CAPSmill

Cycle time reduction and programming software

What you can do with CAPSmill

• Reduce machining cycle time

• Reduce programming time

• Reduce first part rejection

• Reduce dependence on skilled CNC programmers

• Reduce time taken to respond to job quotations

• Reduce risk of over or underestimating cycle times

Unique features of CAPSmill

Reduce cycle time

Cycle time sheet

Machine name	Fanuc 0iM
Part number	05
Part name	Sample-mm-05
Date	07 May 2008

Work piece material	Steels, free-cutting, TS 400-700 N/mm2
Fixture	
Programmer	CADEM
Set up number	1

| Sl. no.	Operation	Tool	Tool no.	Cutting speed		Feed rate		Cut length	Cutting time	TC time	Rapid time	Total time
				m/min	RPM	mm/m	mm/r	mm	min	min	min	min
1	Face mill	100.00 mm. dia. Face mill	4	220.0	700	686.28	0.98	727.0	1.06	.15	.07	1.28
2	Face mill	100.00 mm. dia. Face mill	4	220.0	700	686.28	0.98	966.5	1.58	.00	.05	1.63
3	Side slot mill Rough & finish	4.50 mm. dia. T-slot mill	5	40.0	159	190.99	1.20	654.9	3.43	.15	.07	3.65
4	Center drilling	3.15 mm. dia. Center drill	6	35.0	3536	530.52	0.15	4.9	.01	.15	.06	.22
5	Center drilling	3.15 mm. dia. Center drill	6	35.0	3536	530.52	0.15	39.6	.07	.00	.13	.21
6	Drill	5.00 mm. dia. Twist drill	7	50.0	3183	190.99	0.06	22.5	.12	.15	.06	.33
7	Drill	5.00 mm. dia. Twist drill	7	50.0	3183	190.99	0.06	100.0	.52	.00	.14	.66
8	Countersink	3.20-16.00 mm. Countersink	9	60.0	1193	143.24	0.12	4.4	.03	.15	.06	.24
9	Countersink	3.20-16.00 mm. Countersink	9	60.0	1193	143.24	0.12	35.1	.26	.00	.13	.38
10	Tap	M6.00 x 1.00 Tap	8	7.0	371	371.36	1.00	40.0	.12	.15	.05	.33
11	Tap	M6.00 x 1.00 Tap	8	7.0	371	371.36	1.00	320.0	1.00	.00	.11	1.11

- Auto FS selection eliminates a big cause of high cycle times – poor cutting parameters selection.
- Unique and efficient tool paths in operations with reduce cutting and air cut times.
- Cycle time calculation is extremely accurate, with less than 1 % error. Enables you to try out many process options in minutes, decide on the one with least cycle time.
- Automatic tool gouge prevention ensures that a tool removes only whatever material it can, and does not gouge into the part. You can use roughing tools to the maximum, with higher cutting feeds and depths of cut.
- Spindle power graphshows you the power used in each operation. Enables you to use the spindle to the maximum, without overloading it.
- Automatic shortest path selection reduces air cut time during tool approach to and departures from operations.

Reduce part rejections
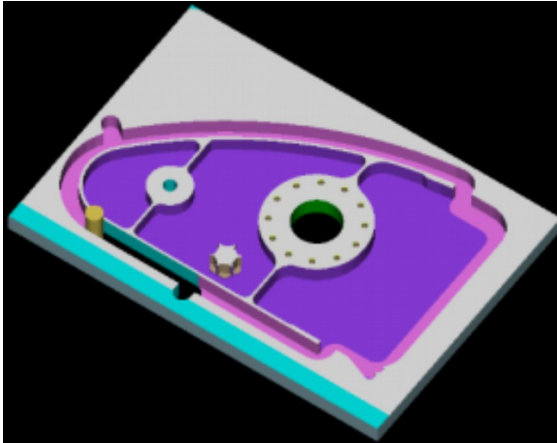
- Automatic tool gouge prevention ensures that a tool does not gouge into the part even if its geometry does not allow it to enter a particular contour.
- Tool path simulation is highly effective, shows any possible problems, eliminates rejections and accidents .

Reduce machine downtime
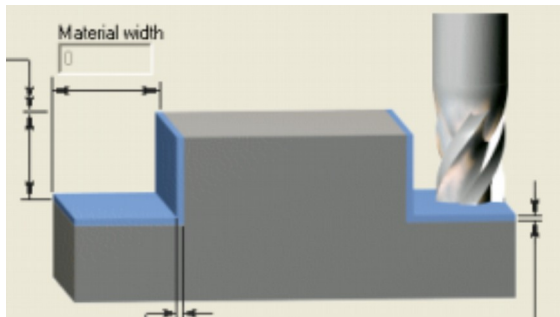
- Automatic safe tool path and gouge prevention eliminate the need for single-block check and dry run at the machine.
- NC programs are generated first-time right, do not require any editing at the machine.
- Inbuilt DNC transfers the NC program to the machine in seconds, cuts time for program entry at the machine.

Eliminate accidents and rejections
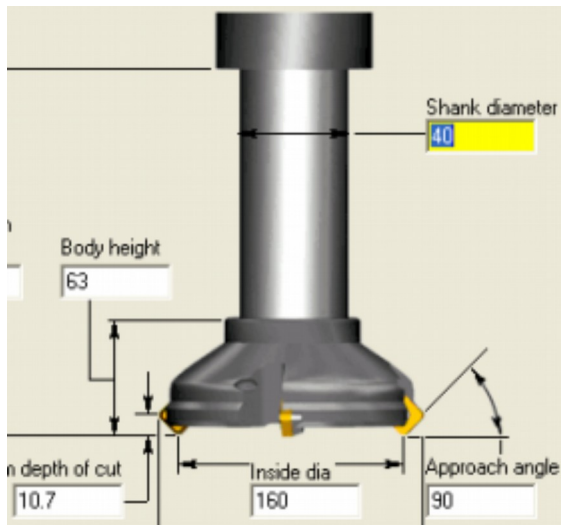
- Manual errors caused by misunderstanding programs is eliminated, and hence the resultant accidents and rejections. NC programs are automatically documented, with details like part number, operation names and tool numbers inserted as comments. No program reading skill is required to understand what each section of the program does.
- Advanced tool nose radius compensationensures quality even for very complex geometries, with no rejections caused by contour inaccuracies.
- Automatic safe path logic eliminates collisions during tool approach to and departure from the part.

## Efficient programs, interchangeable between machines

```
%
O1234
PART: PLATE-LH
PART NUM: 11635
PROGRAMMER: NK SINGH
DATE: 16-5-2015
N1 T4 (100.00 MM. DIA. FACE MILL)
M98 P9999
T5
( FACE MILL )
S700 M3
G90 G00 G54 X84.639 Y128.935 M8
G43 H4 Z100.
Z6.
G01 Z1. F480
M98 P00010055
G90 G00 X144.639 Y188.935
Z2.
```

- Compact programs with canned cycles and subprograms output for repetitive operations.
- Support for all popular CNC controls – Fanuc, Sinumerik, Haas, Fagor, etc.
- Generic postprocessor allows you to configure NC programs to the format that you are comfortable with.
- Interchangeability in seconds. If a part planned for a particular machine has to be loaded on another one at the last minute, the program for the new machine can be generated in seconds.

Reduce skill level of programmers
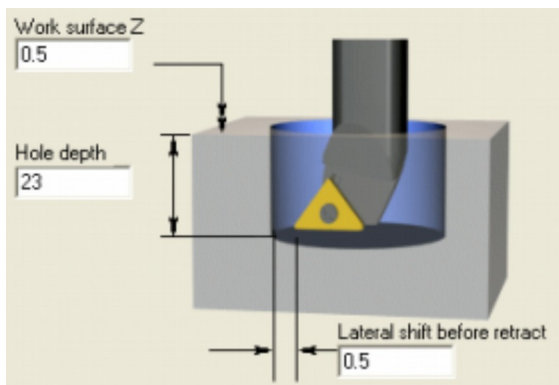
- No CNC programming knowledge needed. Machine operator can do the programming.
- Training time is less than 4 hours.
- Automatic cutting parameters selection eliminates knowledge required to select parameters.
- Tool selection guidance and default selection from extensive tools database reduce requirement of tooling knowledge.
- Automatic tool gouge prevention ensures that tool does not gouge into the part even if a wrong tool is selected.

Reduce programming time
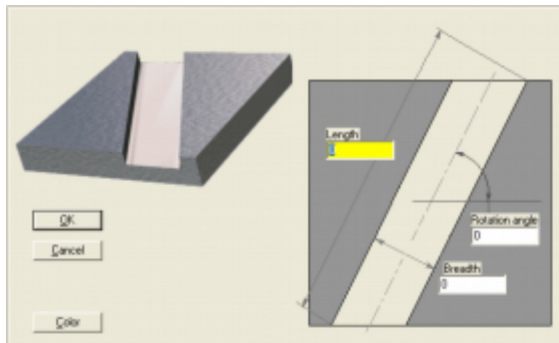
- Automatic raw material updation, tool selection guidance and conversational screens reduce programming time dramatically.
- Advanced CAD with special part-definition features reduces the time to define the part and blank.
- Part and blank shapes can be imported from external CAD drawings, as DXF or IGES files.

Improve systems, reduce dependence on people
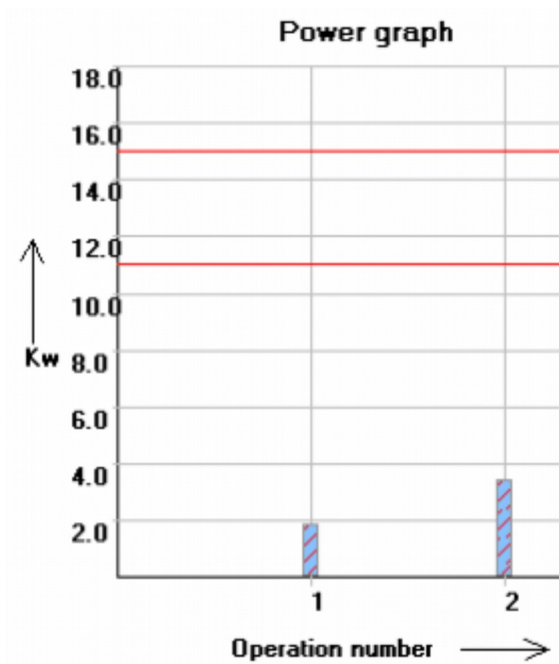
- Automatic shop floor documentation generates printable documents – cycle time and process sheet, tools list, tool layout sheet. Eliminates errors in information flow to shop floor.
- Respond fast to customer enquiries, with accurate quotes that you are confident about.