**Iterative Alignment, zero start point of lead curve**

Recently a customer presented the challenge of; "setting to zero" a specific point on a rotor lead curve. They had success with some rotors and not others. After making some observations it was concluded the problem rotors were those with the shallowest helix (more wraps).

The original method was, to iterate the Base Alignment, using a space point for rotation. The difficulty with this method was, the more wraps of the helix the more the space point controls Z and the harder it is to control X and Y. Also, as programmed originally, **value A** was checked as it applied to ALL the features of the base alignment. In reality the only feature of interest was the space point so it would be better to isolate the space point from everything else.
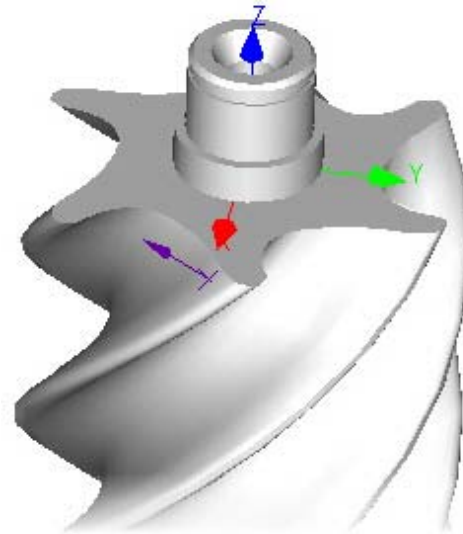
baseSystem().valueA<0.001

1. This Boolean expression is checked at the end of each loop and when it is satisfied (value of the expression = true), the loop is stopped. The value of the valueA variable is recalculated each time the loop is run. It stands for the approximation between the measured alignment and the alignment stored in memory. In the standard protocol, valueA is designated as "Delta".
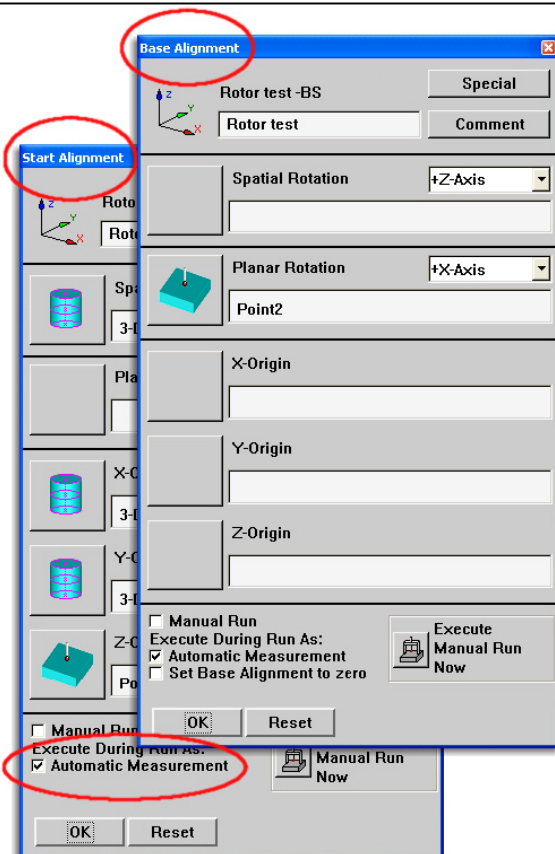
To accomplish this, create a new Measurement Plan with a Start Alignment that contains the 3D line and point for Z. This is set to run automatically.

In the Base Alignment, there is only a Space Point for rotation. This way the **value A** is only that of each subsequent space point. Also, a null sub-clearance plane on the space point will eliminate unnecessary movement.

At run time, click the radio button for Start Alignment. The program measures the circles for the 3D line, the Z point, and then goes to the Base Alignment. It now measures the spaces point repeatedly, never moving farther than the clearance distance.

The **value A** break condition might be set to 0.001. After refixturing the part, it will require maybe 5 to 8 iterations, most always less than 10 (the loop max is 50). Because only the space point is iterating, the cycle time is acceptable.

The key is to watch the Value A in the default printout. The larger the change from the manual alignment, the more iterations necessary. Note; if the vector is close to 45 degrees, only about half of the alignment error is removed with each iteration.