

Thread Shape Definition File creating software









# **Cam Thread**

**Ver.2.0**

**User's Manual**

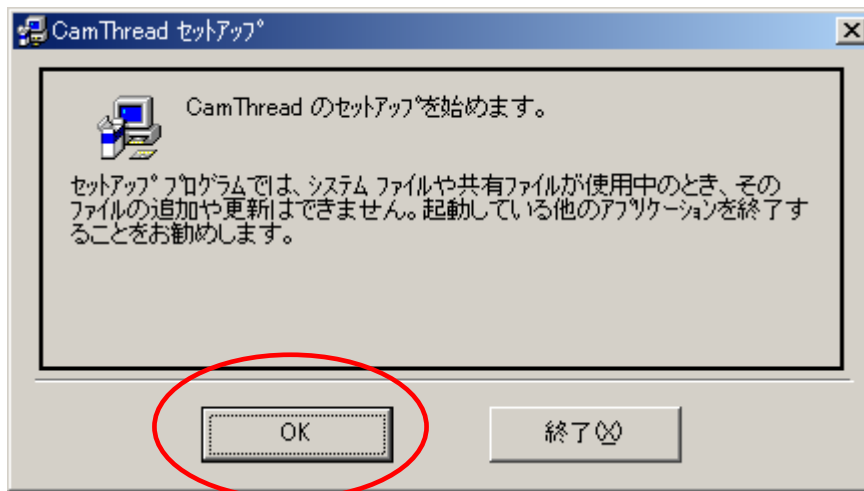
**Jan. 2004 S.Fukazaki**

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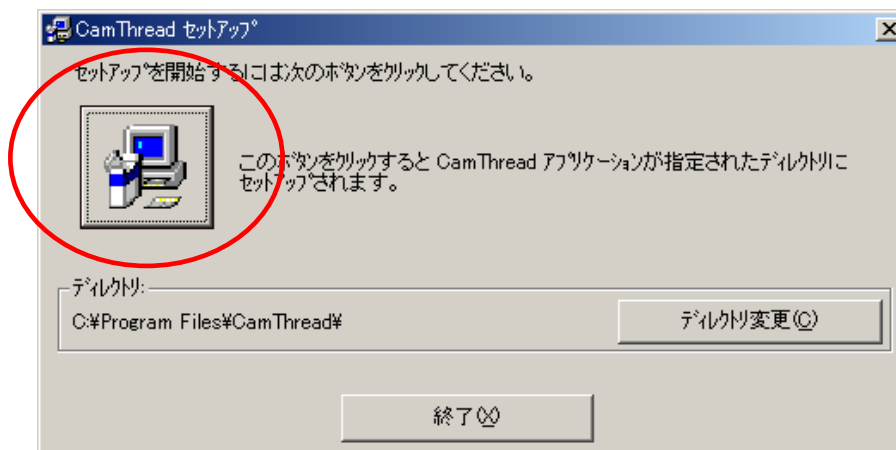
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## 1. Cam Thread Installation Procedure

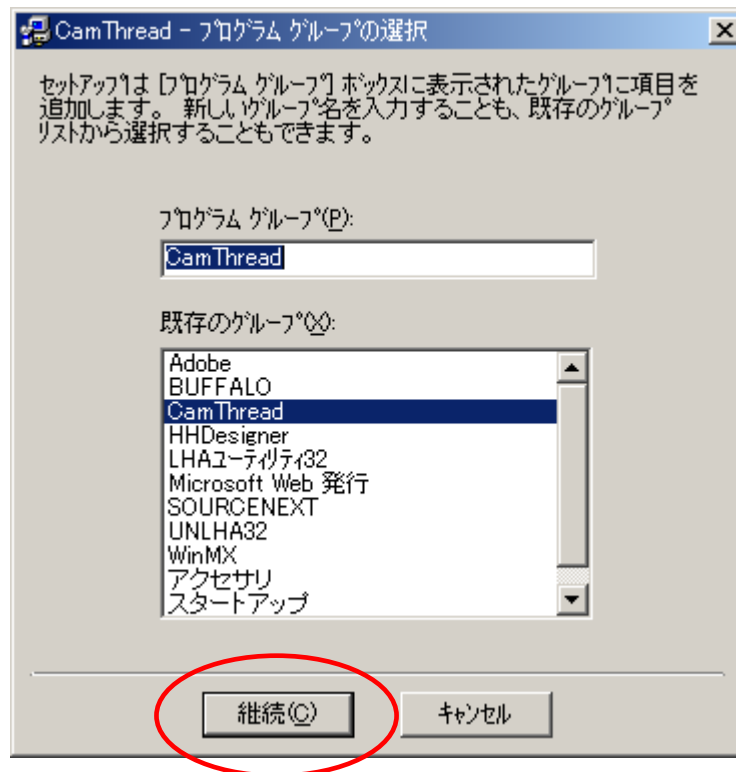
1. Insert the Cam Thread CD to CD-ROM drive.
2. Double click “My Computer” on the desktop, and double-click [CD-ROM], then the message of CD-RPM appears. Execute a file called Setup.exe.
3. Once the Setup screen is displayed, install Cam Thread by following the screen instruction.



Click [OK].



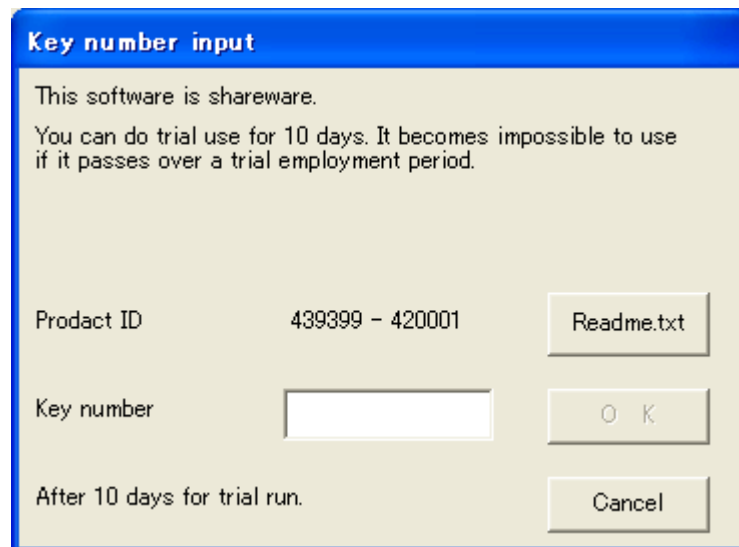
Click [Setup] icon.



This is the end of installation.

## 2. Cam Thread Startup

1. Click [Program (P)] → [CamThread] → [CamThread] from Windows [Start] menu to start. (Shortcut on the desktop may be convenient)
2. First, the “Key number input” screen will be displayed.







3. If purchasing, please inform us of the Product ID number.
4. Click [Cancel] for 10 days trial run.
5. This screen will not be displayed after purchasing.

## 3. Cam Thread Finish


1. Finish by [File(F)] → [CamThread Exit(X)] from menu.

Or click  [Exit] icon to finish.

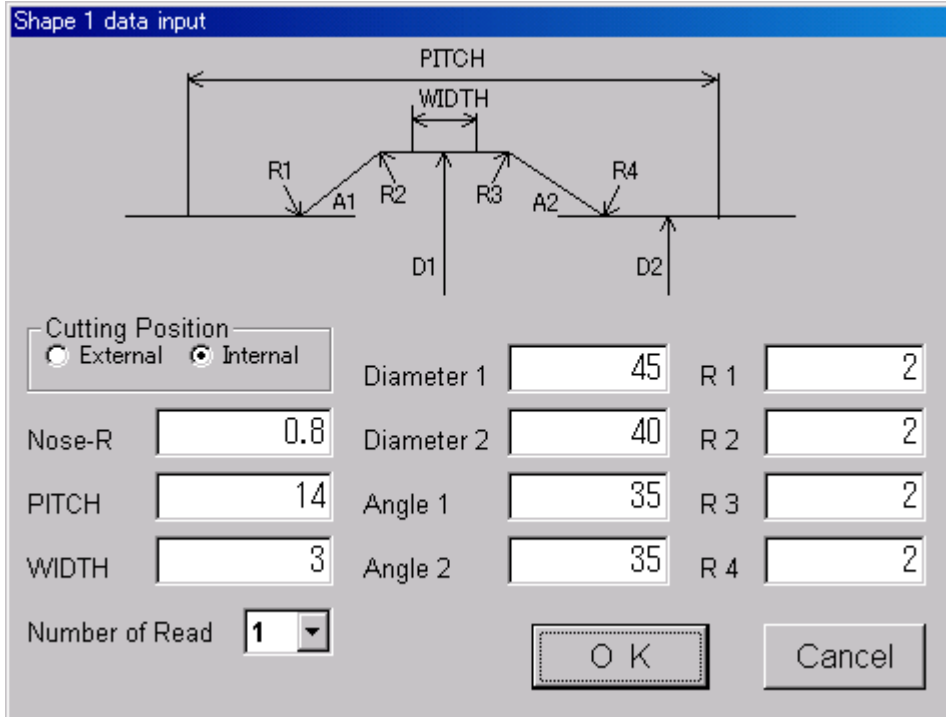
## 4. Operation Procedure

- 1 . Select the closest thread shape among  and input data.
- 2 . Check 1 face shape in graphic.
- 3 . Make face copy of required machining length by  [Face Copy].
- 4 . Check the shape of longitudinal direction in graphic.
- 5 . Save the multiple face data file (CAF) in Mode B by  [Mode-B Caf File Save].
- 6 . Startup  [PC-APT-CAM].
- 7 . Read in CAF file created from CamThread and create machining data file (COF).
- 8 . Transfer COF file to machine by network or floppy.
- 9 . Use the leaning function by Cam lathe and save the compensation file (CMF).
- 1 0 . Perform actual machining by Cam lathe.
- 1 1 . Measure the shape by measuring unit.
- 1 2 . In case the shape can not be measured as a designed value because of tool deflection or machine rigidity, change the first input data little by little, repeat the above procedure.

### Memo :

- For TM-APT-CAML, make a copy to floppy, convert from MS-DOS format to OSP format by TM-APT, and read in.
- Able to save 1 face file in  mode A and perform a face copy by PC-APT-CAM.

## 5. Shape 1 Data Input



The dialog box 'Shape 1 data input' contains a diagram of a thread profile with labels: PITCH, WIDTH, R1, A1, R2, R3, A2, R4, D1, and D2. Below the diagram are the following input fields:

Cutting Position <input type="radio"/> External <input checked="" type="radio"/> Internal		Diameter 1	<input type="text" value="45"/>	R 1	<input type="text" value="2"/>
Nose-R	<input type="text" value="0.8"/>	Diameter 2	<input type="text" value="40"/>	R 2	<input type="text" value="2"/>
PITCH	<input type="text" value="14"/>	Angle 1	<input type="text" value="35"/>	R 3	<input type="text" value="2"/>
WIDTH	<input type="text" value="3"/>	Angle 2	<input type="text" value="35"/>	R 4	<input type="text" value="2"/>
Number of Read	<input type="text" value="1"/>				

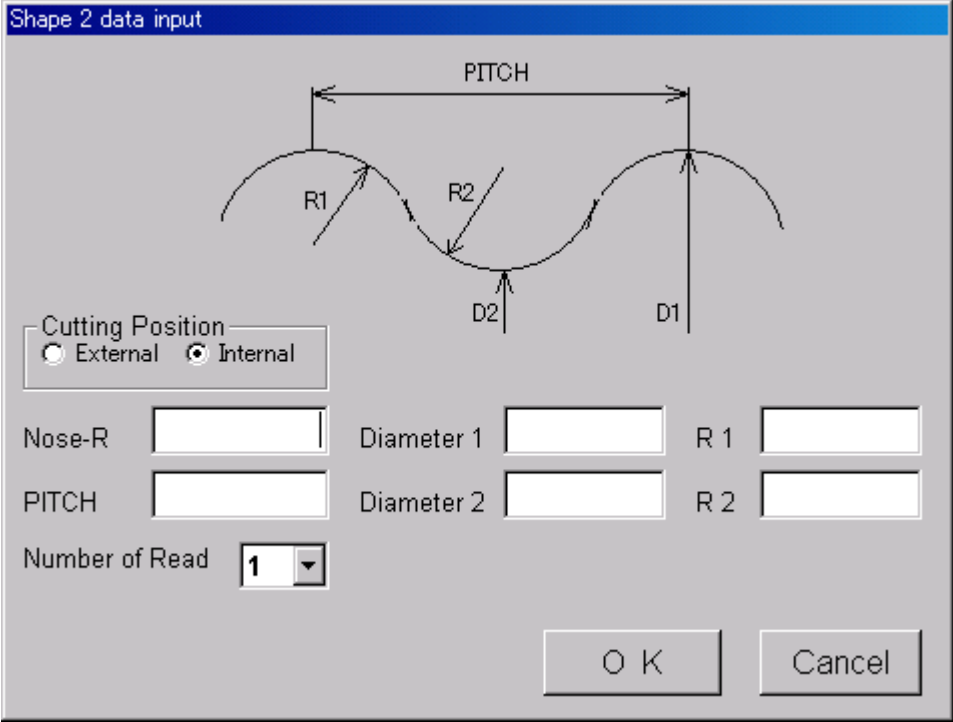
Buttons: OK, Cancel

- ① Input each data.
- ② For OD machining, input the thread wave part for WIDTH.
- ③ In case unable to perform calculation, a data error occurs.



- ④ In case a data error occurs even if the drawing indicates it is correct, change the angle or R-value slightly.
- ⑤ Designate multiple thread for [Number of Read].

## 6. Shape 2 Data Input



The dialog box titled "Shape 2 data input" contains a diagram of a wave profile with labels: PITCH (distance between peaks), R1 (nose radius), R2 (bottom radius), D1 (peak diameter), and D2 (bottom diameter). Below the diagram are input fields for "Nose-R", "Diameter 1", "R 1", "PITCH", "Diameter 2", "R 2", and a "Number of Read" dropdown menu set to "1". A "Cutting Position" section has radio buttons for "External" and "Internal", with "Internal" selected. "OK" and "Cancel" buttons are at the bottom right.

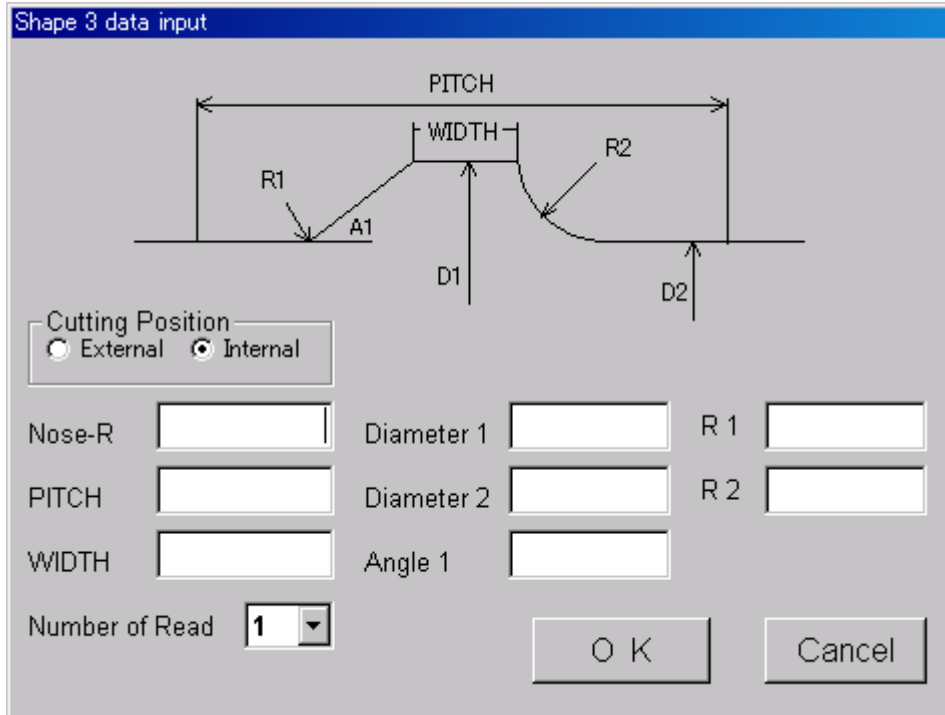
- ① Input each data.
- ② In case unable to perform calculation, a data error occurs.



- ③ In case a data error occurs even if the drawing indicates it is correct, change R-value slightly.
- ④ Designate multiple thread for [Number of Read].



## 7. Shape 3 Data Input



The dialog box titled "Shape 3 data input" contains a technical drawing of a thread profile and several input fields. The drawing shows a thread with a flat top of width "WIDTH", a pitch "PITCH", and diameters "D1" and "D2". It also indicates radii "R1" and "R2", and an angle "A1".

Below the drawing, there is a "Cutting Position" section with two radio buttons: "External" (unselected) and "Internal" (selected). The input fields are arranged as follows:

Nose-R	<input type="text"/>	Diameter 1	<input type="text"/>	R 1	<input type="text"/>
PITCH	<input type="text"/>	Diameter 2	<input type="text"/>	R 2	<input type="text"/>
WIDTH	<input type="text"/>	Angle 1	<input type="text"/>		

At the bottom left, there is a "Number of Read" dropdown menu set to "1". At the bottom right, there are "OK" and "Cancel" buttons.

- ① This shape is mainly for OD machining.
- ② WIDTH section needs to be machined straight in advance.
- ③ Connect A1 by arc R2.
- ④ In case unable to perform calculation, a data error occurs.



- ⑤ In case a data error occurs even if the drawing indicates it is correct, change R-value slightly.

## 8. Face Copy

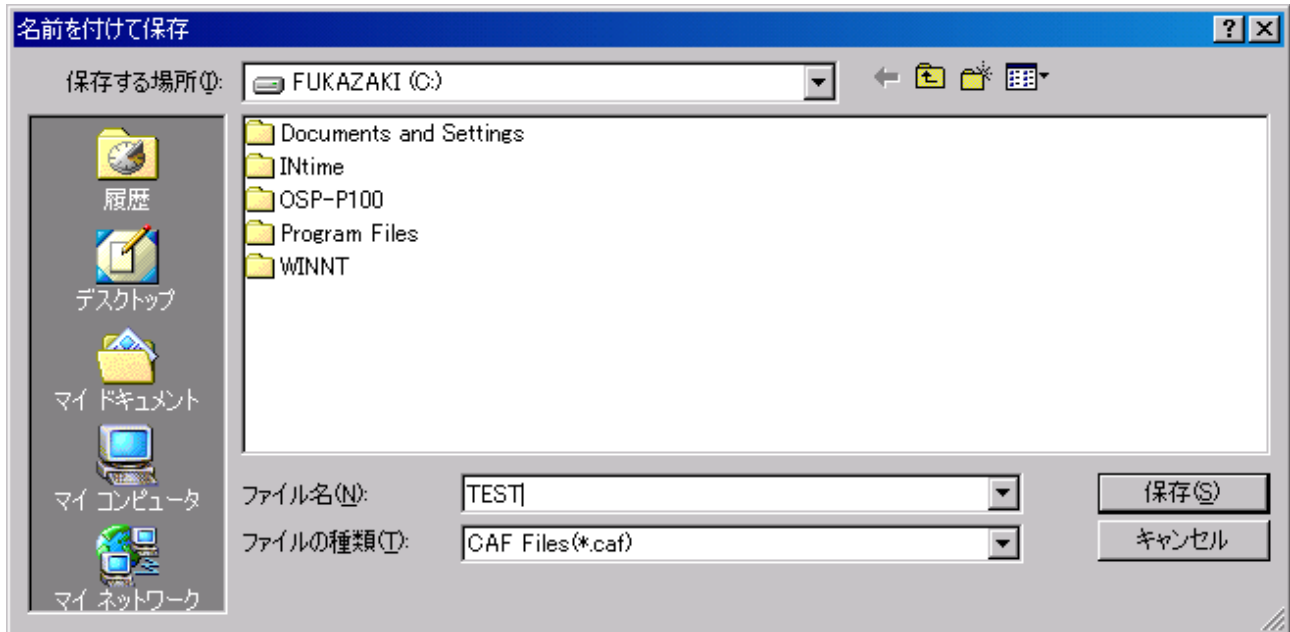


**Face Copy**

<p>Max. number of face</p> <p><input type="radio"/> 96   <input type="radio"/> 192   <input checked="" type="radio"/> 384</p> <p>Thread direction</p> <p><input type="radio"/> Left hand   <input checked="" type="radio"/> Right hand</p> <p>Repeat function</p> <p><input type="radio"/> ON   <input checked="" type="radio"/> OFF</p>	<p>Copy Condition</p> <p>Z-axis pitch <input type="text" value="0.1944"/></p> <p>Shift angle <input type="text" value="5"/></p> <p>Copy number <input type="text" value="360"/></p> <p>Thread Pitch <input type="text" value="14"/></p> <p>Cutting length <input type="text" value="70"/></p> <p><input type="button" value="OK"/>   <input type="button" value="Cancel"/></p>
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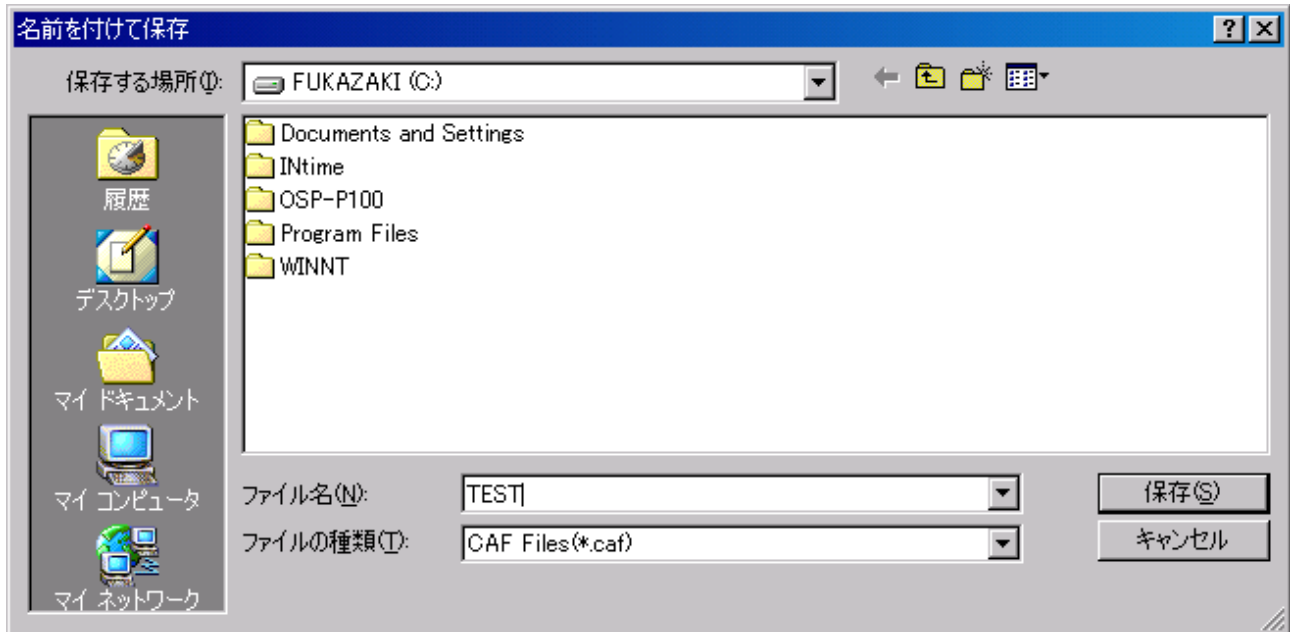
- ① [Max. number of face] Max. number of face is 384 for PC-APT-CAM. 96 faces for initial TM-APT-CAML and 192 faces for the later TM-APT-CAML. The more the number of faces are, the more smooth the shape gets.
- ② [Thread direction] Designate either Right hand or Left hand of thread.
- ③ [Repeat function] This is a function that creates a date for only 1 pitch and uses the data repeatedly by the Repeat function in machine. Since many faces can be designated, the shape is accurate and the number of files can be minimal. Also, the learning time can be shortened. There is no restriction for machining length. However, sometimes the connecting part of data stands out and then the feedrate will be restricted.
- ④ [Z-axis pitch] The shift amount of longitudinal direction when performing the face copy.
- ⑤ [Shift angle] The shift amount of rotation direction when performing the face copy.
- ⑥ [Copy number] The number of face copy.
- ⑦ [Thread pitch] The value that was input in the Shape data screen for thread pitch.
- ⑧ [Cutting length] Machining length. This will be the same as PITCH when the Repeat function is ON.

## 9. Mode A CAF File Save



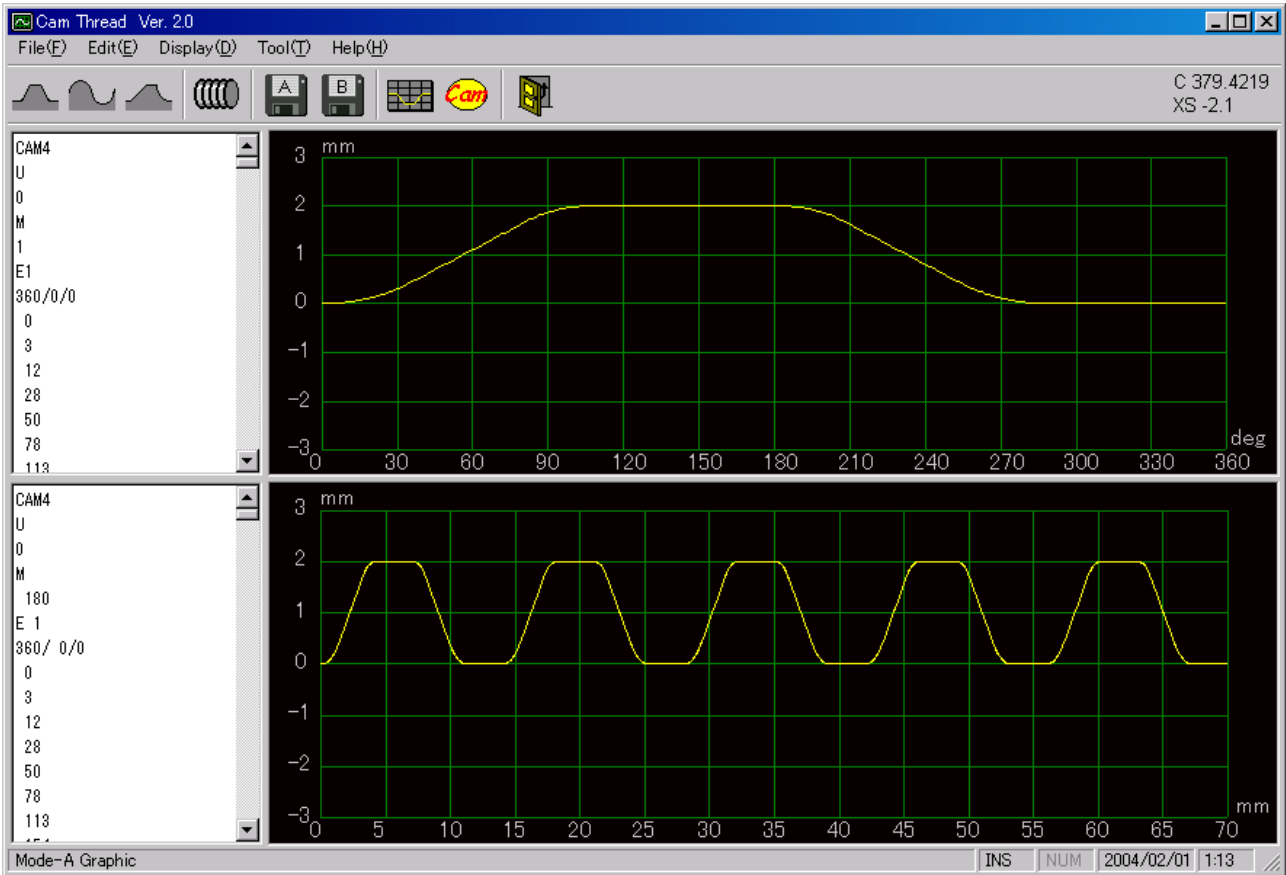
- Save the shape definition file for only 1 face
- Input file name for CAF file
- This file will be read automatically when starting up PC-APT-CAM

## 10. Mode B CAF File Save




- Save the shape definition file of multiple faces
- Input the file name for CAF file
- This file will be read automatically when starting up PC-APT-CAM

## 11. Graph Redraw



- Normally, a graph is displayed automatically. Use this in case the graph is not displayed correctly by the save operation of file or switching screen.

## 12. PC-APT-CAM Startup

- ① By pressing  [PC-APT-CAM], the following screen will be displayed for 3 seconds and start up.



- ② When PC-APT-CAM cannot be found, the following message will appear.



- ③ Click [Yes] and designate a folder.
- ④ The CAF file being saved right before PC-APT-CAM startup will be read automatically. If CAF file was not saved, it will return to the opening screen for the shape definition file.
- ⑤ Refer to the instruction manual "PC-APT-CAM" for operation method for PC-APT-CAM.