

TOLERANCE ZONE TESTING

Task

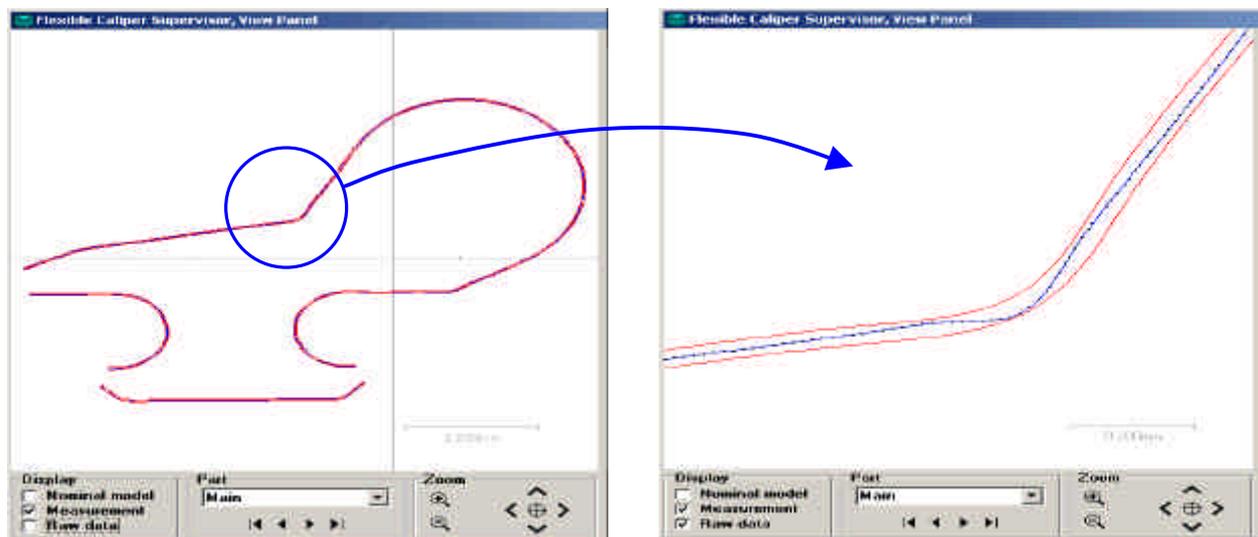
Quite often object geometries are simply specified to stay within a given tolerance zone relative to a nominal geometry. Such a test may be tedious and complicated. We therefore need systems that do this automatically, without operator involvement.

Solution

The Conoptica software gives access to some powerful and easy-to-use tools for tolerance zone testing. This is accomplished by means of the so-called Parameters Of Interest (POI) called “Tolerance Zone” and “Min Tolerance Adaptation”. By setting the “Tolerance Zone” as a given width, of for example 0.010 mm, it will be graphically displayed by +/- half this width (+/- 0.005 mm) relative to the nominal geometry. In the illustrations (see below) this zone is indicated in red, while the measurement curve and measurement data are indicated in blue and by black dots respectively. The “Min Tolerance Adaptation” calculates the smallest tolerance zone that the measured geometry can possibly fit inside. By setting up an automatic tolerance testing the value calculated by the “Min Tolerance Adaptation” is compared with the “Tolerance Zone” value and a go or no-go signal is issued.

Benefit

By using the Conoptica setup for tolerance testing your company will have access to a powerful tool for tolerance testing that both saves operator time and nearly eliminates operator evaluation. By means of only two parameters the operator may effectively specify, set up, and test complicated geometries, without having to spend time and effort on geometrical analysis and testing. The tolerance test is accurate and presents itself in a graphically intuitive manner.



Step by Step

A tolerance test is carried out by:

- Adding the two POI's called “Tolerance Zone” and “Min Tolerance Adaptation”,
- Setting up an automatic tolerance test where the “Min Tolerance Adaptation” value is compared with the “Tolerance Zone” value,
- Starting measurement and receiving an inside or outside the-tolerance-zone signal,
- Observing the cause of mismatch by magnifying graphical deviation details.