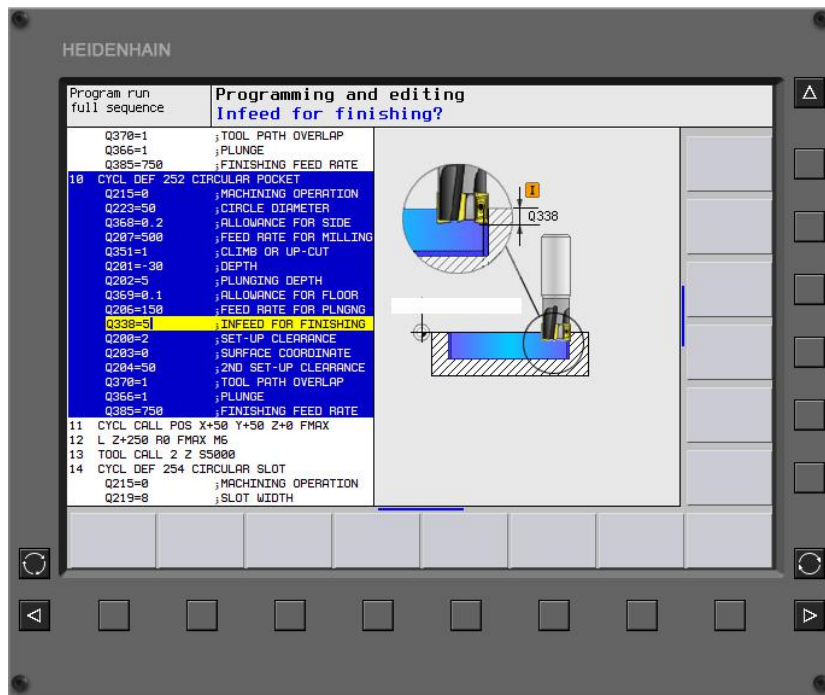
b. MITSUBISHI CONTROLLER supports ISO G-Code and canned cycle.

c. FANUC CONTROLLER supports ISO G-Code, MACRO commands and canned cycle.

d. HEIDENHAIN CONTROLLER supports ISO G-Code, dialog type programming and canned cycle.



(SINUMRIK FACE MILLING CYCLE61)



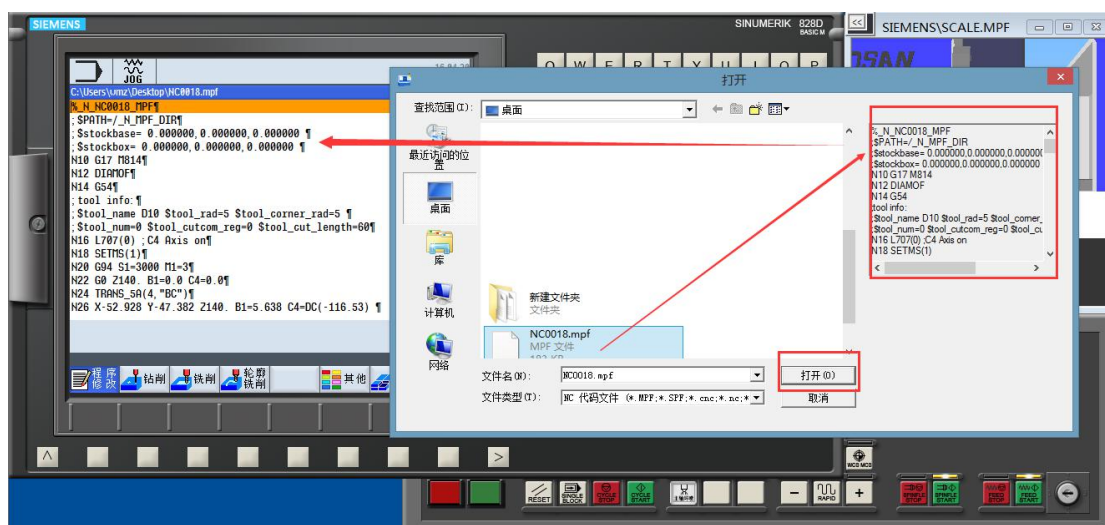
(HEIDENHAIN CONTROLLER support DIALOG type programming - Pocket cycle)

12. Rapidly preset tool and provide high-speed machining simulation function.

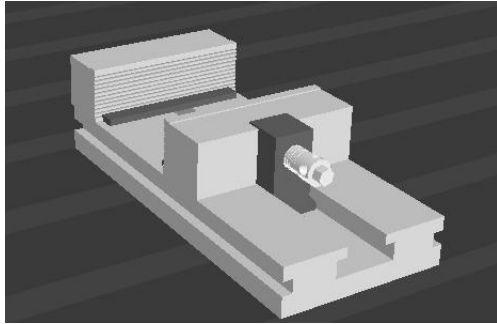
13. Providing visual G code debug Tool.

14. It can emulate 5-Axis machining simulation and different directions planar positioning machining and curved surface machining and incline plane machining. It also realizes that processing at least one milling for just one fixture and processing different surface with repetitious fixture.

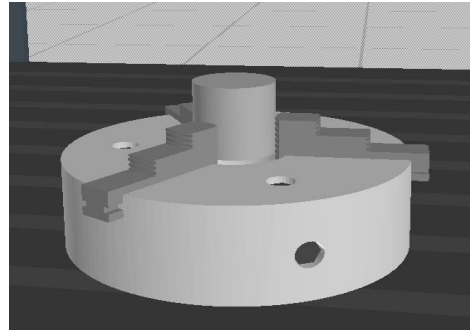
15. Emulating post process file produced by UG, Powermill, Mastercam, etc.



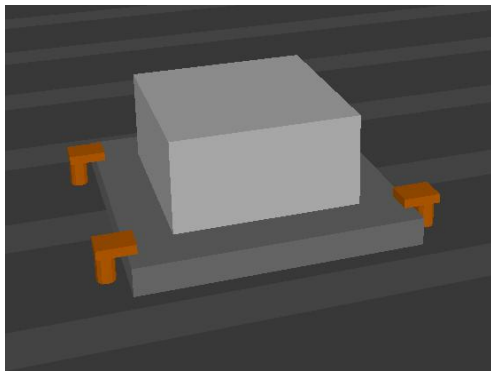
16. Provide various types of fixtures, such as vise, three-jaw chucks, edge clamp, special fixtures, etc.



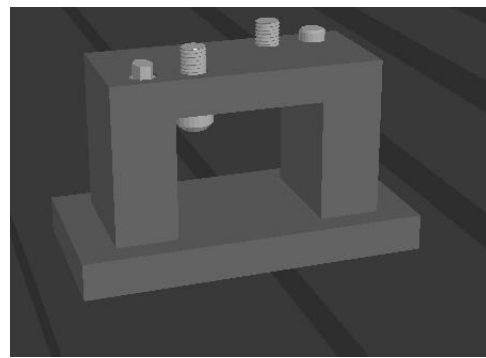
(vise)



(three-jaw chucks)



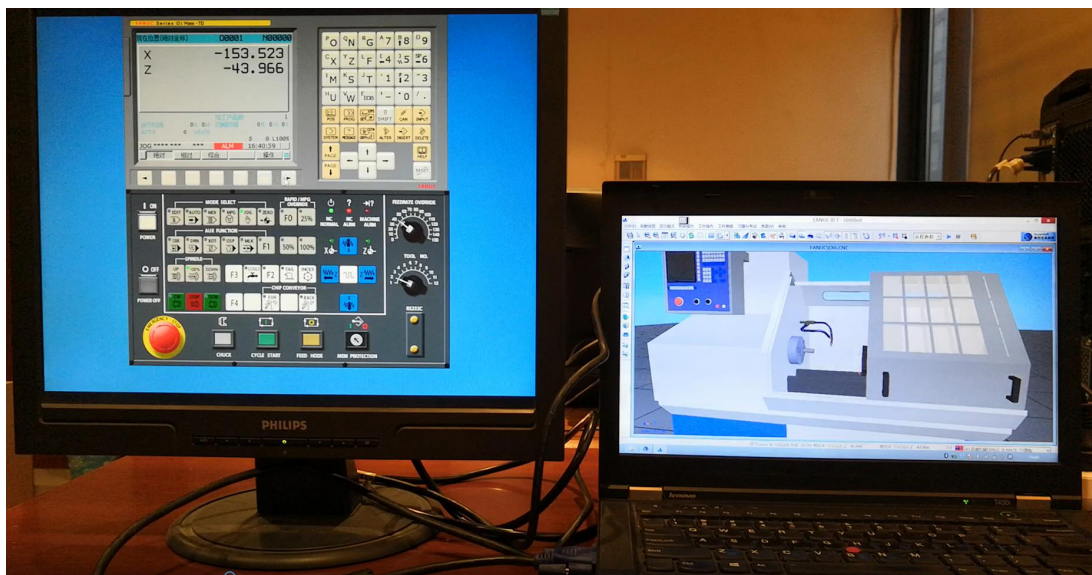
(edge clamp)

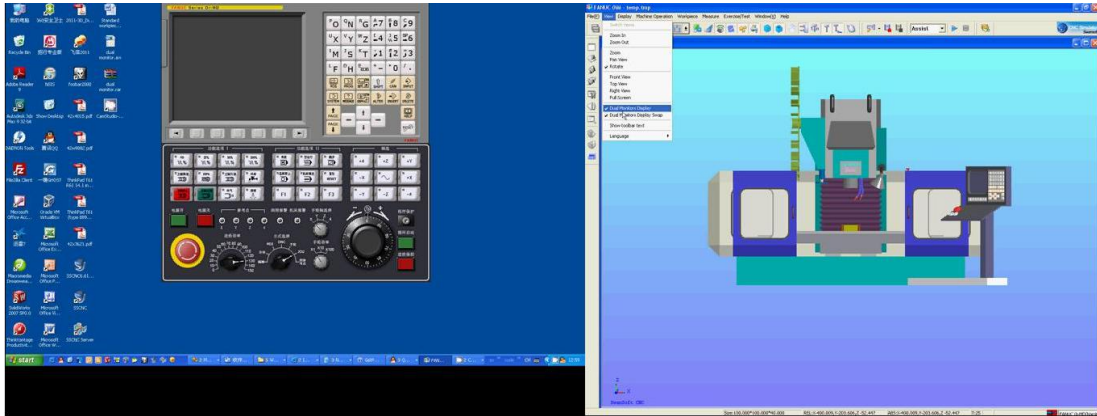


(special fixtures)

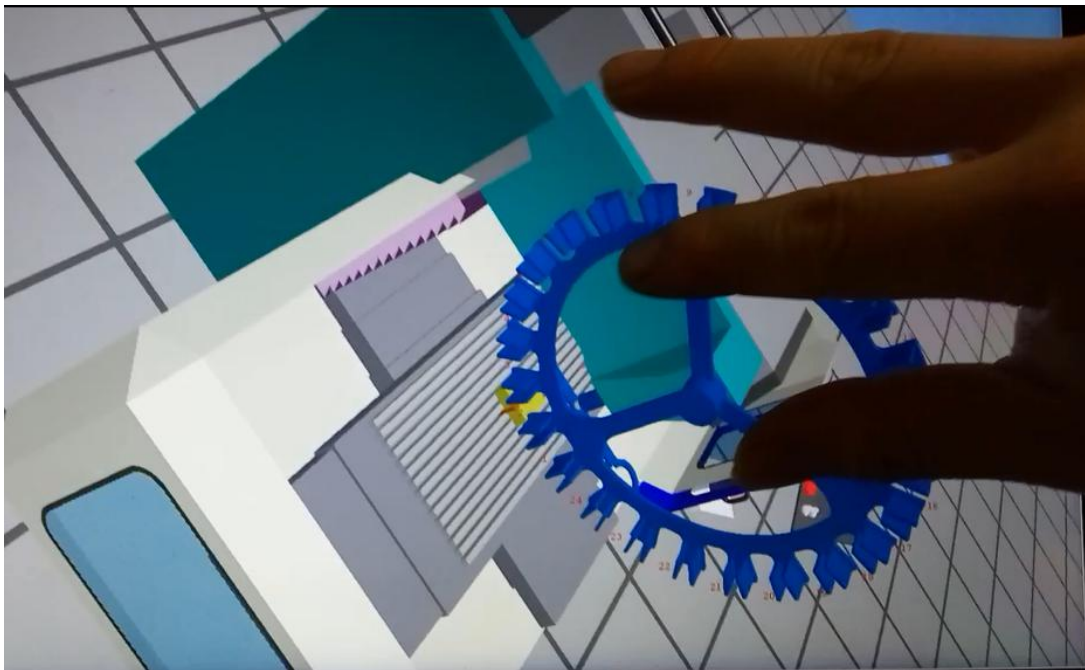
17. Operation process(AVI)recording and replay.

18. Supporting dual screen display and touching screen operation.



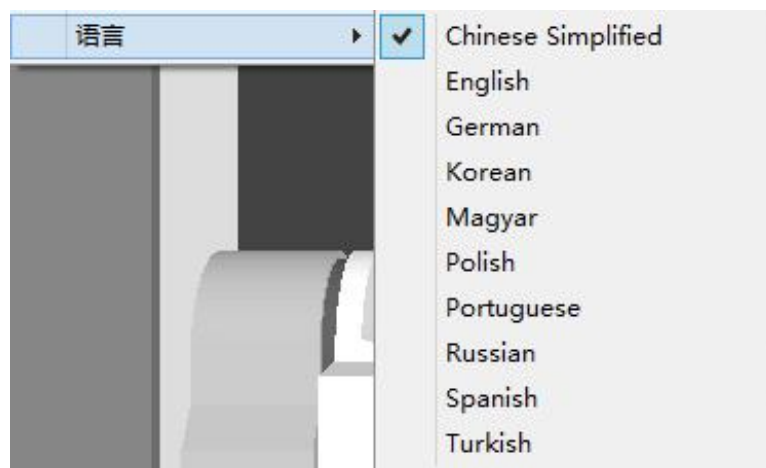


(dual screen display)



(touch screen operation- three fingers)

19. Multiple language real time switching.



20.Machining with coolant, sound and iron fragment effect.

21.Automatic update online.

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