Tech Sheet

Measuring a Small Arc

Steps to measure a circle with less than 90 degree's of arc:

- 1. Measure the small arc as a Measured Circle (a measured circle is used in this example although Auto Circle will also work).
 - Measure the circle on-line or
 - Pick it from the Model or
 - Key in the values
- 2. In this example, the back arc on the Hexagon Demo Block will be used.



- 3. Edit (**F9**) the circle.
 - Add additional hits.
 - Change the "Best Fit Math Type" to "FIXED RAD".
 - Key in the **Nominal Diameter**.
 - Check 🗹 Regenerate Hit Targets
 - Press **OK**.
 - When prompted "Ok to equally space hits?" answer YES.

Feature name:	Number of hits:
CIR1	15
Reference type:	Workplane:
WORKPLANE -	ZPLUS 💌
Best Fit math type:	Coordinate system
FIXED_RAD 🔫	Rect C Polar
Regenerate hit targets	Circular feature type
Copy to actuals	C In 🔍 Out
Feature theoreticals	
X NOM: 3.8786	I NOM: 0
Y NOM: -5.7328	J NOM: 0
Z NOM: -0.2500	K NOM: 1
Diameter: 19.9409	Start angle: 100
	End angle: 60
Hit Targets	OK Cancel

pc•dmis

- 4. Execute the feature **Ctrl E** to update the measured data.
- 5. Dimension the location fixed Radius circle. This will verify the <u>location</u> of the radius.
- 6. Enter the location Nominals and Tolerances.

0	IN	LOC4 - CIR1					
AX	MEAS	NOMINAL	+TOL	-TOL	DEV	OUTTOL	
х	3.8797	3.8786	0.0100	0.0020	0.0011	0.0000	
Y	-5.732	1 -5.7328	0.0100	0.0020	0.0007	0.0000	

7. Create an Alignment and set origin on Fixed Radius circle.



8. Open the Parameter Settings Dialog *F10*. Select the Probing Tab and enable polar compensation for the active workplane.

Note: Skip this step when using CAD and use Vector points rather than Measured points.

-	Deshing		
arance Plane	Probing	Motion	Accelera
1	-		
1			
n active (ON)			
tion:			
	n active (ON)	In active (ON)	In active (ON)

9. With the joystick, measure 3 or more individual Measured Points on the Radius.

Note: If you are using CAD, use Vector Points and pick from model.



10. Dimension the individual points using Location dimension
☐ and select the "
Prad" check box (Polar Radius). This will verify the size of the radius.

Feature Location							
ID: LOC1 Search ID: Select Last #: CIR1 PNT1 1 PNT2 2 PNT3 3	Axes Auto X Y Prad Pang Defau Sheet met T S PD Location o Retrol Gap o Half a	D R A L H V It Form al axes RT RS ptions inear only nly ngle	Tolerances Axes: Plus: Minus: ISO limits and Nominal size: Tolerance da NONE Tolerance gr NONE Dimension in Display Edit.	PR .01 .01 .01 .01 .01 .01 .01 .01 .01 .01	Create Close Units Improvement Cotput to Cotput to Cotput		
PNT1 = Measured Point PNT2 = Measured Point PNT2 = Measured Point	R Axis	Nominal	+Tol	-Tol	Update Feature		
Pivi 5 = Measured Point	X	-2.250588	0.002000	0.002000			
	Y	9.713173	0.002000	0.002000			
	Z	-0.303681	0.002000	0.002000			
	PR	9.970500	0.010000	0.010000			
	PA	103.045496	0.010000	0.010000		Ξ	
	A	45.000000	0.000400	0.000400			

11. Enter Nominals and Tolerances for the Polar Radius'.

†	IN	LOC1 - PNT1					
AX	MEAS	NOMINAL	+TOL	-TOL	DEV	OUTTOL	
PR	9.9720	9.9705	0.0100	0.0100	0.0015	0.0000	
#	IN	LOC2 - PNT2					
AX	MEAS	NOMINAL	+TOL	-TOL	DEV	OUTTOL	
PR	9.9716	9.9705	0.0100	0.0100	0.0011	0.0000	
#	IN	LOC3 - PNT3					
AX	MEAS	NOMINAL	+TOL	-TOL	DEV	OUTTOL	
PR	9.9701	9.9705	0.0100	0.0100	-0.0004	0.0000	

12. Open the Parameter Settings Dialog **F10** and turn <u>off</u> polar compensation.