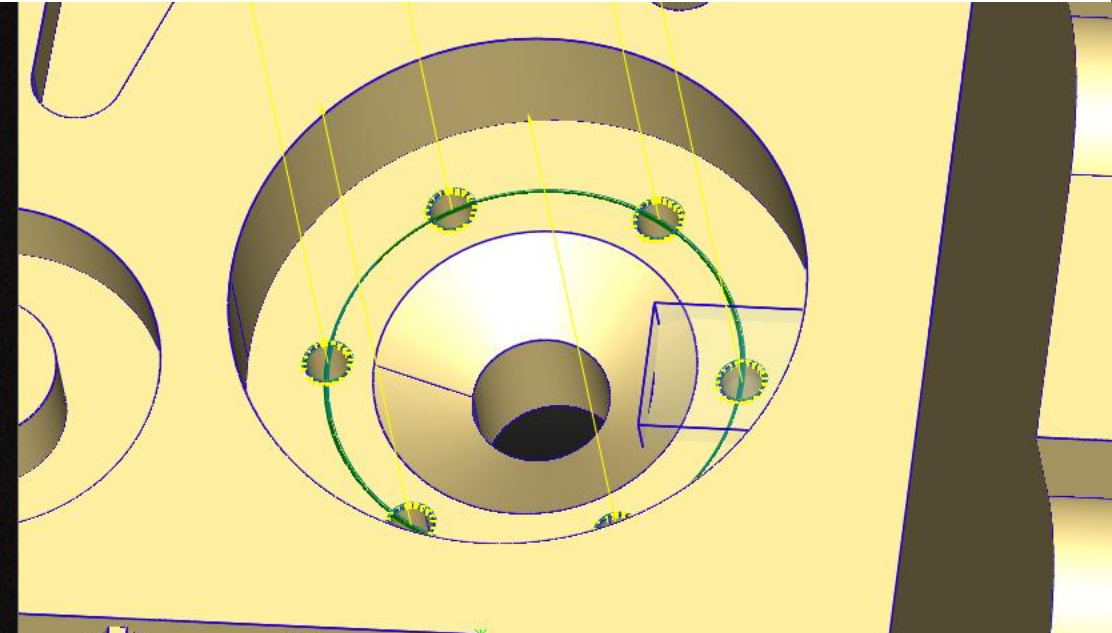
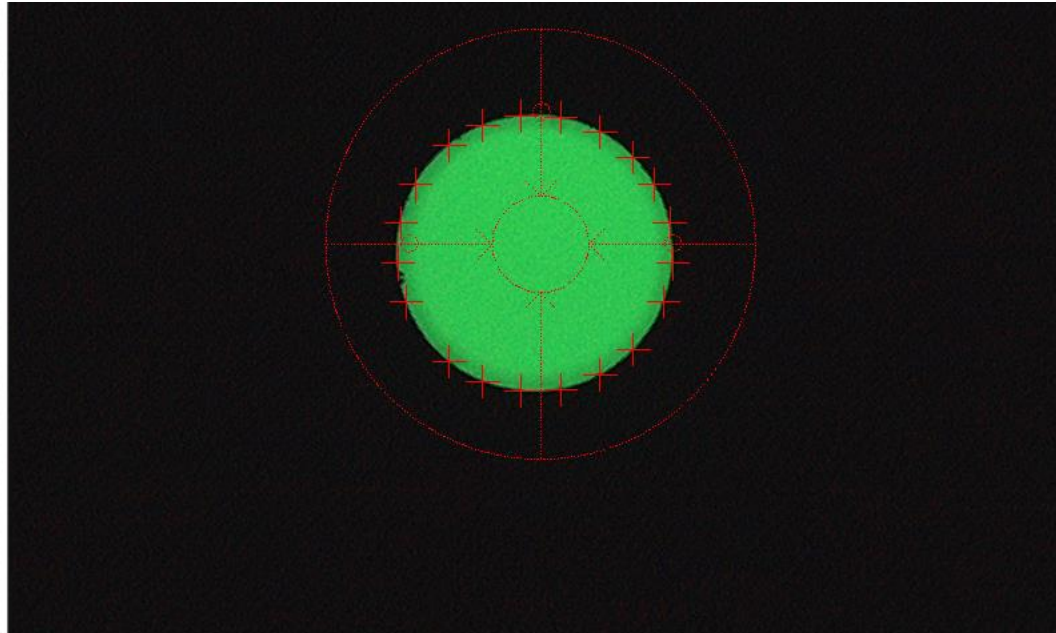


Constructions in ZONE3

Reference Slides

Feature Tree:

- Point2
- Alignment2
- GoTo1
- End Routine1
- Routine2
 - Recall1
 - Plane1 [A]
 - Line1 [B]
 - Line2 [C]
 - Alignment3
 - Circle1
 - Circle2
 - Circle3
 - Circle4
 - Circle5
 - Circle6
 - Next Step**
- End Routine2



Editor

Construct BestfitCircle

Alignment3 mm

Circle7 (Report)

Step Name: Circle7

Result Feature Type: BestfitCircle

Feature Name: Circle7

Evaluation Type: Least Squares








Datum:

Feature
Circle1
Circle2
Circle3
Circle4
Circle5
Circle6

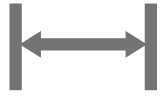
Attribute	Nominal	Actual	Upper Tol.	Lower Tol.	Graphics	Results	File
Radius	9.000000	8.998196	0.000000	0.000000		Never	Never
X	57.000000	56.951523	0.000000	0.000000		Never	Never
Y	25.000000	24.926001	0.000000	0.000000		Never	Never
Z	-7.000000	-6.999906	0.000000	0.000000		Never	Never
R	62.241465	62.167367	0.000000	0.000000		Never	Never
A	23.6821	23.6376	0.0000	0.0000		Never	Never
I	0.000000	-0.000053	0.000000	0.000000		Never	Never



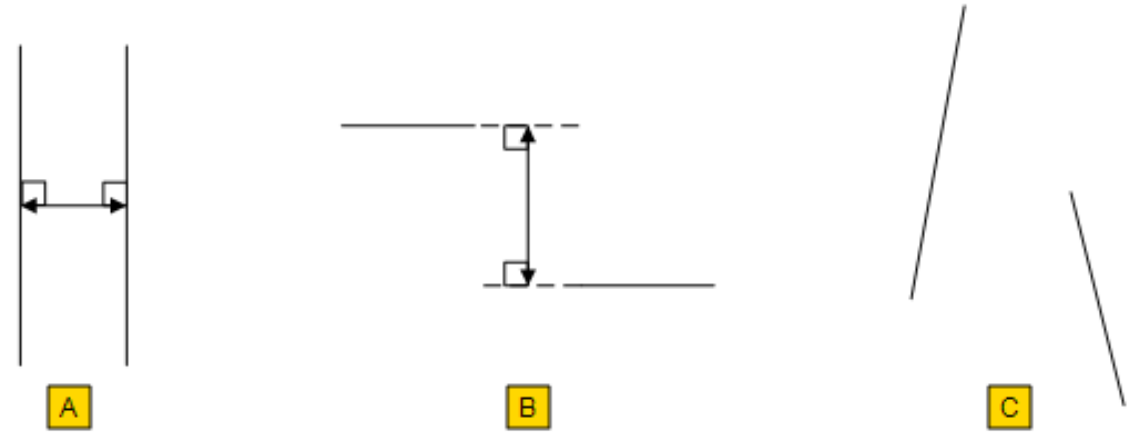
Result Feature Type

 Distance
 Distance
 Distance Min
 Distance Max
 Perpendicular
 Perpendicular Min
 Perpendicular Max

- Adds a step that constructs a distance between two input features
- Calculates the distances from one feature's center point to another feature's center point
- Center point is the centroid or apex of cone

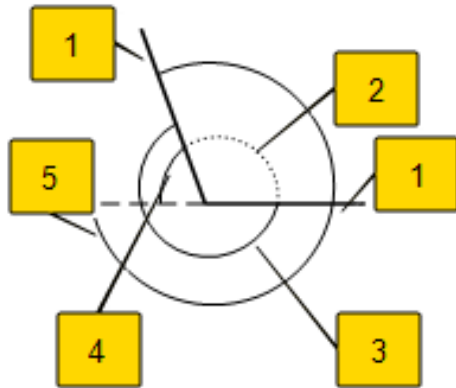


- Adds a step that constructs a Width between two approximately parallel lines or planes
- GD&T evaluations can be done on Width steps



Examples of Width constructions

- A** Parallel lines of the same length, between which a *Width* construction is calculated
- B** Parallel lines, extended, between which a *Width* construction is calculated
- C** Lines which are not approximately parallel, between which a meaningful *Width* construction cannot be calculated









Attributes of a constructed angle projected into the XY plane

- 1** A feature vector
- 2** XYInc – The included angle between the feature vectors after they have been projected into the XY plane
- 3** XYIncB – The conjugate of XYInc (i.e., $360^\circ - \text{XYInc}$)
- 4** XYSup – The supplement of XYInc (i.e., $180^\circ - \text{XYInc}$)
- 5** XYSupB – The conjugate of XYSup (i.e., $180^\circ + \text{XYInc}$)



- Adds a step that constructs an angle between two input features
- Calculates angle after the feature vectors have been projected into the XY, YZ, and XZ planes
- Calculates angle in 3D


- Adds a step that constructs a feature based on the selected input features
- Displays a rank-ordered list of candidate constructions, based on the form error of the constructed feature calculations

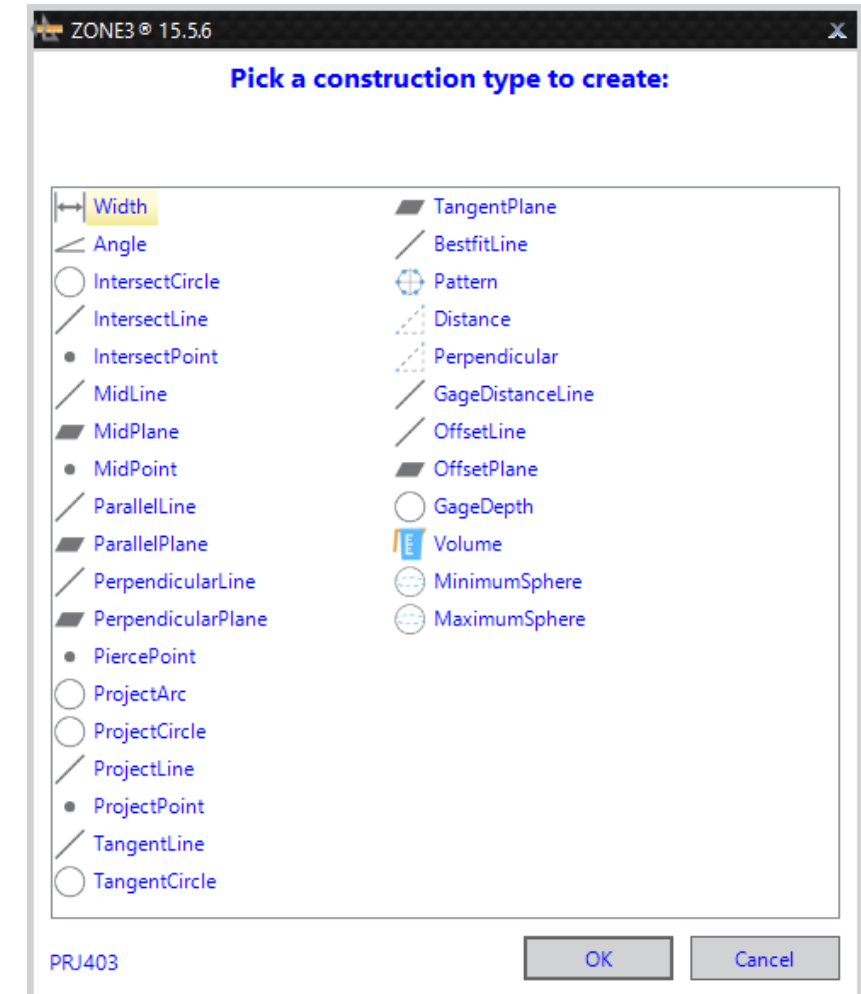
Result Feature Type

 OffsetPlane	▼
 OffsetPlane	▲
 OffsetLine	
 BestfitLine	
● IntersectPoint Opt.1	
● IntersectPoint Opt.2	
● IntersectPoint Opt.3	
 ParallelLine	
 PerpendicularLine	▼

Feature

 Circle32
 Line62

1. Select the type of feature you want to construct
 - Select feature from Construct tab
2. Have ZONE3 suggest feature types based on input features
 - Select Auto from the Construct tab 
3. Select multiple input features and construct a specific type of feature between each consecutive pair of input features
 - Right-click on group step(s) or multiple steps from the Routines Tree and select Create Constructions Between



Constructions: Key Terms



Angle: A step that constructs an angle between exactly two input features.

Auto: A step that constructs a feature based on the input features you select. A rank-ordered list of candidate constructions is displayed, based on the form error of the constructed feature calculations.

Construct Tab: Ribbon group that contains constructed-feature steps.

Create Constructions Between: Workflow used to create constructions between multiple pairs of features in a single operation.

Distance: A step that constructs a distance between two input features.

Distance Max: For circles and holes; adds the radius of each feature to the distance calculation. Generally only valid for the construction of 2D distances between two coplanar reference features.

Distance Min: For circles and holes; subtracts the radius of each feature from the distance calculation. Generally only valid for the construction of 2D distances between two coplanar reference features.

Pattern: A step that constructs a pattern.

Perpendicular (distance): For line reducible and planar features: calculates the length of a line drawn perpendicular to the reference feature to the centroid point of the considered feature. For conical and cylindrical features: calculates the centroid-to-centroid distance of the circles.

Width: A step that constructs a width between two approximately parallel lines or planes.