Holes and Pockets

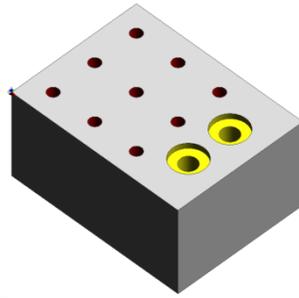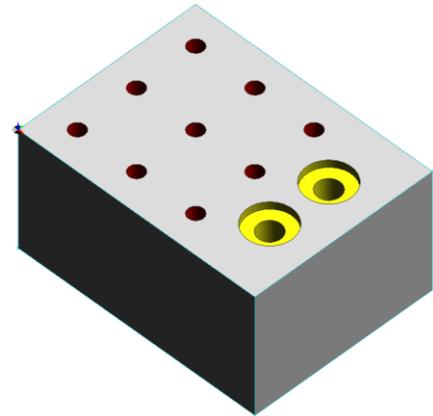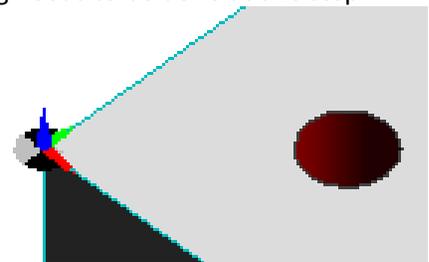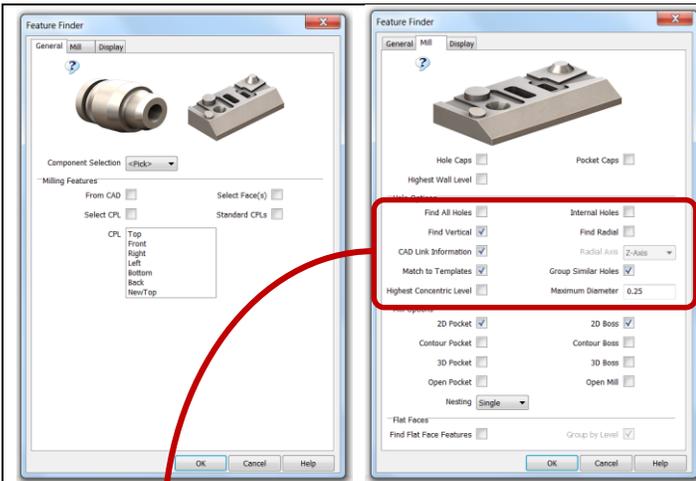|	
	Create the stock for the part -Select AUTOMATIC STOCK -Select a SHAPE of [BOX] -For this activity we will leave all the stock box offsets at ZERO
	Evaluate and redefine the part reference zero PRZ or CPL -For this example, the PRZ should not need to be reset. It has been created in Autodesk Inventor with the correct PRZ as we would like to assign it. Nothing needs to be done at this step.
	Use the feature finder to allow EdgeCAM to evaluate the 3D CAD model in order to break the model into manufacturable features

Stock dialog fields:

Automatic Stock ☑

Type: Stock Shape: Box
Depth:
External Diameter: Internal Diameter:

Colour: Layer: Stock
Style: – Solid

Box Offset
X Min 0.0   X Max 0.0
Y Min 0.0   Y Max 0.0
Z Min 0.0   Z Max 0

Cylinder Offset
Start Extension 0.0   End Extension 0.0
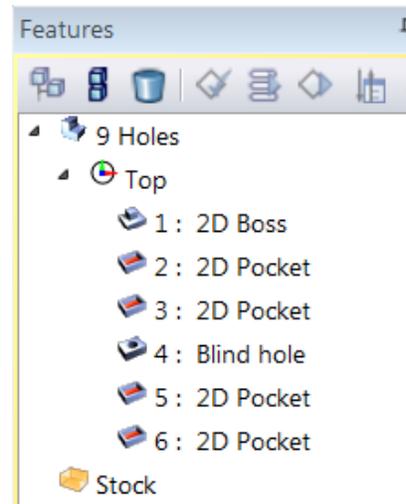Radius Extension 0.0

OK   Cancel   Help

Hole Options
Find Vertical
CAD Link Information
Match to Template
Group Similar Holes
Maximum Diameter = The largest tool you have to be able to drill with (Example = 0.25)

Mill Options
2D Pocket
2D Boss

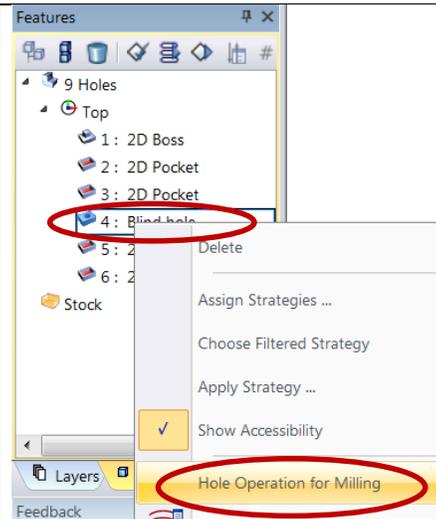All features found will now be displayed on the features tab

Leave DESIGN mode and enter MANUFACTURE mode

DISCIPLINE – [Mill]

MACHINE TOOL – Choose the correct POST for your machine [intelitek.mcp]

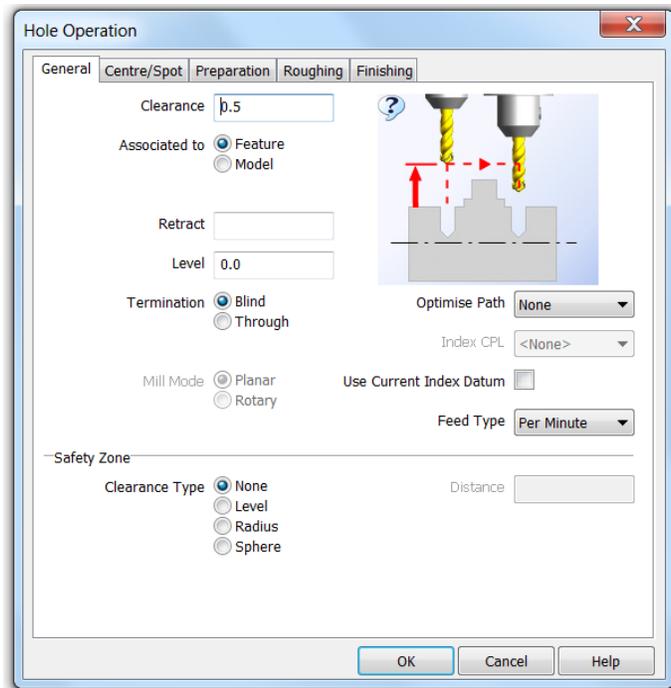INITIAL CPL – Ensure the CPL is [Top]

Features

- 9 Holes
  - Top
    - 1 : 2D Boss
    - 2 : 2D Pocket
    - 3 : 2D Pocket
    - 4 : Blind hole
    - 5 : 2
    - 6 : 2
  - Stock

Delete

Assign Strategies ...

Choose Filtered Strategy

Apply Strategy ...

✓ Show Accessibility

Layers

Hole Operation for Milling

Feedback

Switch from the SEQUENCE tab back to the FEATURES tab

-Select the grouped BLIND HOLES from the features list.

Note: As you hover over the features, they should highlight the corresponding feature on the 3D model.

Right click on the second BLIND HOLES and select HOLE OPERATION for MILLING Operation from the list

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Hole Operation

General | Centre/Spot | Preparation | Roughing | Finishing

Clearance [0.5]

Associated to ● Feature ○ Model

Retract [ ]

Level [0.0]

Termination ● Blind ○ Through

Optimise Path [None ▾]

Index CPL [<None> ▾]

Mill Mode ● Planar ○ Rotary

Use Current Index Datum [ ]

Feed Type [Per Minute ▾]

Safety Zone

Clearance Type ● None ○ Level ○ Radius ○ Sphere

Distance [ ]

[OK] [Cancel] [Help]

GENERAL
-CLEARANCE – [0.5]
-LEVEL – [0]
-OFFSET – [0]
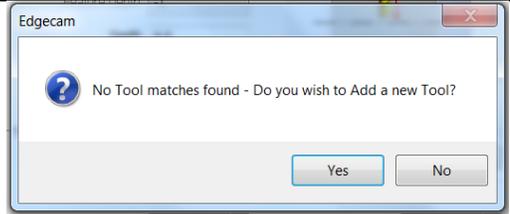-TERMINATION [BLIND]

CENTER/SPOT
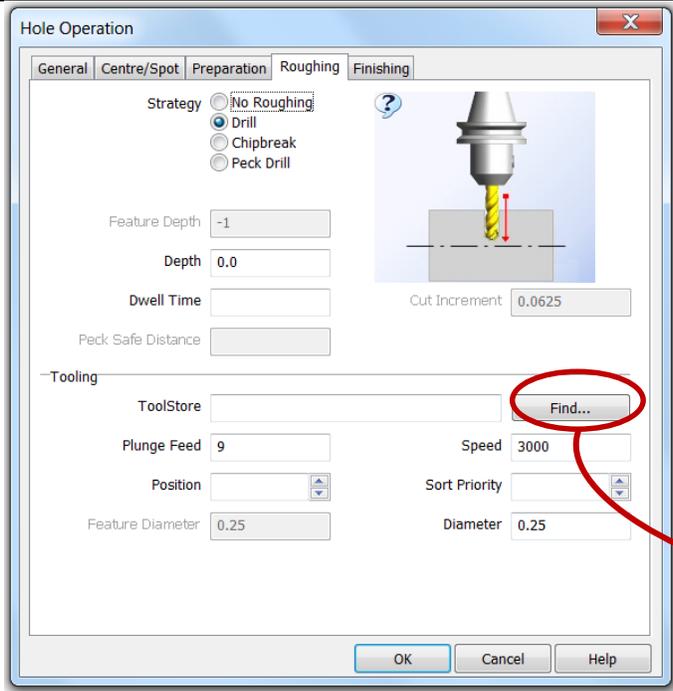-Strategy – [None]

PREPERATION
-Strategy – [No Preparation]

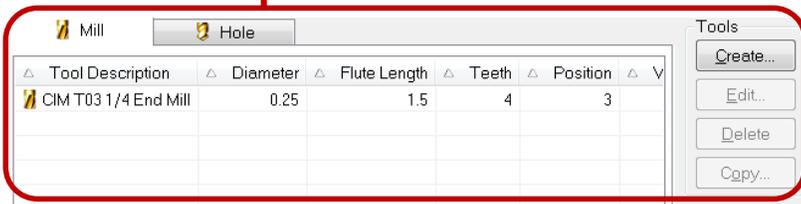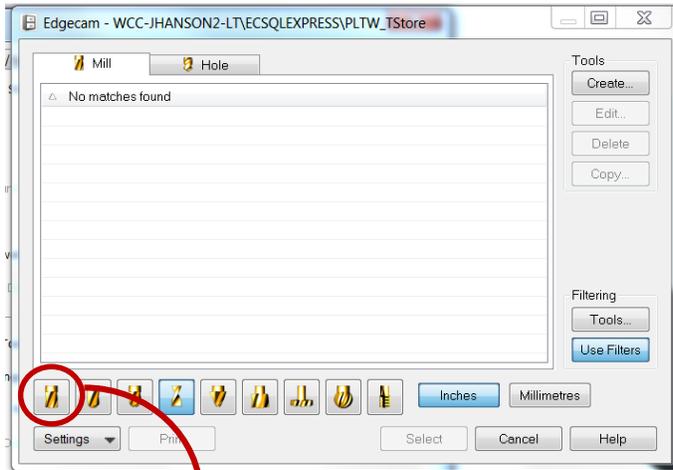## ROUGHING
-STRATEGY [Drill]
-DEPTH [0.0]

-TOOLING
 -1ST Choose the FIND box
-Choose NO to creating a new tool (we need to use an end mill to create a blind pocket with a flat drill point, not a drill (spiral tool)
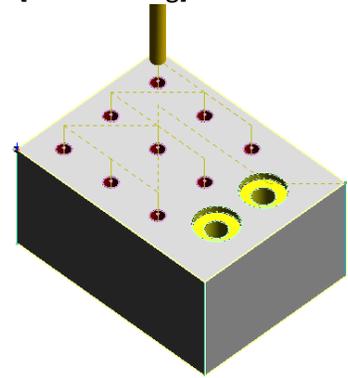
Hole Operation

Roughing tab (General | Centre/Spot | Preparation | Roughing | Finishing)

Strategy:
- ○ No Roughing
- ● Drill
- ○ Chipbreak
- ○ Peck Drill

Field	Value
Feature Depth	-1
Depth	0.0
Dwell Time	
Peck Safe Distance	
Cut Increment	0.0625

Tooling
Field	Value	Field	Value
ToolStore			Find...
Plunge Feed	9	Speed	3000
Position		Sort Priority	
Feature Diameter	0.25	Diameter	0.25

OK   Cancel   Help

Edgecam

No Tool matches found - Do you wish to Add a new Tool?

Yes   No

-2ⁿᵈ Select the END MILL filter to expose end mill options that will fit the hole selected

-3ʳᵈ Select the ¼ End Mill

FINISHING
-STRATEGY [No Finishing]
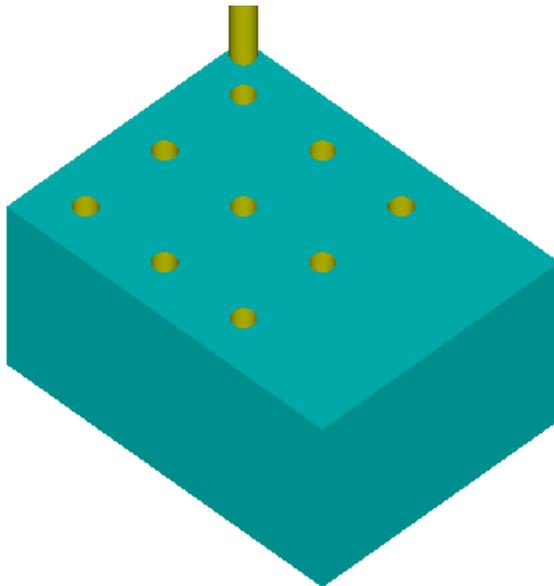
Edgecam - WCC-JHANSON2-LT\ECSQLEXPRESS\PLTW_TStore

Tabs: Mill | Hole

No matches found

Tools
- Create...
- Edit...
- Delete
- Copy...

Filtering
- Tools...
- Use Filters

Inches   Millimetres

Settings   Print   Select   Cancel   Help

Tabs: Mill | Hole

Tool Description	Diameter	Flute Length	Teeth	Position	V
CIM T03 1/4 End Mill	0.25	1.5	4	3	

Tools
- Create...
- Edit...
- Delete
- Copy...

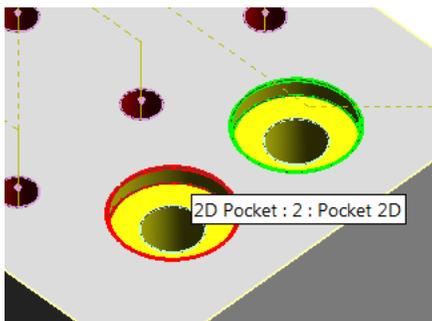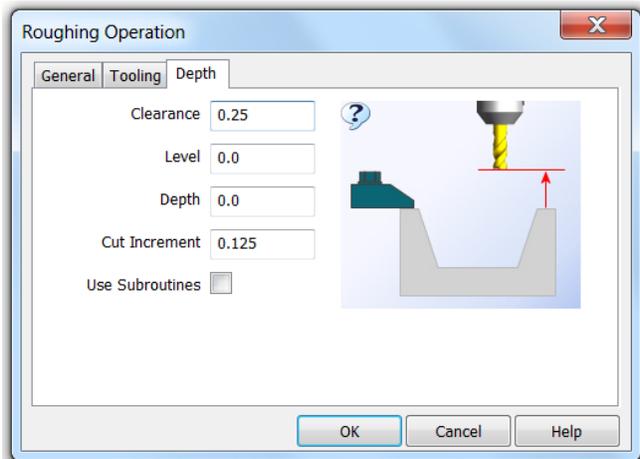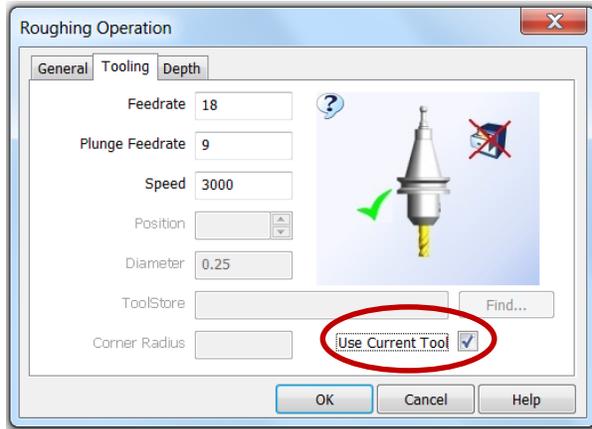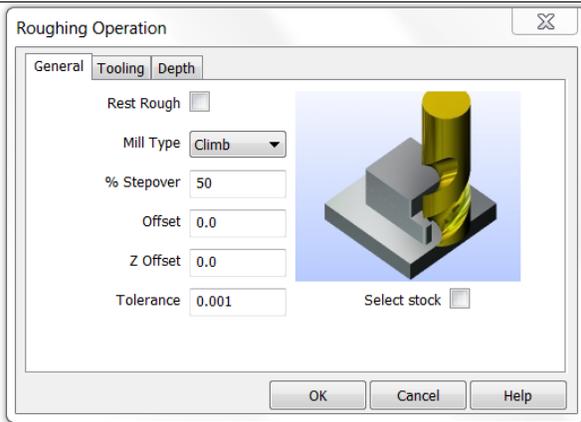|	
	Simulate the machining process Once the simulator opens, Select PLAY Ensure the simulator produce the results desired Close the simulator to return to EdgeCAM
Roughing Operation Roughs Features 2D Pocket : 2 : Pocket 2D Select boundary entities (Finish for none)	Select the roughing operation from the top toolbar. This operation will be used to rough BOTH counterbores at the same time Select both counterbores to be machined At this time we do not need to define any boundaries for this operation. Select either select the check mark in the top right corner, select enter on the keyboard, or right click to select DONE **GENERAL** -MILL TYPE – Select [CLIMB]

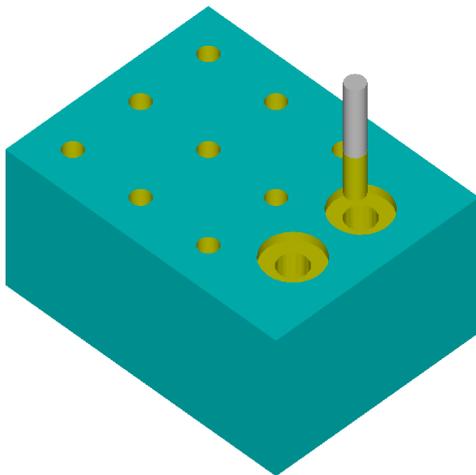|	
Roughing Operation — General tab: Rest Rough (unchecked), Mill Type: Climb, % Stepover: 50, Offset: 0.0, Z Offset: 0.0, Tolerance: 0.001, Select stock (unchecked). OK / Cancel / Help	-% STEPOVER – [50%] -OFFSET – [0] (Used to leave material on all axis (X, Y and Z). A finishing operation can then be used to remove the offset material -Z OFFSET – [0] (Used to leave material on only the Z Plane of the surface defined. Also used along with the offset to override the Z axis if a quantity is left from the Offset line -TOLERANCE – [0.001 to 0.005]
Roughing Operation — Tooling tab: Feedrate: 18, Plunge Feedrate: 9, Speed: 3000, Position, Diameter: 0.25, ToolStore, Find…, Corner Radius, Use Current Tool ✓ (circled). OK / Cancel / Help	**TOOLING** -USE CURRENT TOOL
Roughing Operation — Depth tab: Clearance: 0.25, Level: 0.0, Depth: 0.0, Cut Increment: 0.125, Use Subroutines (unchecked). OK / Cancel / Help	**DEPTH** -CLEARANCE – [0.25] - Retract point above the PRZ -LEVEL – [0] – Measured from the top of the feature selected -DEPTH – [0] - Measured from the bottom of the feature selected -CUT INCREMENT – [0.125] - determine a safe number for the tool you are using to go from the level to the depth. If the Cut Increment is smaller than depth, the facing operation will produce multiple passes to go from the level to the depth. For prototyping material, use approximately ½ to 1/3 the bit diameter as the cut increment
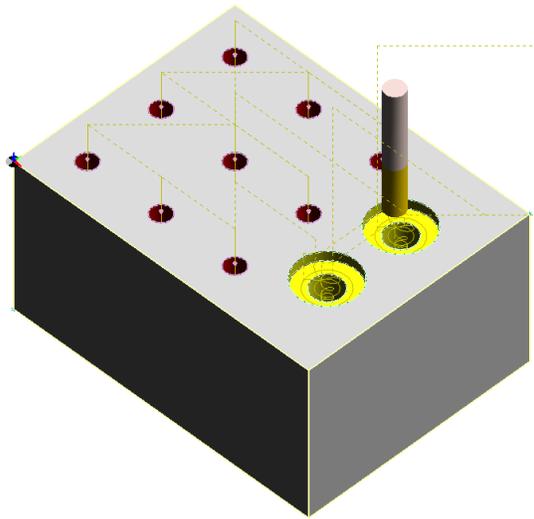
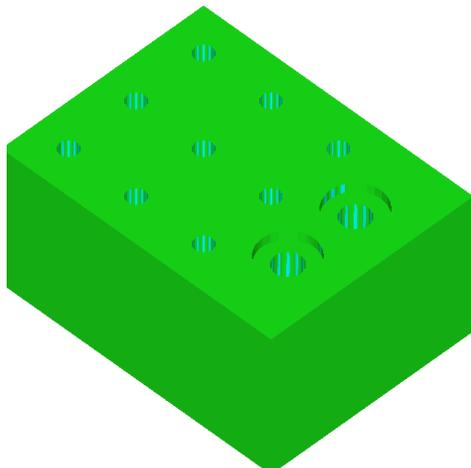|	
	Repeat the previous steps for both the holes of the counterbores
	Simulate the machining process Once the simulator opens, Select PLAY Ensure the simulator produce the results desired Select the COMPARE tool – this option will compare the original 3D model and the results of the simulated operations. At this time since we raised the stock above the 3D model, set the facing operation to only cut the amount raised from the 3D model, the compare should show as all green GREEN – Simulation and CAD model areas that Match BLUE – Areas not removed or remaining from the stock to produce the 3D model

	RED – Areas removed from the stock that have cut into the 3D model Close the simulator to return to EdgeCAM
	Note: If EdgeCAM is running in HOME WORK mode, producing the NC code is not available Select NC tool from the tool bar to produce the NC code using the POST Processor selected earlier