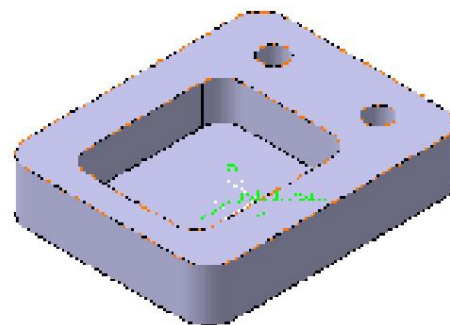


## TP1

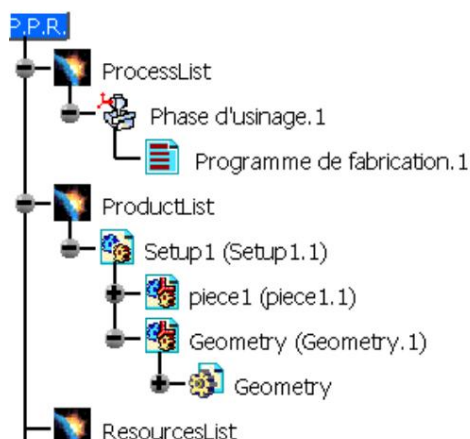
Support: Plate 1

Objectives: generate an iso NC program from a simple part procedure:



- open the file: CAM1 -

save it, using the records management function, under the name: PLAQUE1 in your directory - open the CAM workshop by clicking on Start>Manufacturing by NC> Machining 2, 5 axes (prismatic machining) the following construction tree appears:



## Creating a Bet in Your Pocket Operation

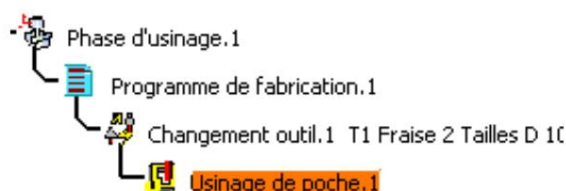
click on Insert>Machining operations>Pocket machining or on the pocket machining icon



then

click on manufacturing program.1 in the tree.

A pocket machining entity.1 with a default tool (T1 cutter 2 sizes D10) is added to the program.



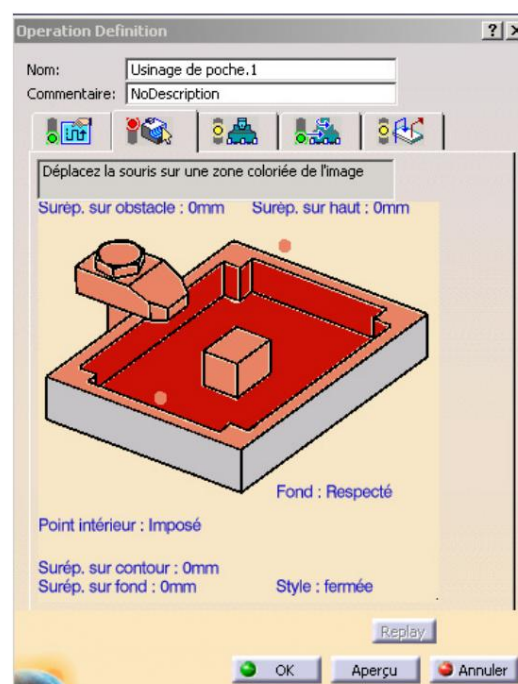
the following menu appears

- Click on the Red background area in the dialog box.

The dialog is minimized allowing you to choose the corresponding part of geometry.

Choose the bottom of the pocket.

The dialog box reappears.



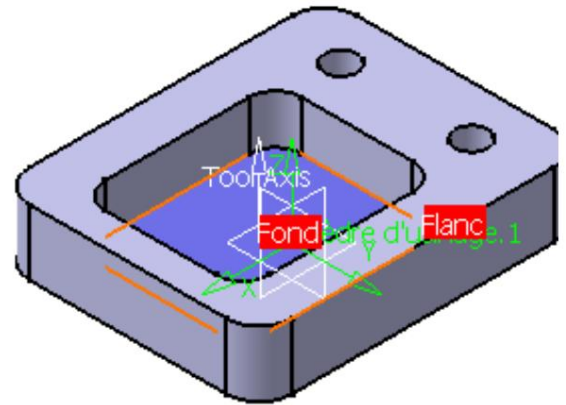
The bottom and sides of the pocket in the icon are now colored green, indicating that the corresponding geometry is set for the operation. Tag status is now green



- Click on the orange top sector in the dialog box.


Click on the top of the pocket.

- Click replay to simulate the operation.



The animation dialog box appears.

Click on the button  to place the tool at starting point of the operation.

Click on the button  to begin animation




Click OK to exit Animation mode.

Click OK to exit the operation

### Creating a Contour Operation

- Choose pocket machining operation.1 in tree

- Click on the contouring icon .

dialog box appears

- Click on the text: **Background respected** in the sensitive icon to switch the type of background to be **crossed**.

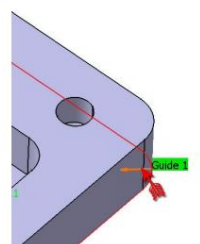
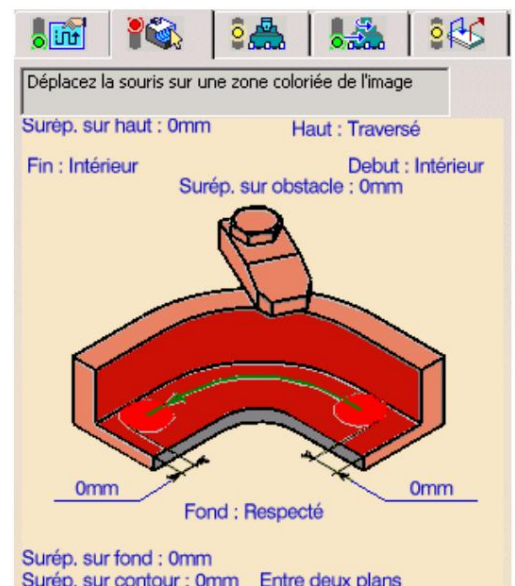
- Click on the red rectangle then on the selected Background (ie the bottom of the part).

The outer closed contour of the bottom is proposed as the Guide element for the operation.

If necessary,

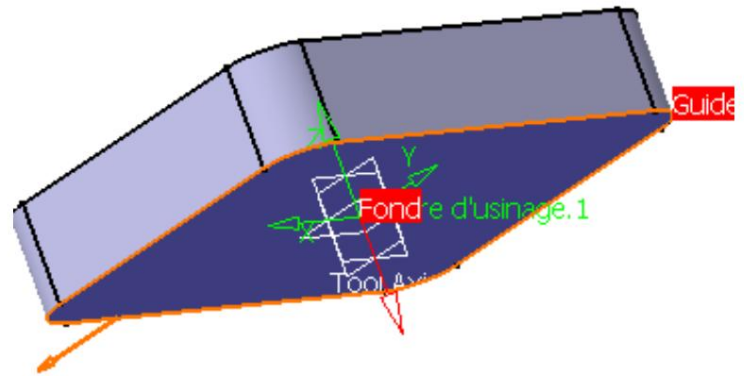
for the machining side


- click on the orange arrow (of the guide curve) to indicate the position of the tool in relation to the trajectory.



- for the orientation of the tool axis (the tool axis must be directed upwards),
- if necessary: double click on **tool axis** on the 3D part then click on the Inversion Direction button.
- click OK

Click on the pink Top face in the icon,  
then choose the top face of the part  
machining strategy



- click on the icon  the following menu appears:
- adjust the parameters as in the window.

password:

Séquençement: Radiale d'abord ?

Prise de passe radiale (Dr)

Distance entre passes: 1mm ? Nombre de passes: 1 ?

Chevauchement pour zones de reprise: 50

Prise de passe axiale (Da)

Mode: Nombre de niveaux ?

Profondeur de coupe maxi: 4mm ? Nombre de niveaux: 5

Angle de dépouille automatique: 0deg ?

Percée: 0mm ?

Stratégie | Prise de passe | Finition

Sens d'usinage: En opposition ?

Tolérance d'usinage: 0,1mm ?

Précision bridage: 0,1mm ?

Contournement arêtes vives: Optimisé ?

☒ Contour fermé ? ☐ Position outil SUR contour


Pourcentage de recouvrement: 50 ?

Type de sortie: Standard

Compensation outil : 1

Mode d'application compensation: Point de sortie ?

Click replay to simulate the operation. The animation dialog box appears.

Click on the button  to place the tool at the start point of the operation.


Click on the button  to start the animation

Click OK to exit Animation mode.

Click OK to exit the operation

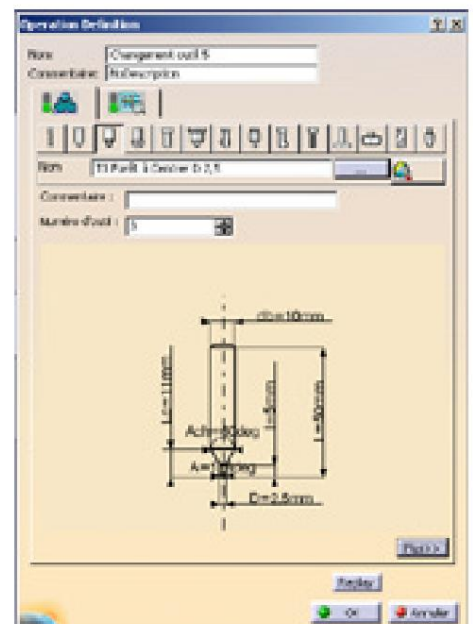
## Creation of a pointing cycle

### loading a tool

- Choose the contouring operation.1 in the tree
  - click on Insert>auxiliary operations>tool change>Drill
- to center or on the icon 

the following window opens

- validate by clicking on OK



## Creating a pointing operation

- click on Insert>Machining operations>Operations

axial>Pointing or on the icon



Choose on the image the red center in the sensitive icon.

Choose the circle for the first hole.

Choose the second hole,

double click, next to the part, to validate the choice of hole.


Click on the red edge corresponding to the top face

click on the top face

double click depth (amm)

set the depth to: 5mm

click replay

Click on the button  to place the tool at the start point of the operation.

Click on the button  to start the animation

Click OK to exit Animation mode.

Click on OK to close the Pointing window.1

## Creating a drilling cycle

### loading a tool

- Choose the pointing operation.1 in the tree

- click on Insert> Auxiliary operations>Tool change>Forest or

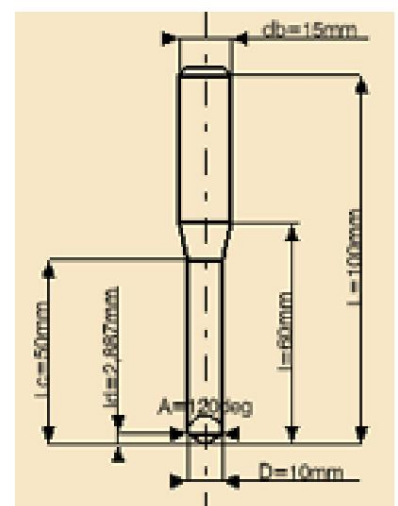
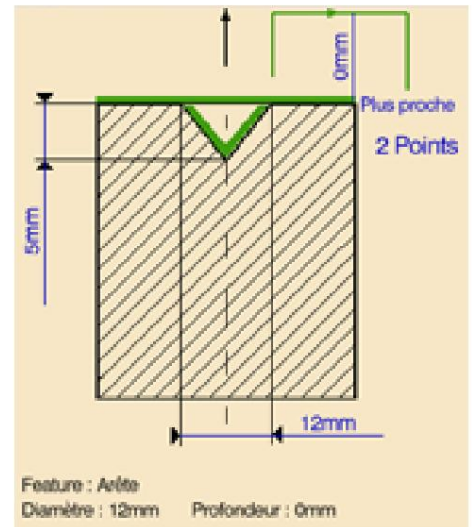
on the icon



the following window opens


Double click on the parameter D (diameter of the forest) in the icon, enter the value 10mm in the Edit Parameter dialog box.

- validate by clicking on OK





## Creating a Drilling Operation

- click on Insert>Machining operations>Operations  
axial>Drilling or on the drilling icon 

- click, in the tree, on the last loaded tool

The drilling dialog box appears

Click the red hole in the responsive icon.

Choose the cylinder of the first hole.

Choose the second hole,

double click, next to the part, to validate the choice of hole.


Click on the red edge corresponding to the top face

click on the top face

Click on the red edge corresponding to the bottom of the hole

click on the bottom of the hole

click replay

Click on the button  to place the tool at the start point of the operation.


Click on the button  to start the animation

Click OK to exit Animation mode.

Click OK


## Modify Approach and Retreat Parameters

double-click the pocket machining operation.1 in the tree

click on  the following menu appears

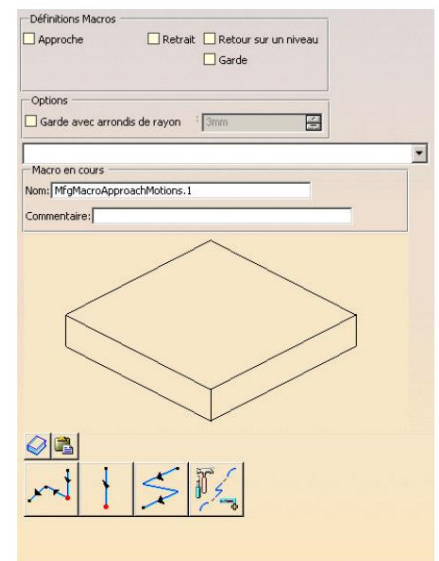
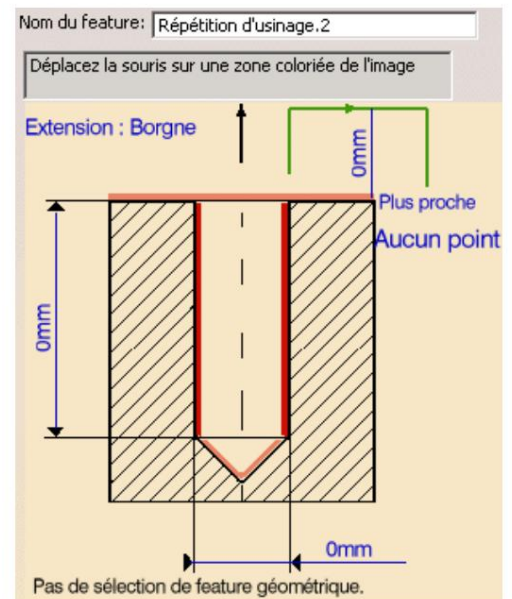
check the approach box and choose a spiral approach 

set the approach value to: vertical distance = 20 mm

check the indent box and choose a vertical indent 

set the indent value to: 20 mm

do the simulation (replay)




Click OK to exit Animation mode.

Click OK

### Editing a tool

double-click the contour operation.1 in the tree

click on  the following menu appears

name the tool: T4 Cutter 2 Sizes D 16

set the diameter (D) to: 16 and the corner radius (of nose: rc) to: 0

do the simulation (replay)

Click OK to exit Animation mode.

Click OK to validate the tool modification.


### Simulation of the entire phase

- Choose the drilling operation.1 in the tree

- then choose the tool path animation icon (in the NC output management menu)



Click on the machining  (photo) to see the room after button.

Click  in the right corner of the window simulation

Click on the button  to start the animation with material removal..

Click OK to exit Animation mode.

NC code generation


choose Tools>Options>Manufactures by NC>Output

Check the box cenit ®

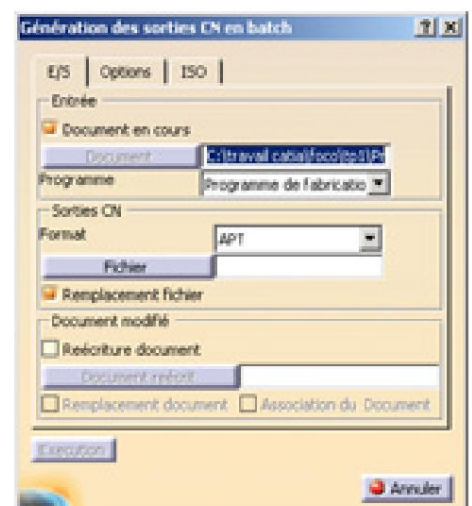
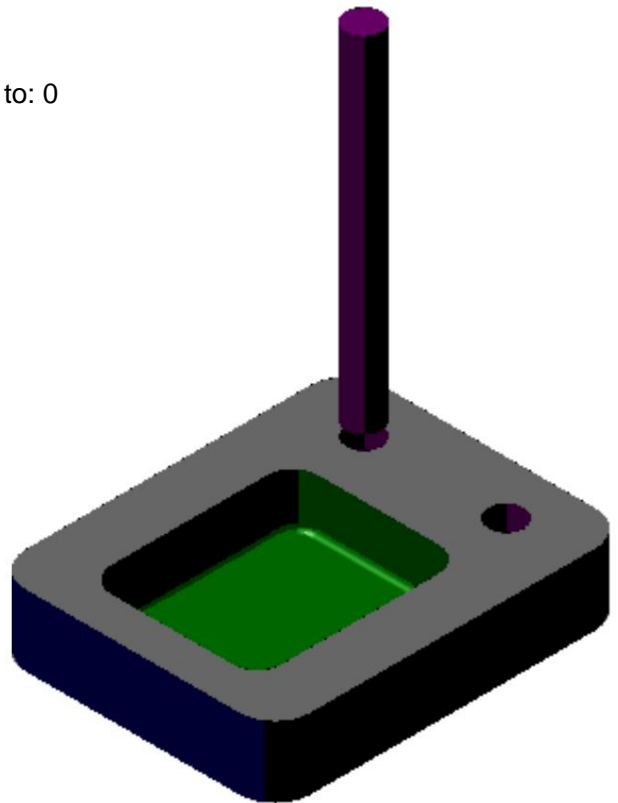
click OK

Save your work

select the drilling operation

click on the icon 

the following menu appears



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choose in the CN output window the format: **codeNC**

click on file and give the name: **pgm1**

click on Save (taking care to determine the correct tree structure)

click on the **NCcode** tab

choose from the list of post processors: **NUM1060M\_3x**

click run

code reading

open using NOTEPAD the file **pgm1.CATNCCode**

## **application**

make the next piece pulley side plate.