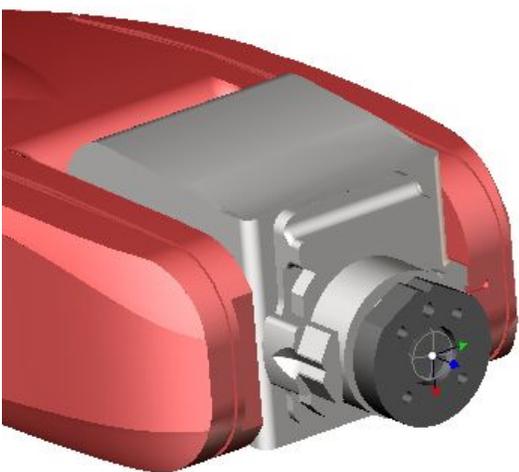


What to do in the beginning of the work with SprutCAM Robot

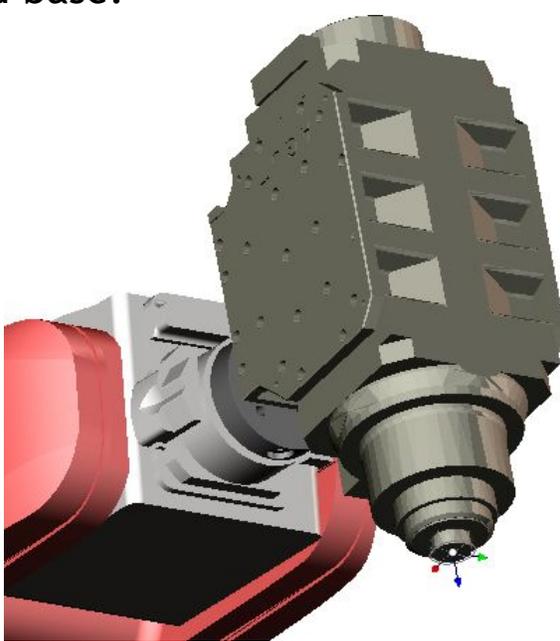
Robots have 2 coordinates system (CS): tool and base.

1. We recommend you to start with a setting of



the tool CS.

By default the values of the tool CS are all set to a null or zero position (left picture). A null tool has the values 0,0,0,0,0,0. If the tool is shifted and tilted relative to the zero CS (right picture), you should to calibrate the tool CS.



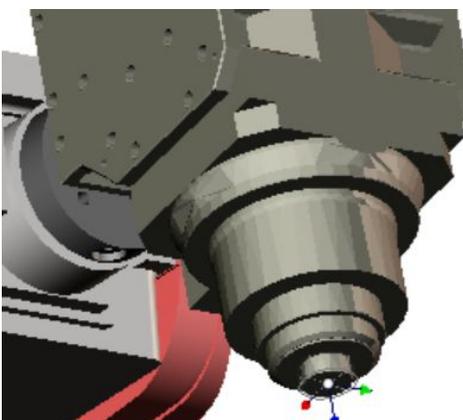
(When the tool is directed perpendicular to the 6th axis it is sufficient to set only distance in Z)

- **TCP calibration (XYZ):** after that the robot knows the position of the tool (toolhead) center point.
- **RxRyRz calibration:** after that the robot knows the direction of the tool (toolhead). **One rule for calibration: Z+ must be directed toward the tool (outside).**

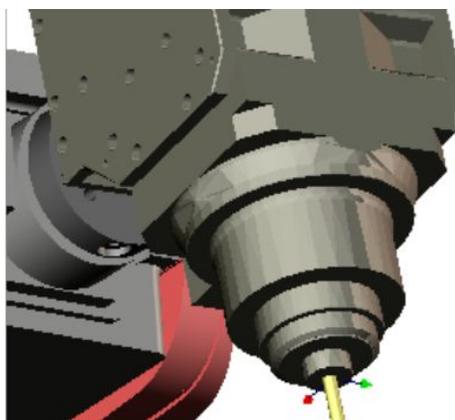
Now the robot has a new tool CS XYZ RxRyRz/ABC/WPR/OAT/q1q2q3q4. And you can set it in **SprutCAM Robot**. Our aim to save the position and the direction of ToolHead (not current tool).

Input XYZ RxRyRz into **Machine setup / Machine dimensions:**

- If for TCP calibration was used any additional tool **Tool overhang** = the distance between tip of the tool and tip of the ToolHead.
- If for TCP calibration was used tip of the ToolHead **Tool overhang** = 0.



Machine dimensions	
Tool	
Tool overhang	0
X	123.53
Y	0.56
Z	119.85
Rz	1.5
Ry	-80.11
Rz	0.3



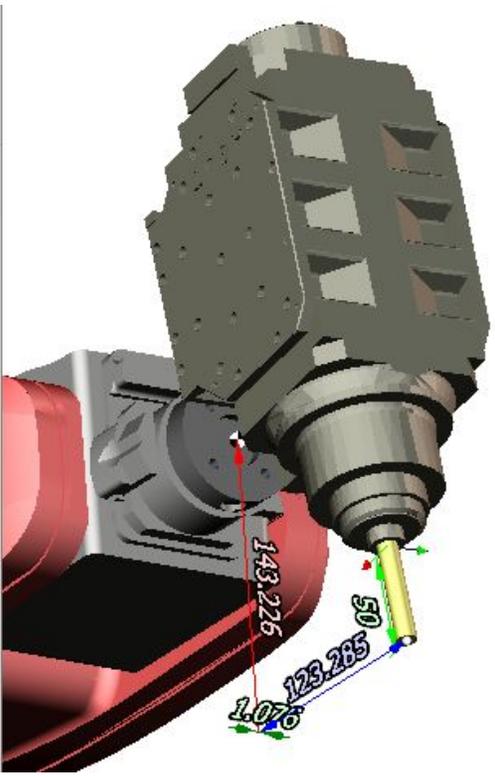
Machine dimensions	
Tool	
Tool overhang	30
X	123.53
Y	0.56
Z	119.85
Rz	1.5
Ry	-80.11
Rz	0.3

Now ToolHead in **SprutCAM** and in robot are equally located. And these values you can save into xml file.

```

<ToolData>
  -><ToolLength DefaultValue="30"/>
  -><X DefaultValue="123.53"/>
  -><Y DefaultValue="0.56"/>
  -><Z DefaultValue="119.85"/>
  -><Rz1 DefaultValue="1.5"/>
  -><Ry DefaultValue="-80.11"/>
  -><Rz2 DefaultValue="0.3"/>
  
```

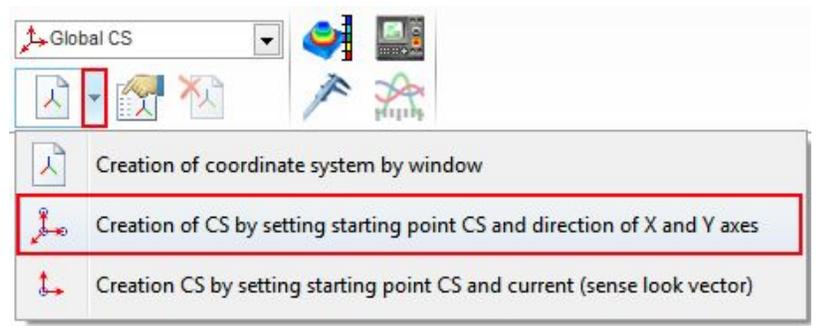
Tool	
T# Tool number	1
L# Length corrector	1
R# Radius corrector	1
Tool type	Cylindrical mill
Diameter	10 mm
Length	50 mm
Working Length	50 mm
Contact Point	Auto
Tooling	
Holder steps	0
Connection point	0 mm
Overhang	50 mm
Adjustment	End
ID Name	



To add each new tool click on the value **Overhang**, you will see 4 interactive dimensions X(red), Y(green), Z(blue) and length of the tool. You can set only one of them (any), other 3 will be calculated automatically.

2. Setting of the base CS.

- You can create new BASE (3-point method) using this box (right picture).
- Or use Global CS, don't create new BASE. Place the part (workpiece) in Global CS.



Next step (right picture).

Setup	
Setup and tooling	
Current workpiece holder	1 - Simple workpiece
Workpiece setup	Local CS1
Workpiece CS	Local CS1

Workpiece setup

Specify the relationship between the machine coordinate system and the coordinate system of geometry.

Geometrical CS:
Local CS1

Machine CS:
Global machine CS (ISO G55)

Translation:

X: 0

Y: 0

Z: 0

Rotation: angles

Rz: 0

Ry: 0

Rx: 0

Ok Cancel

select a new CS

enter values of CS from robot

Finish. Now your part (workpiece) in **SprutCAM Robot** and in real robotic cell are equally located.