WinMax Transform Plane

Quick Reference Guide

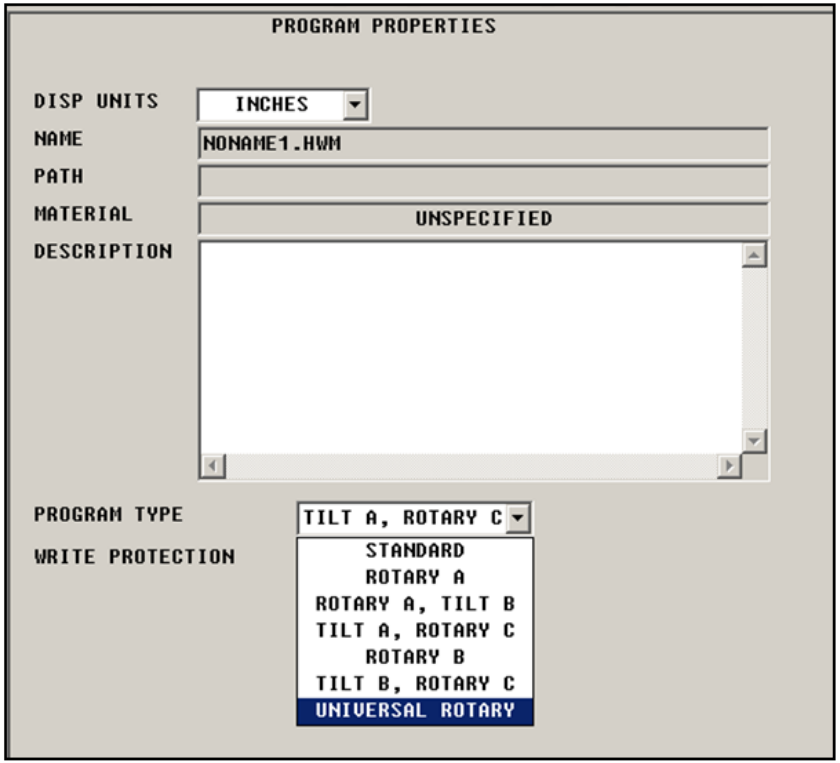
HURCO®

What is Universal Rotary?

The Hurco WinMax control is programmed using Universal Rotary for multi-sided programming. Simply program the tool as it would rotate around the part, and don't think about how the part is moving.

- Designed to operate on any 4 or 5-axis Hurco machine
- Control determines the necessary rotary movements based on the axes available
- All rotations are incremental from original WPC
- Programs can be shared between different machine configurations

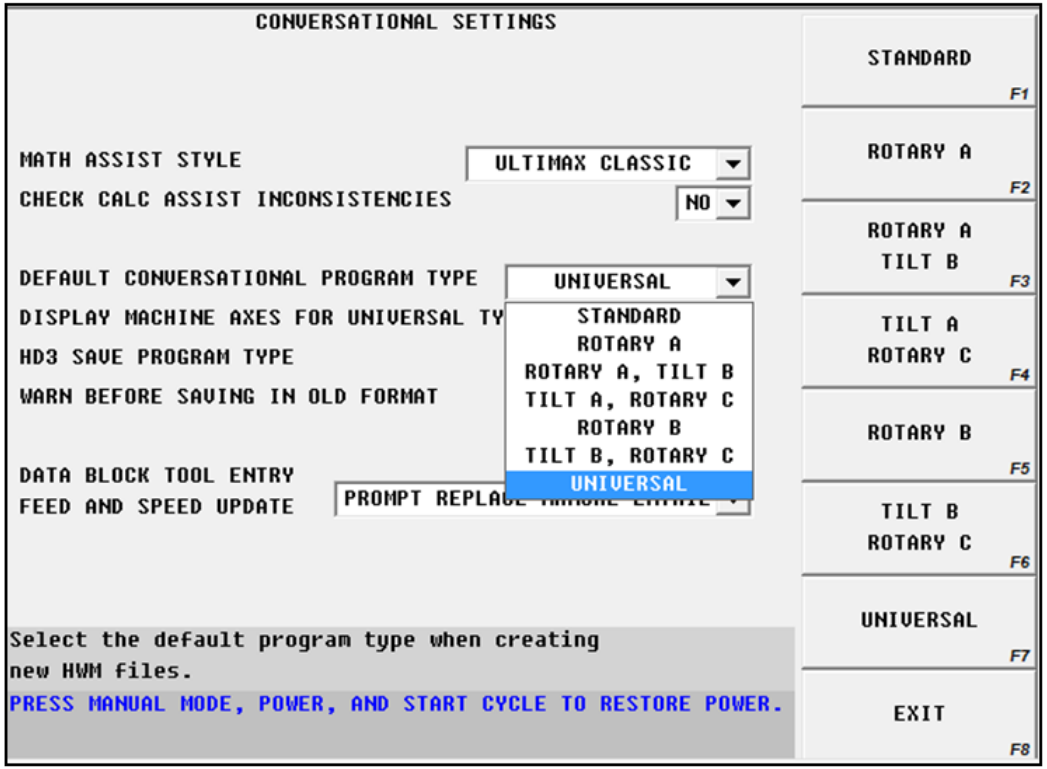
What is Universal Rotary?



Make sure the program type is set to Universal Rotary in Program Properties

- INPUT
- PROGRAM MANAGER
- PROGRAM PROPERTIES

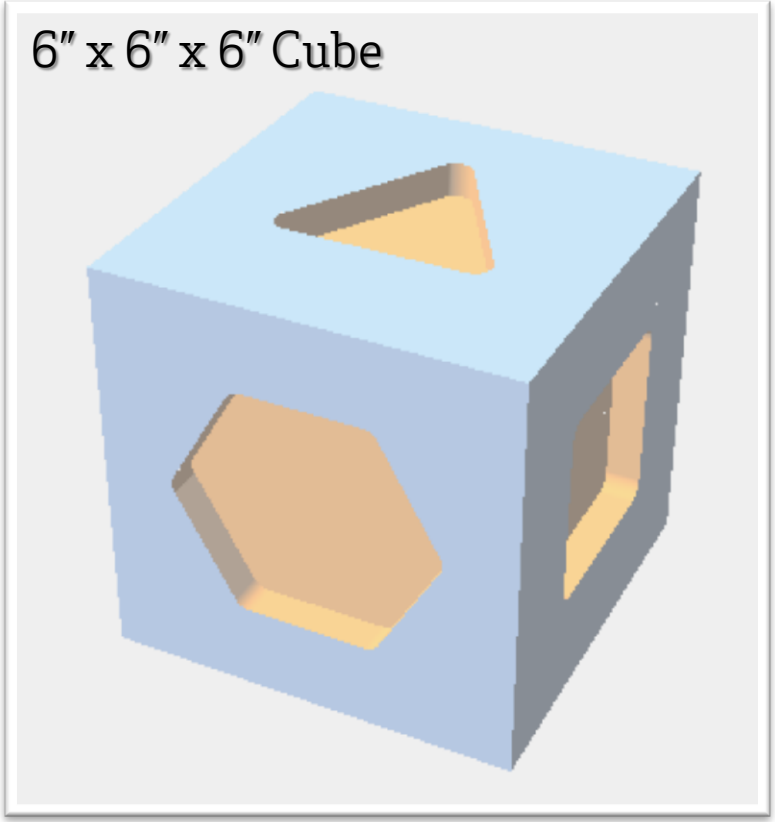
What is Universal Rotary?



Also, make Universal Rotary the default programming type in User Preferences

- AUXILLIARY
- UTILITY SCREEN
- USER PREFERENCES
- CONVERSATIONAL SETTINGS
- SET DEFAULT TO UNIVERSAL

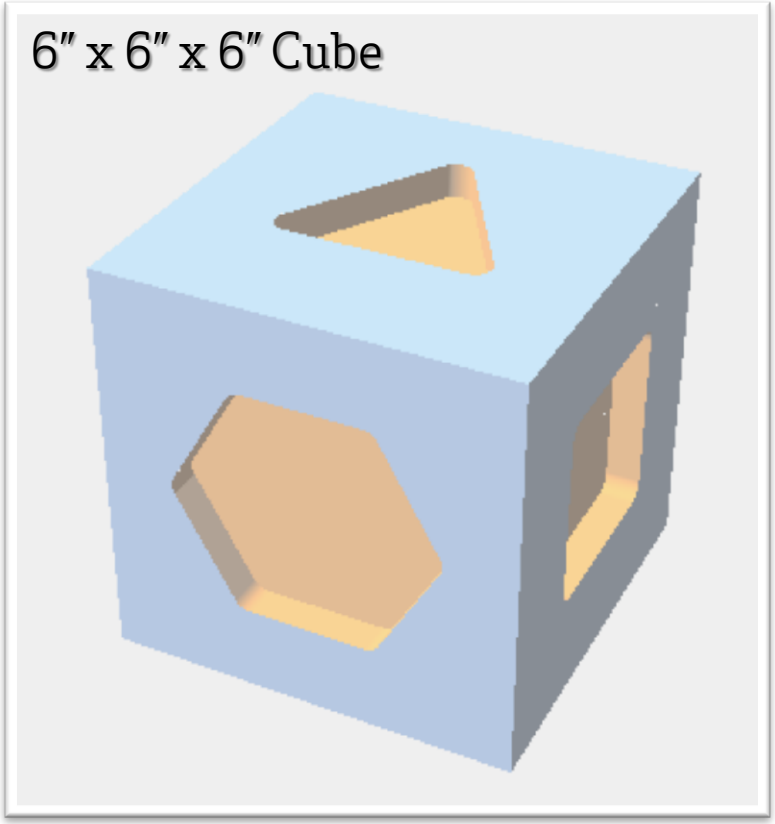
...It's as easy as 1-2-3



Right Side

- Example: you have determined that the top center of a 6″ cubed block is the zero location for your Part Setup, but now you want to machine features on the right side of the part
- Programming from a location on the top side of the block - for features on the right side - doesn't make sense.

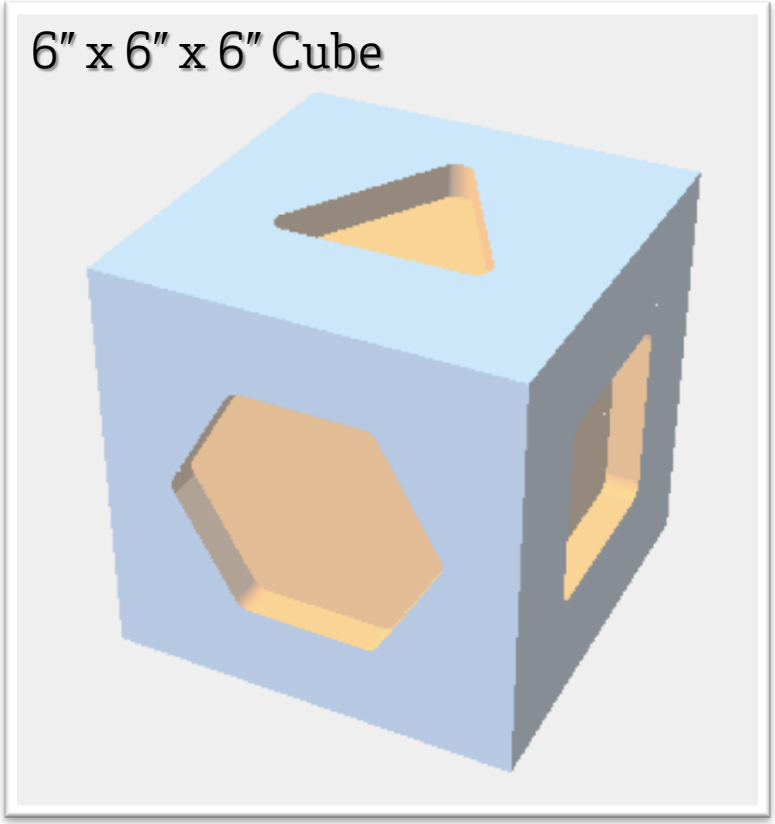
...It's as easy as 1-2-3



Right Side

- Use the Universal Transform Plane block to accomplish the three simple steps needed to complete the task
- It's as easy as 1-2-3

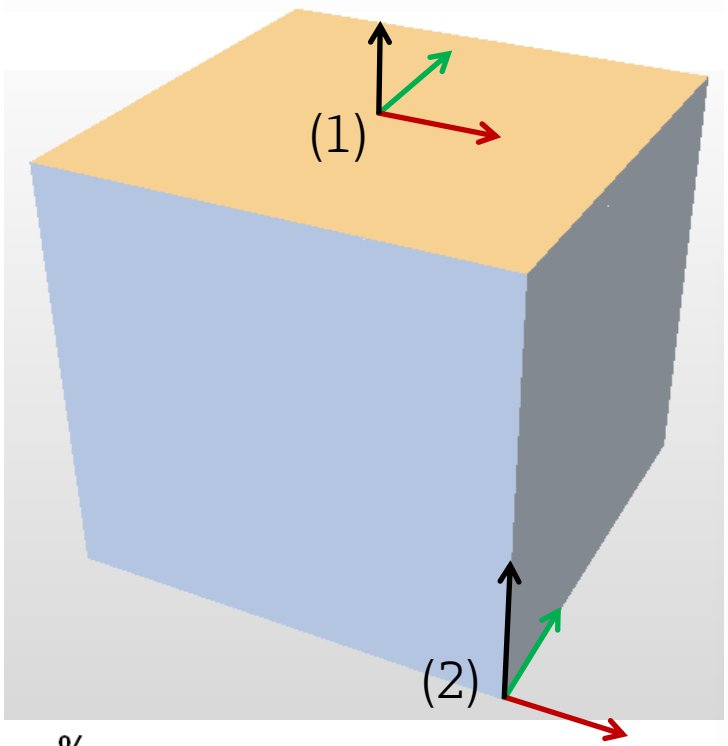
...It's as easy as 1-2-3



Right Side

1. Relocate the origin point
2. Rotate the workplane
3. Program 3-axis features

Right Side



%
T1M6
G68.2 X3.0 Y-3.0 Z-6.0 B90
G0 X2.566 Y1.3582

1. Move the origin point

BLOCK 3 TRANSFORM PLANE

ORIENT METHOD ANGLES

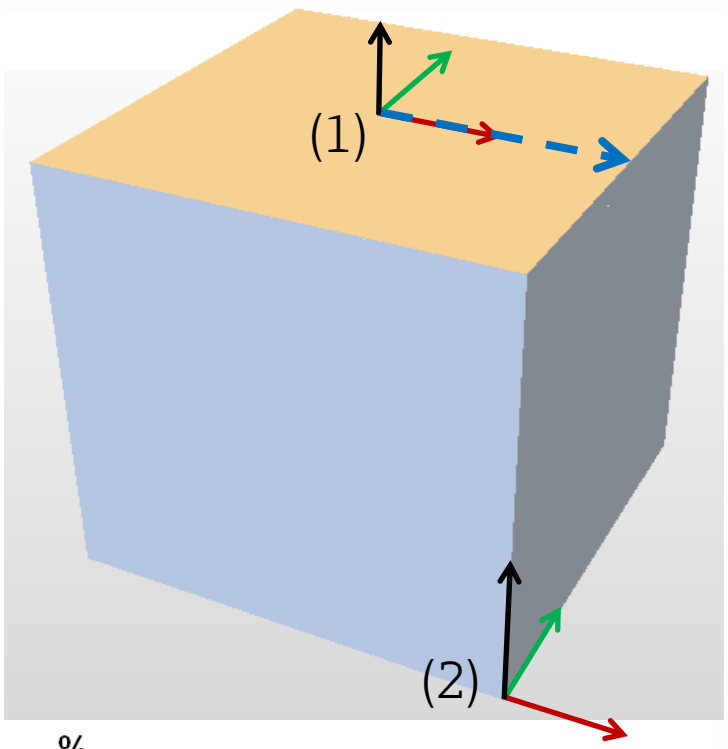
ORIGIN POINT

X	3.0000
Y	-3.0000
Z	-6.0000

ROTATION ANGLES

R(X)	0.000
R(Y)	90.000
R(Z)	0.000

Right Side



1. Move the origin point

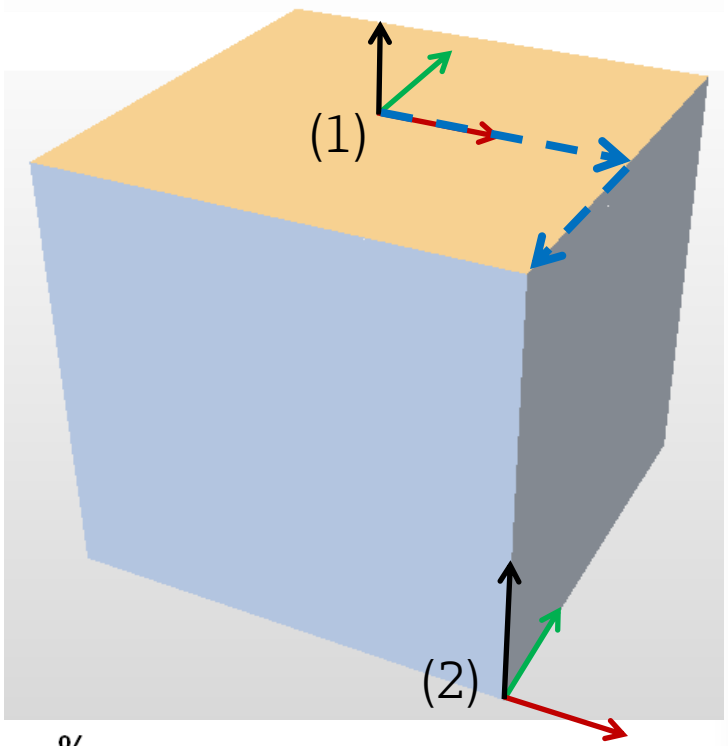
BLOCK 3 TRANSFORM PLANE

ORIENT METHOD ANGLES

ORIGIN POINT		ROTATION ANGLES	
X	3.0000	R(X)	0.000
Y	-3.0000	R(Y)	90.000
Z	-6.0000	R(Z)	0.000

```
%
T1M6
G68.2 X3.0 Y-3.0 Z-6.0 B90
G0 X2.566 Y1.3582
```

Right Side



1. Move the origin point

BLOCK 3 TRANSFORM PLANE

ORIENT METHOD ANGLES

ORIGIN POINT

X	3.0000
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Z	-6.0000

ROTATION ANGLES

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```
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T1M6
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```
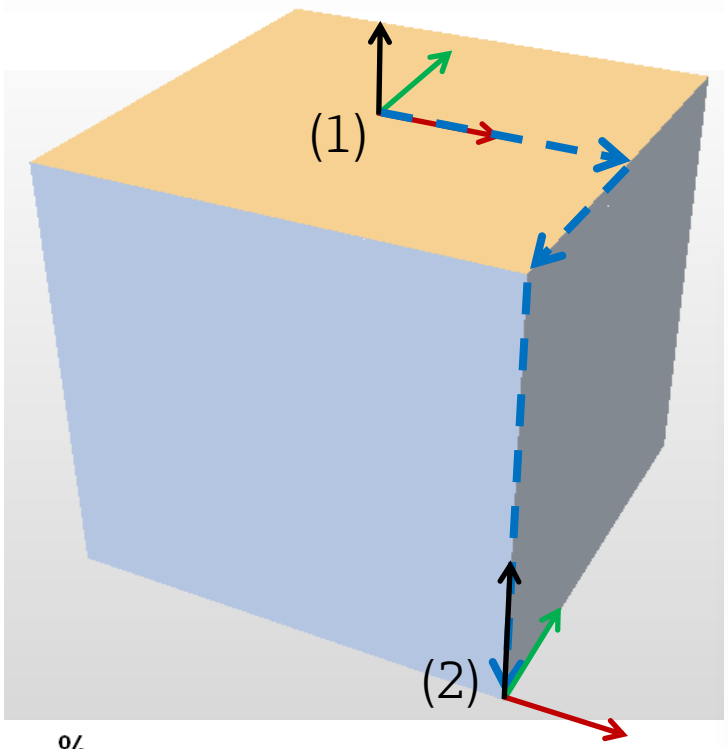

Right Side



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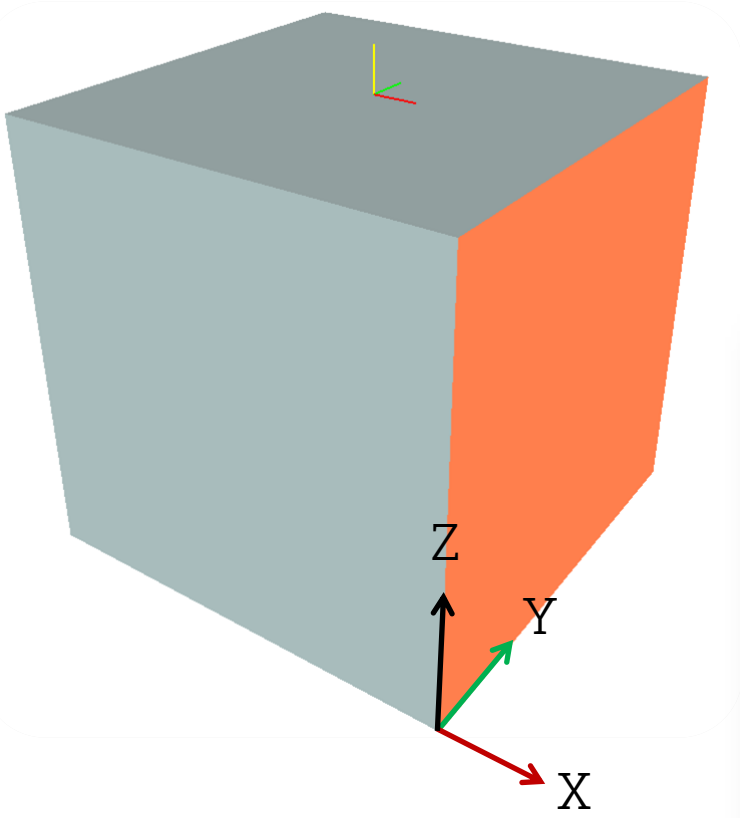


Right Side

2. Rotate the workplane

BLOCK 3 TRANSFORM PLANE

ORIENT METHOD ANGLES

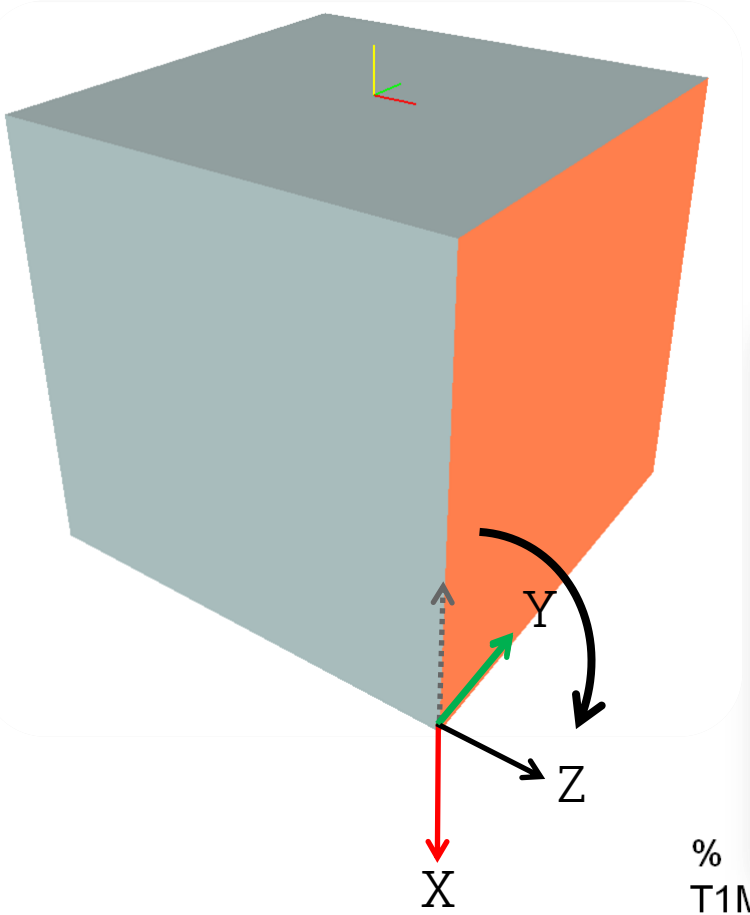
ORIGIN POINT

X	3.0000
Y	-3.0000
Z	-6.0000

ROTATION ANGLES

R(X)	0.000
R(Y)	90.000
R(Z)	0.000

```
%
T1M6
G68.2 X3.0 Y-3.0 Z-6.0 B90
G0 X2.566 Y1.3582
```



Right Side

2. Rotate the workplane

BLOCK 3 TRANSFORM PLANE

ORIENT METHOD ANGLES

ORIGIN POINT

X	3.0000
Y	-3.0000
Z	-6.0000

ROTATION ANGLES

R(X)	0.000
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```
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T1M6
G68.2 X3.0 Y-3.0 Z-6.0 B90
G0 X2.566 Y1.3582
```
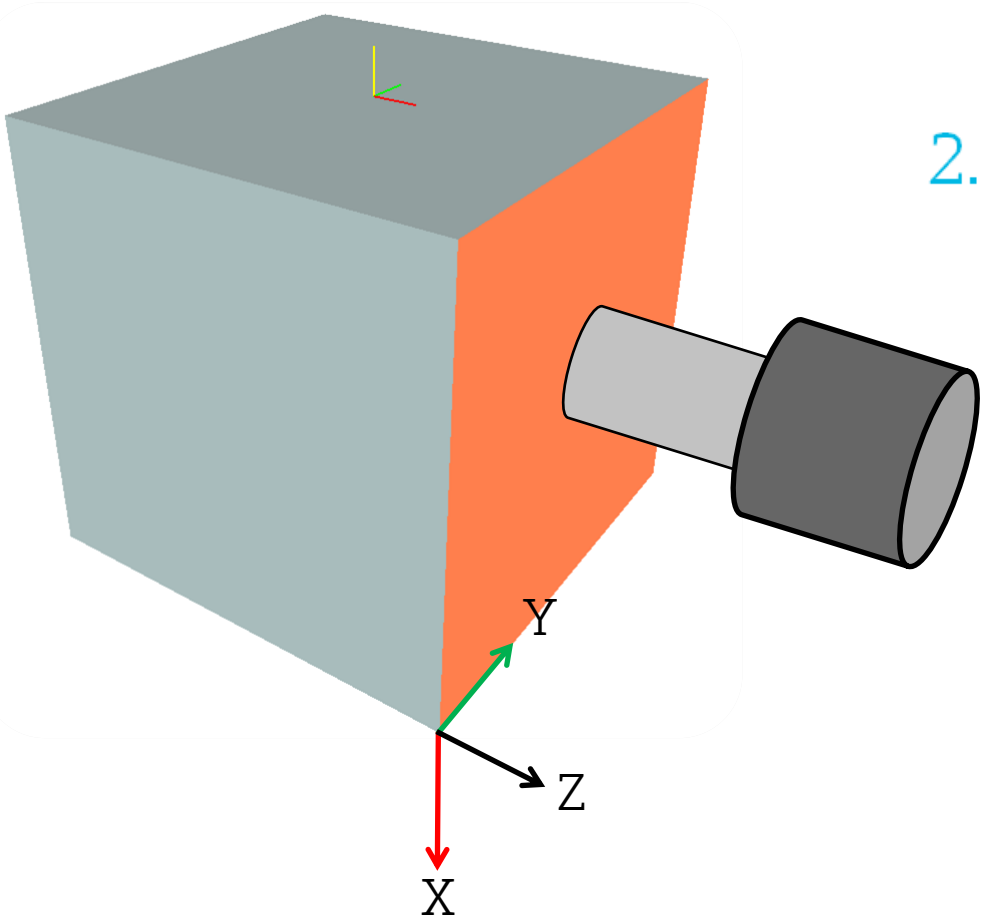
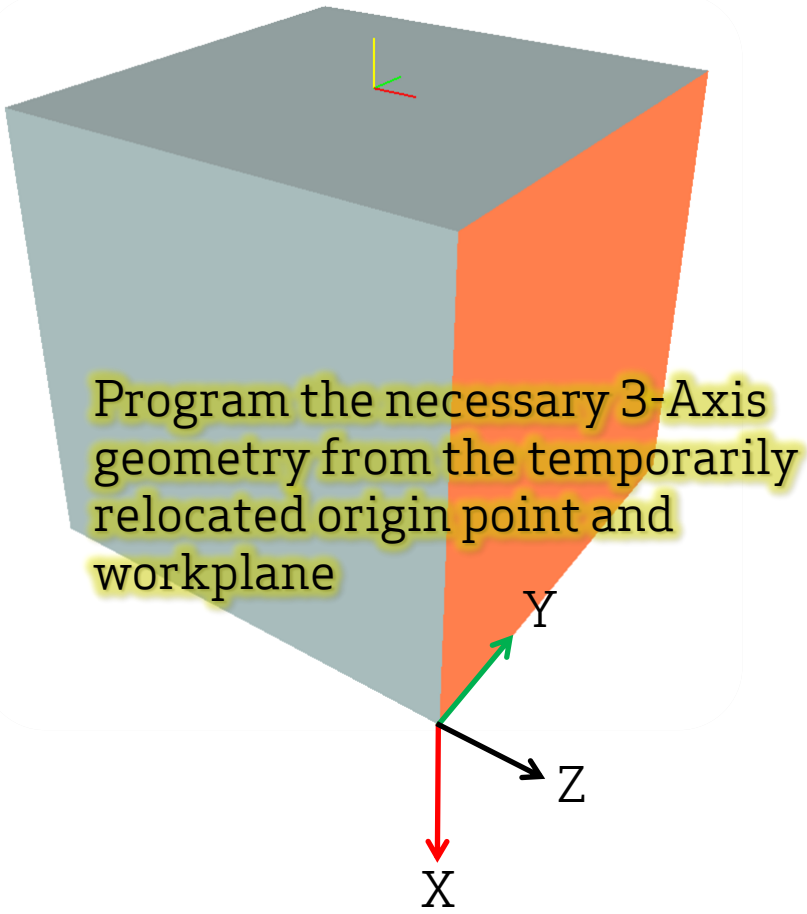

Right Side

2. Rotate the workplane



The tool axis is now perpendicular to the newly created workplane



Program the necessary 3-Axis geometry from the temporarily relocated origin point and workplane

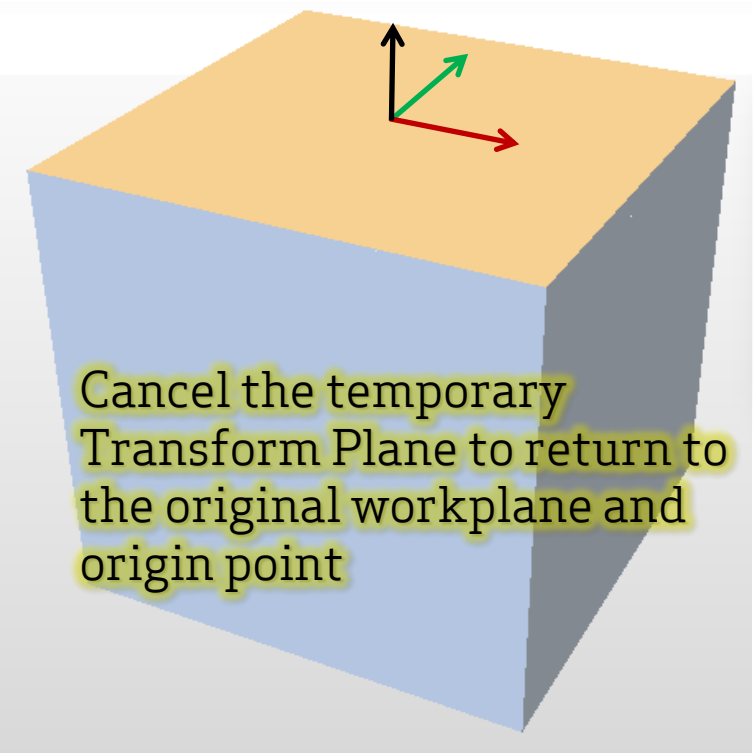
Right Side

3. Program 3-axis features

BLOCK	5	MILL CIRCLE	
X CENTER	-3.0000	Z START	0.1000
Y CENTER	3.0000	Z BOTTOM	-0.5000
RADIUS	2.5000		

Conversational - OR – G Code

```
%
O2012(HURCO ENGRAVE)
(MATERIAL - ALUMINUM INCH - 2024)
( T1000 |  1/8 BALL ENDMILL )
N100 G20
N102 G0 G17 G40 G49 G80 G90
N104 T1000 M6
```



Right Side

PROGRAM REVIEW SCREEN

DATA BLOCKS	SUB BLOCKS
1. TRANSFORM PLANE	
2. MILL CIRCLE (POCKET BOUNDARY)	
3. TRANSFORM PLANE END	
END OF PROGRAM	

Conversational - OR – G Code

```
X1.56 Y2.1224
G53 Z0
G69
G0 A0 B0
M30
```