

14 W. Collings Avenue, West Berlin, NJ 08091



Yield Analysis Methods: Slope & Offset

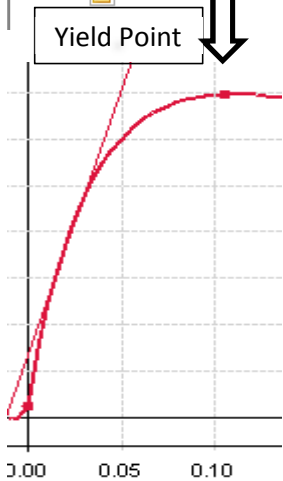
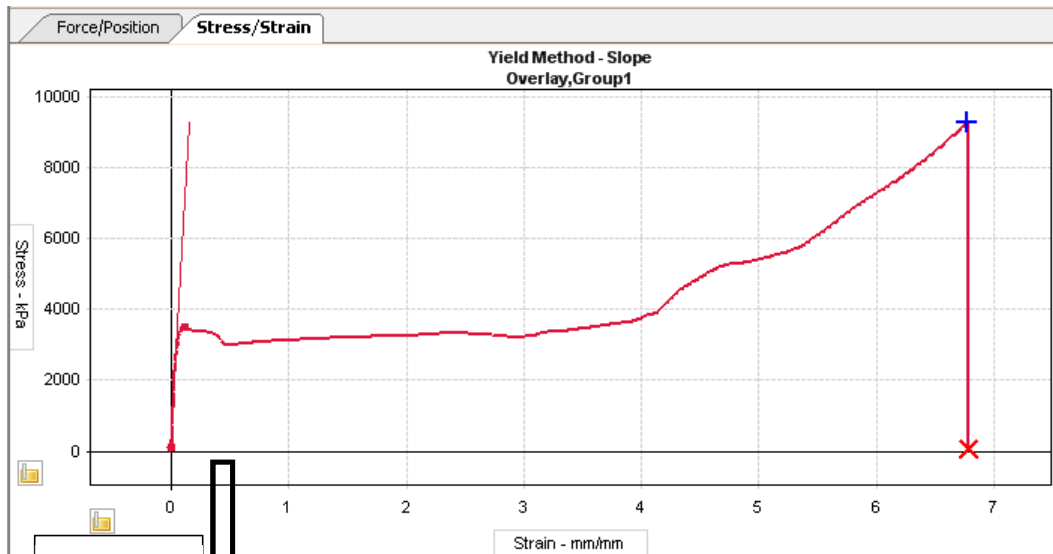
There are two options to choose from if Yield Point Analysis is turned on for a test. These can be changed in the Setup



Icon . The Yield Point is a point on the stress-strain curve at which there is a sudden increase in strain without a corresponding increase in stress. Yield Point is also described as the first point on the stress-strain curve at which an increase in strain occurs without an increase in stress. Once the Yield Point is defined, the Yield Strength and Yield Elongation can be calculated.

Slope Method:

When selected in MAP4, the Slope Method of determining Yield searches raw data for a Nero Zero Slope in the section of the curve we define. This point separates the Elastic from the plastic regions. Materials may or may not have a clearly defined yield point. The slope method will work best with a clearly defined elastic region.

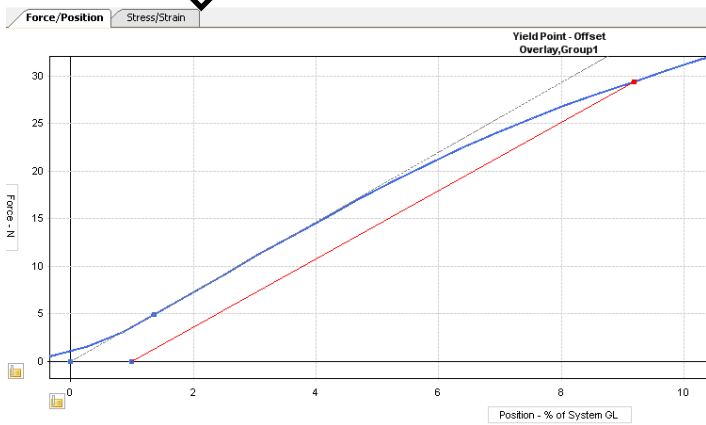
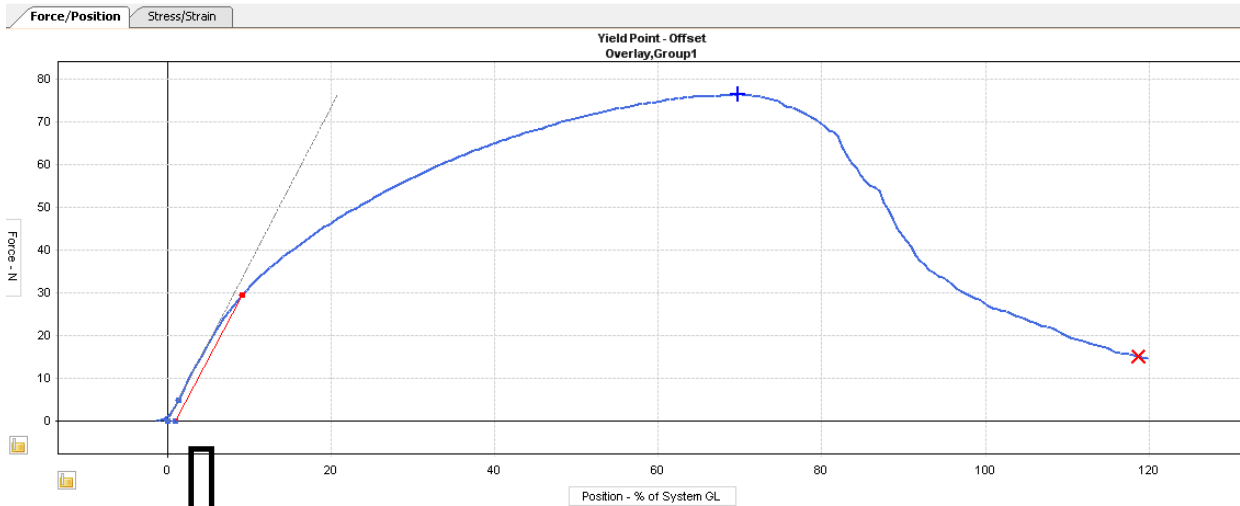


This sample exhibited a steep increase in force over its elastic region at the beginning of the test. MAP4 searches the raw data for the Slope (Stress/Strain) when it is as close to Zero as possible. This is seen graphically as the initial peak levels off in the magnified picture to the left.

14 W. Collings Avenue, West Berlin, NJ 08091

Offset Method:

Because of the difficulty in determining the elastic limit, and since many materials do not have an elastic region, the Yield Point is sometimes determined by the Offset Method. The Offset method simply uses a set or strain, commonly 0.1 or 0.2 percent of the original gage length.



This sample shows the Offset Line in Red where it intercepts the graph at the Yield Point. It runs parallel to the Modulus of Elasticity and is Offset by 1% for display purposes. (commonly 0.1 or 0.2% for actual testing) Note the difference between the shape of the curve in this example vs. our Slope method example above.