

Calypso's CMM Simulation Software | CMM Quarterly

# **Table of Contents**

Introduction	
What is it:	2
Setting Up Planner	
Machine	
Stylus System	4
Additional Stylus Systems Offsets:	7
Create a Stylus System	
Adding a Rack	
Creating a Simulation Program	
Place part on CMM	
4 Ways to Move CAD Model	
Method 1	
Method 2	
Method 3	
Method 4	
Simulation Panel	
Simulation	



# Introduction

# What is it:

Planner is Zeiss Calypso's CMM simulation software. This is an add on module and can be purchased from Zeiss Metrology. The simulation is executed after a program has been written. The simulation will run through the program and log collisions with the part.

# **Setting Up Planner**

In this example, we will be setting up an offline seat of Calypso not actually hooked up to a machine.

# Machine

To get started, a machine tab that reflects your actual machine(s) should be set up. Remember that if you have multiple machines, you simply add as many machine tabs as necessary. To do this, go to CMM SETTINGS tab. Then go to the MEASURING SYS TAB.

Type in the name of the machine tab you'd like to add, then hit enter. When you hit enter, the ADD button becomes active. Add your new machine tab by hitting the active ADD button.

CMM       Measuremen       Characterist       Features         Image: Stylus system       Stylus system       Image: Stylus system       Image: Stylus system         MasterProbe       Device Administration       Control         Image: Stylus system       Image: Stylus system       Image: Stylus system         MasterProbe       Device Administration       Control         Image: Stylus system       Add       Device Administration         Image: Stylus system       Add       Device Administration         Image: Stylus system       Edit       Image: Stylus system         Image: Stylus system       Edit       Image: Stylus system         Image: Stylus system       Stylus system       Image: Stylus system         Image: Stylus system       Image: Stylus system       Image: Stylus system         Image: Stylus system       Image: Stylus system       Image: Stylus system         Image: Stylus system       Image: Stylus system       Image: Stylus system         Image: Stylus system       Image: Stylus system       Image: Stylus system         Image: Stylus system       Image: Stylus system       Image: Stylus system         Image: Stylus system       Image: Stylus system       Image: Stylus system         Image: Stylus system       Image: Stylus system	Ready: Make selecti	on or take probin	igs				
CMM Settings       Stylus system         Stylus system       MasterProbe         MasterProbe       CMM Configuration         Value       Device Administration         Device Administration       Control         Machine       Data         Stylus system       Add         Probe       Delete         Temperature       Light Signative         Maxement       Edit         Stimulation       OK	CMM Measureme	n Characterist	No Features				
Stylus system       CMM Configuration         MasterProbe       Device Administration       Control         Wachine       Dual arm       Dual arm         Wachine       Dual arm       Dual arm         Device Administration       Device Administration       Dual arm         Water       Add       Device Administration       Dual arm         Water       Add       Device Administration       Dual arm         Water       Edit       Device Administration       Dual arm         Simulation       Edit       Device Administration       Device Administration         Water       Simulation       Maxement       Device Administration         Water       Simulation       Maxement       Maxement	Смм 5	ettings File M	em Set Up enus			-	o ×
Control Machine Dual arm Pobe Stylus system Rotary Table Panel Delete Rename Edit Simulation OK Cancel Apply	Stylus s Maste	system rProbe	Device Admini	CMM Config	uration		
Made     Dual arm       Probe     Sylus system       Add     Probe       Delete     Panet       Temperature     Interface       Rename     Light Signan       Movement     Edit       Simulation     OK				303000		Co Ma	ntrol Ichine
Add Probe Stylus system Probe Stylus system Panel Temperature Interface Rename Edit Simulation OK Cancel Apply			XXT	~		Du	al arm
Add       Stylus system         Rotary Table       Potete         Temperature       Interface         Ight Signal       Messuring Sys         Movement       Messuring Sys         Simulation       OK       Cancel       Apply						Pro	obe
Add Potay Table Panel Temperature Interface Rename Light Signar Measuring Sys Movement Edit Simulation OK Cancel Apply						Sty	/lus system
Edit Simulation Panel Temperature Te					Add	Ro	tary Table
Edit Simulation OK Cancel Apply						Pa	nel
Rename     Light Signal Measuring Sys Movement       Edit     Simulation       OK     Cancel				6	Delete	Ie	nperature
Edit Simulation OK Cancel Apply					Rename	Lig	ht Signar
Edit Simulation XT OK Cancel Apply						Move	:ment
Simulation OK Cancel Apply					Edit		
Simulation OK Cancel Apply		1					
OK Cancel Apply		[	Simulation				
					ОК	Cancel	Apply

Once you've added the tab successfully, go up to the MACHINE tab. Put in the appropriate machine type with the blue drop down. (In this example, a Contura G2). Put in appropriate values as shown for movement off the limits after the machine homes. Then put in values that reflect the size of the machine, such as 1000,1200,600. This is the machine travel in MM.





## **Stylus System**

Hit apply, then go to the PROBE tab. Select the appropriate configuration that you're simulating. In this example, it's an RDS head with an XXT probe.

What if I have a VAST fixed head? Simply choose the proper sensor and enter the proper values below and proceed as shown

For the VAST series the values are: Xs 0.000 +Xm Ys 0.000 -Ym Zs 0.000 -Zm

Find other sensor values in the end of this section.

Sensors         FDS         (Nothing)         ST         ST3         VAST         VAST Gold         VAST-DT         VAST-AT         VAST-AT         VAST-XT Gold         VAST-XTR         HSS         PH FIX         Multiprobe-Carrier         RS         PHS         CSC         PH9         PH10         PH10         PH10         PH10         PH10         MIH-S         MIH	Sensors         FDS         (Nothing)         ST         ST3         VAST         VAST Gold         VAST-DT         VAST-DT         VAST-AT         VAST-XT         VAST-XT         VAST-XTR         HSS         PH FIX         Multiprobe-Carrier         RS         PHS         PH9         PH10         PH10         PH10         PH10         MH+S         MH         MH         MH         MH8 / MH20i		CMN	I Conf	iguration	
RDS     RST       DSE     Renishaw TPx       ISC     TP20       CSC     TP200       PH9     × XxT / XDT       PH10     SP25       PH10M     SP600       RTP20     ViSCAN       MIH-S     OTM       DTS     Cancel	RDS       →       RST         DSE       →       Renishaw TPx         ISC       →       TP20         CSC       →       TP200         PH9       →       ×××T / ×DT         PH10       →       SP25         PH10M       →       SP600         RTP20       →       ViSCAN         MIH-S       →       OTM         MIH       →       DTS         MH8 / MH20i       →       EagleEve	Ser RD	ISOFS S (Nothing) ST ST3 VAST VAST VAST VAST-DT VAST-XT VAST-XT VAST-XT Gold VAST-XT VAST-XT VAST-XT VAST-XT Odd VAST-XT			Co M D Prob Styli Rat Int Int I L L M M M
D3L     Fremision FPX       ISC     TP20       CSC     TP200       PH9     ZXXT/XDT       PH10     SP25       PH10M     SP600       RTP20     VISCAN       MIH-S     OTM       DTS     Cancel	DSL     Fremision FPX       ISC     TP20       CSC     TP200       PH9     ZXT/XDT       PH10     SP250       RTP20     VISCAN       MIH-S     OTM       MIH     DTS       MH8 / MH201     FagleEve		RDS	P .	RST Basishaw TBy	
CSC PH9 PH9 PH10 PH10 PH10 PH10 PH10 PH10 PH10 PH10	CSC > TP200 PH9 > XXT / XDT PH10 > SP25 PH10M > SP600 RTP20 > VISCAN MIH > DTS MH8 / MH20i > FagleEve	-	ISC		TP20	
PH9 PH10 PH10 PH10M RTP20 MIH-S MIH DTS	PH9 PH10 PH10 PH10 PH10 PH10 PH10 PH10 PH10		CSC		TP200	
PH10 > SP25 PH10M > SP600 RTP20 > ViSCAN MIH-S > OTM Cancel	PH10 > SP25 PH10M > SP600 RTP20 > VISCAN MIH-S OTM Cancel MIH > DTS MH8 / MH20i > FauleEye		PH9	+ -	XXT / XDT	
PH10M     SP600       RTP20     VISCAN       MIH-S     OTM       MIH     DTS	m     PH10M     >     SP600       RTP20     >     VisCAN       MIH-S     >     OTM       MIH     >     DTS       MH8 / MH20i     >     EagleEve		PH10	- ) - <sup>1</sup>	SP25	
RTP20 VISCAN MIH-S OTM Cancel MIH DTS	RTP20 VISCAN MIH-S OTM Cancel MIH DTS MH8 / MH20i EagleEve	₹ <b>m</b> i	PH10M	•	SP600	
MIH-S OTM Cancel	MIH-S OTM Cancel MIH DTS MH8 / MH20i EagleEve		RTP20	•	VISCAN	-
MIH DTS	MIH > DTS MH8 / MH20i > EagleEve		MIH-S	•	OTM	
	MH8 / MH20i > EagleEve		MIH	•	DTS	Cancel
Reflector LineScan (external)					LineScan (internal)	

MasterProbe Only for index holder, e.g. RDS, DSE MasterProbe for calculating the navigation In sensor system Machine mapping Xs: 0.0000 +Xm V Ys: 60.0000 -Ym V Zs: 192.9000 -Zm V Default values see User's Guide Set Global Monitoring Criteria Define and Activate Limit Values

Hit apply, then move to the STYLUS SYSTEM tab. Fill in the Xs, Ys, and Zs values, paying careful attention to the corresponding drop down settings. In this example, they are +Xm, -Ym, -Zm. These values change per machine configuration. You can either copy them from your CMM or call Zeiss for help. The values in this example are good for an RDS head with an XXT sensor.

Hit apply, then move back up to the CONTROL tab and connect your new machine tab. (Hit the big CONNECT button in the center of the screen). Once you've connected, there will be a delay before the following message pops up:



Hit OK and allow Calypso to create a MasterProbe for your machine tab. A component selection screen may appear.

elect Possible Components		
The following stylus system	m has to be uniquely assigned to a component:	
MasterProbe		
Please Select Correct Com	ponent	
XXT_Carrier		
	Add	
NOTE: If cancelled, the fire	t entry in the list is applied as selection	
NOTE. II canceneu, uie ins	it chuy in the list is applied as selection	
	OK	

Hit OK. No need to fill anything in.

The next step is to do a virtual "Ref Sphere Position". Go to the STYLUS SYSTEMS button.

You can Reference Sphere Position, and if you have an RDS-CAA system, also perform the Fitting Position. This is done only once per new machine tab.



2	r) 🔇	A.	A⇒B	1 O
ylus sy	stem	Mode	Parar	neter
lasterPr	obe	Qualify pass	ive 🗸 Stan	dard
ylus na	me / no.	Geometry	Sphe	re Coverage
	<mark>~</mark> 1	Sphere	<b>180</b> .	0000
Fitting	nosition	Change stylu	IS DOS Ref.	sphere positio
	pooluon			
Set Li	nit Values			
tylus —			Reference	sphere
lame	Da	ate	Sphere	-
1		1/10/12	Temp.	20.0000
			SNo	9999
R:	0.0000		Date	10.1.2012
			R:	15.0000
S:	0.0000	<u> </u>	S:	0.0000
X:	0.0000		X:	0.0000
	0.0000		Y:	0.0000
Y:	0.0000	<b>1</b>	Z:	0.0000
Z:	0.0000	Туре:	Tilt:	135.0000
		XXT	Rotate:	45.0000
		_		

# Additional Stylus Systems Offsets:

Machine tab setup parameters for other common configurations:

1. PH10 with TP20:





		indev holder o	a DDC DCE	Condor
	MasterF	Probe for calcula	ting the navigation	Machine
	In	cencor system	Machine manning	Dual arm
-	Xs:	0.0000	+Xm 🔍	Probe
	Ys:	0.0000	- Ym 🛛	Stylus system
		02.0000		Rotary Table

### 2. Duramax



1	MasterProbe Only for index holder, e.g. RDS, DSE MasterProbe for calculating the navigation	Control Machine Dual arm
	Xs: 0.0000 +Xm V	Probe Stylus system
	Ys:     0.0000     -Zm        Zs:     0.0000     +Ym	Rotary Table Panel

### 3. RDS-TP20



	CMM Con	figuration	
MasterProbe Only for i MasterPr In s Xs : Ys :	ndex holder, e. obe for calcula sensor system 0.0000 55.0000 08.0000	g. RDS, DSE ting the navigation Machine mapping +Xm -Ym - Ym - Zm	Control Machine Dual arm Probe Stylus system Rotary Table Panel

# Create a Stylus System

The next step is to build a MasterProbe to be used for on-screen simulation. Go to:



New stylus system



Select the correct type of probe.

	أمكمل برجم برباحكم		
to be based.	logy on whic	n your stylus sy	sterr
CSC DSE-RST None			
PH10 RDS RST RDS TP200			
RDS XXT			
Selected Technology:	RDS XXT		
		100	5
		Start	

Starting with the Probe adapter, start to build your probe by double clicking the correct component in the list on the left. Then continue to highlight the position you'd like to add to in the list on the upper middle of the screen. For an easy down tip, just continue to add your components to the z- position. For stars, highlight the node you wish to add to, such as x+, then double click the correct component in place.



Now double click on the Sensor you have.

MasterProbe selection will now appear in the list. Select the MasterProbe.

Once you're finished selecting components (in this case, MasterProbe buildup), go to the SAVE AS button and name your component. For MasterProbe, it must be named exactly as shown.

Component View		Stylus System Tree	RDS-XXT 18p p XT TL3
Manufacturer		Main Ania Analas - Rasa	
Zeiss	•	Main Axis Angle: 0.00	<b>•</b>
Components           Image: Components           Image: Components           Image: Components           Image: Components		Save Recommended ! Component Properties	: Order this component
		Description	
		Category	Master probes
		Collection Name	XXT
		Manufacturer	Zeiss
		Name	MasterProbe XXT TL3
		Name Scheme	Sensors
		Order Number	master probe XXT TL3
		Vendor Order Number	Unknown
		E Functional Properties	
		Load Limit	0
		Material	Unknown
		Weight	5.6
Stylus System Properties Name: Serial Number: Constructor: Date: Workpiece: CMM: Company: Department: Comments:	MasterProbe	Freview Coday	
Compatible wi	th Version 2.0	2	-

You must name the probe in the screen above, then name it again when the save as screen pops up. PAY ATTENTION TO WHERE YOU'RE PUTTING YOUR SIMULATION PROBES! If you're setting up more than one machine tab for different CMM configurations, you'll want a MasterProbe for each different setup. It's recommended to have a folder for each machine tab. At this point you may continue to build any other probes you'll need. It's acceptable to use both Zeiss and Renishaw components in the same buildup if necessary. For example, if you're building up a Renishaw star and can't find components you need, you could substitute in a Zeiss M2 cube. The components are close enough in nature that it wouldn't adversely affect simulation and collision detection.

Another quick example for a 2mm by 21mm buildup:



Begin by selecting File/ New and repeat the process you just did for the MasterProbe adding the appropriate assemblies to construct the stylus system you want.

Now after the stylus system is saved click on Planner/ Import SSC File to import the stylus systems. We must import the MasterProbe first.

Extras	Planner	r Window <u>?</u>
1   2	Ge St St	enerate Measurement Plan → ylus system Simulation ylus system Creator
	Im	port SSC File
	Lo	ad Work Area
	Sa	ive Work Area
	✓ Sh	iow work area

Master	Import SSC MasterProbe	First do this. Browse to find the MasterProbe you just saved in the Style System Creator
0	If the MasterProbe has been not been imported in the SSC Format, no valid stylus data can be created when importing the stylus system.	e
-Import S	Stylus System	1
	c:\Program Files (x86)\Zeiss\Calypso\ho	
	Accept Loaded System	
	Close	

Import SSC MasterProbe **is only done once** for each machine tab you set up. From then on, you load in other simulation probes to use in your on-screen simulation.

- MasterF	SC Data		
	Import SSC MasterProbe		
~	No valid stylus data can be created when importing the stylus system.	j	
Import S	Stylus System	Now load another	stylus system to use for you
	C:\Users\emicheln\Uesktop\MY SIMULAT		
	Accept Loaded System	Then accept load	ed system!
<u> </u>	Close	1	

When you accept loaded system, you must name the tip you wish to use. In this example, we named it "A0\_B0".

Create new stylus system		
Probe		
ххт	~	
Concor or concor holder		
- Sensor or sensor noider		
	XXT_Carrier ~	
		Add
, ett		
Module		
V		
<b>*</b>		
		Add
Stylus system		
	2×21mm ~	RDSCAA
	Stylus	Stylus no.
		1 ~
		·
	OK Cancel	
2		

If you wish to add additional tip rotations for use with your RDS head, here's how you proceed: Go to the STYLUS SYSTEM/ROTATE SCREEN as shown below:

CMM Measurem Char	ear Deatures		
CMM Settings Stylus system 3×40	Probing system qualifica Stylus system Stylus () Stylus system 3×40	tion Management Mode Qualify passive	Parameter Standard
	Stylus name / no.	Geometry Sphere	Sphere Coverage 180.0000
	Qualify stylus	Change stylus pos.	Ref. sphere position

Go to the Styli List tab and select the new tip icon shown below:

New stylus	system —						
Name	2×21mr	n		~			
Max. Opening Angle 180.0 °							
Inserts a new stylus in the list. B							
A0_	B0	1	0.0 °	0.0 °			

Click the new tip icon to add as many tip rotations you need. In our example we will add the most common tips -90,90 0,90 90,90 0,-90 rotations. When you've finished typing in the names and A/B angles you need, hit the CREATE NEW STYLUS SYSTEM button shown below:

View Extras          RC position       Styli list         Image: Creates a new stylus system         Name       2x21mm         Max. Opening Angle       180.0 °
RC position       Styli list         Image: Creates a new stylus system       Creates a new stylus system         Name       2x21mm         Max. Opening Angle       180.0 °
New stylus system New stylus system Name 2x21mm Max. Opening Angle 180.0 °
New stylus system Creates a new stylus syste Name 2x21mm Max. Opening Angle 180.0 °
Name 2×21mm ~ Max. Opening Angle 180.0 °
Max. Opening Angle 180.0 °
Stylus name No. A B
A0_B0 1 0.0 ° 0.0 °
A-90_B90 2 -90.0 ° 90.0 °
A0_B90 3 0.0 ° 90.0 °
A90_B90 4 90.0 ° 90.0 °
► A0_B-90 5 0.0 ° -90.0 °
~
< >>
Close

You will be presented with the following screen. Make sure to select UPDATE!

	G ∧ KC LISE				
	⊻iew Extras				
	RC position	Styli list			
	1				
	-New stylu	s system — 🖓			
	Name	2×21mm		~	
	Мах. Оре	ning Angle		180.0 °	
	St	/lus name No.	А	в ^	
	P-V	N R9N 2	-90.0 "	90 O "	
🗔 Stylu	s system already	exists			×
Stylu	ıs system: 2×2	21mm			
0 0	verwrite				
• U	pdate				
() N	ew Name	2×21mm			~
	Ok			Cancel	
					A
				Close	



Hit OK to accept the new names you've assigned to your additional tips.

C RC List	tras	— 🗆	×
- RC posi	tion Styli list		
-Jjjj	ít ti 🔊		
-New st	ylus system		
Name	2×21mm		~
Max.	Opening Angle	180.	0 "
	If there is an assignation of the state of t	gnment, then the s simulation.	tyli
	New stylus	Original Stylus	^
	A0_B0	1Z ~	
	A90_B90	1Z	
	A-90_B90	1Z	
	A0_B-90	1Z	_
	A0_B90	1Z	
<	<		~
			_
	01	Cancel	
			_

Save your updated stylus system list.

RC po	sition	Styli list				
New	stylus :	system –	1			
Nam	е	2×21m	m		~	]
Max	. Openi	ing Angle			180.0 °	]
	<b>.</b>		Ĵ			
	Style	us name	No.	Save s	tylus sys	tem.
	A0_B	0	1	0.0 °	0.0 *	
	A-90_	_B90	2	-90.0 "	90.0 °	
	A0_B	90	3	0.0 °	90.0 °	
•	A90_	890	4	90.0 °	90.0 "	
	A0_B	-90	5	0.0 °	-90.0 °	
						,
<					>	

### C Probing system qualification

Stylus system Stylus Management



Now you will see that the stylus' are added to your list already calibrated

# Adding a Rack

Whether you have a rack or not on your CMM you can add a rack to your Planner simulation. This will make the programming quicker.

First we will need to add a new stylus to the MasterProbe stylus system. We will need a stylus that will be orientated to the correct position to calibrate the rack.

C, XX	T - Probing system	qualification	_		
Stylus	system Stylus	Managemen			
	🏂 🙆 👌	*	A AB	<b>⊎</b>	
Stylus	system	Mode	Param	eter	Select Insert New Stylus
Maste	erProbe	Qualify pass	ive 🗸 Stand	ard 🗸	
Stylus	; name / no.	Geometry	Sphere	e Coverage	Give the new stylus a name
þ	~ 1	Sphere	~ 180.0	000	One the new stylus a name
Fi	tting position	Change stylu	spos. Ref.	sphere position	
Se	t Limit Values				
- Stylu	IC .		Beference	sohere	
Nam	ne Dat	e	Soboro No	a	
			ophere No.		
1		9/12/19	Temp.	20.0000	
			SNo	9999	
R:	2.5000		Date	12.9.2019	
ę.	0.0000	•~	R:	15.0000	
з.	0.0000		S:	0.0000	
X:	-60.0000		X:	0.0000	
Y:	60.0000		Y:	0.0000	
7.	0 0000	Tyne:	Z:	0.0000	
	0.0000	1900		135.0000	
		XXI	Rotate:	45.0000	
	ОК				
		1			

### Follow the next steps in order



- 1. Rotate Stylus to New Position
- 2. Enter new values for A rotation. Enter 90
- 3. Click on Rotates the Axis on the Machine
  - a. Make sure the probe is free to rotate to the new position

## Click on the Auto Change Rack icon

Select Add stylus system holder

C Automatic stylus system change XXT	_		Х
Edit			
Add stylus system holder			
Delete selected stylus system holder			
Delete all stylus system holder			
Print selected stylus system holder			
Print all stylus system holder			
ХХТ		×	
Please select the desired holder			
× TXX			
OK Cancel			
Administration ~ OK			

Select the proper head type.

Give the holder a name		×
	Please enter a name for the new group of holders.           A           OK         Cancel	

You will now see the holders, for XXT 3 holders are added. XT an individual holder will be added. The steps are the same for any probe head type.

Automatic stylus system change XXT	-		×
Edit - Changer - 🗲 🖡 🗭	Define Stylus L	ength	
Administration V			

Now pull down the Changer menu and select Define Holder Location

C Automatic stylus system ch	-		×		
Edit v Ch	anger 🗸 🗲 🖡 🕈	Define	Stylus L	ength	
	Approach Parameters Define Holder Location Store stylus system in holder Load stylus system from holder Set stylus system to stylus system hold Empty Current Holder	der			
Administration v	ОК				

#### 🗔 Request

Please position a stylus with a radius of 2.5 mm above the position to be defined and then press OK (see picture).

×



Click OK here and the holder locations will be defined.

Click Changer again and select Set stylus system to stylus holder

Select the desired stylus to add to the holder.





# **Creating a Simulation Program**

Create your CMM program as normal. There is no special requirement in Planner just select the stylus systems out of the rack as normal making sure to select the correct stylus when writing your program.

Later when we run the simulation it will detect if there is a collision. A simple edit can be made to correct the collision and simulation can be rerun.

When programming everything is the same as being online. Position the model through CAD transformation to match the way it will sit on the CMM. Create the Base Alignment and Clearance Planes. Finally, create your entire CMM program.

When you are finished proceed to the next section – Placing your part on the CMM for simulation

# **Place part on CMM**

Click on Planner/ Measurement Plan Simulation

When the model is brought in while programming the model is located near the home position. This is not a problem during programming but during simulation the stylus system will register collisions during probe changes. It is recommended that you place the model roughly where it will sit on the CMM table.

Planner		Window	<u>?</u>				
	Generate Measurement Plan						
Ľ.	Measurement plan simulation						
	Stylus system Creator						
	Import SSC File						
	Toolbox Stylus Change Rack						
	Load Work Area						
	Sav	e Work Ar	ea				
~	Sho	w work are	ea				



# 4 Ways to Move CAD Model

## Method 1

### Translation

First select the part on the CAD window . The part will now be highlighted as shown on right.

C Modify CAD Model			-		×		
CAD-Entity		asmgroup(entity 9 30)					
Edit body Create Geometry							
Edit	Hierarch	y Transformation			Positioning		
Translation							
X:		100.0000			Apply		
Υ:	[	200.0000			Сору		
z:	[	150.0000					
∼Manu	al Move -						



Now within the Translation enter the offset values. Each time you click on Apply the part will move the given values.

The part does not have to be exactly place on the CMM as a general rule unless you have a concern about the measuring volume of the CMM and the fit of the part.

## Method 2

### Manual Move





Highlight the part on the CAD window and under Manual Move check the appropriate axis to move the part. In this example, we will move the part in 3 axis. Now with the left mouse button click on a axis direction arrow and move the part. The part will move in one axis at a time. When you have finish release the axis and the part will update to that new position.

## Method 3

### Rotation

Rotation				
Space Axis	z:	~	Apply	
Angle	90		Сору	

Select an axis and enter a angle to rotate the part. When finished click apply.

## Method 4

### Position

Click on the Position button and select a point on the model. Preferably a flat portion of the model that is parallel to the table. A blue point will appear.



Now select a position on the table and the part will move to this position. Now click on the Apply button to accept this position.



This will drop the part to the table. You can now use a translation in Z, for example, to left it above the table a desired known height for a fixture, vee block, etc,,



- 1. Controls
  - a. Start
  - b. Pause
  - c. Step
- 2. Run speed
- 3. Stylus
  - a. Stylus
  - b. Stylus System
  - c. Probe
  - d. Base plate
  - e. CMM
  - f. Clearance Plane
  - g. Display Measuring Range
- 4. Collision
  - a. Collision Observance adds to collision list below
  - b. Check Measuring Range
- 5. Move
  - a. Follow Stylus system
  - b. CMM Operation
  - c. Show Navigation
- 6. Modify
  - a. Settings
  - b. Modify CAD Model
- 7. Collison List

# Simulation

Planner/ Measurement Plan Simulation



The next step is to click the Run button

Setup the Run screen as desired and the simulation will begin.