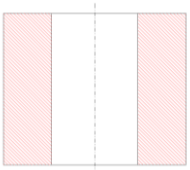
Introduction – 'Die Press' web application calculates the radial and tangential stresses in the inserts and casing in an interference-fit tool assembly. It determines the optimum interference between the insert(s) and the casing to withstand the forging pressure for the metal forging application. For a two or three ring die assembly, it can determine their dimensions that would allow the dies to take the maximum internal pressure. This web application has been developed for tool designers and engineers in the metal forming field including cold forging, hot forging, extrusion and press fitting applications.

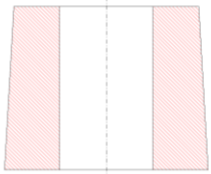
Application - Cold and Hot forging tooling, Extrusion Tooling, Press fitting of components. Any application where the tool must withstand high internal pressure.

Analysis Included in the Software - The software uses the simple theory of thick cylinders to determine the following:

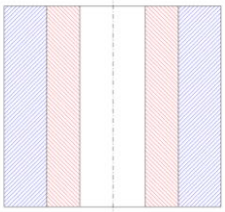
1. Radial and tangential stresses in one ring, two ring and three ring die assemblies with press fit and internal forging pressure
2. Optimum Interference to withstand internal pressure in a two and three ring die assembly
3. Optimum Insert Outer Diameter in Two ring assembly for given insert bore and outside diameter of casing
4. Optimum Insert / Middle Sleeve Diameters in a Three ring assembly for given insert bore and casing outside diameter
5. Fatigue Plot - This plot shows the stress amplitude and mean stress that determines life of a tool under fatigue conditions.
6. Calculation of 'Set Back distance' for taper insert – casing assembly
7. Press Force required to assemble two components under interference conditions.



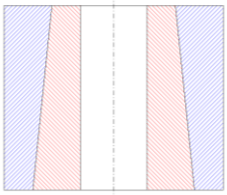
SINGLE CYLINDER



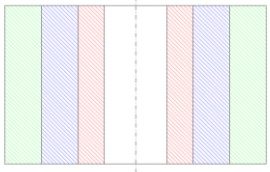
TAPER CYLINDER



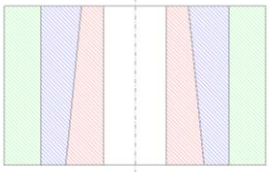
2-PIECE STRAIGHT PRESS FIT



2 PIECE TAPER PRESS FIT



3 PIECE STRAIGHT PRESS FIT



3 PIECE TAPER PRESS FIT

Benefits - Helps to Improve tool life. Allows die assembly to work under higher die pressure. Determines the inserts and casing dimension that optimizes tool material usage. Determine the best press fit amount quickly. Visual presentation of stress helps in understanding the effect of interference fit in tools.

Available Calculations -

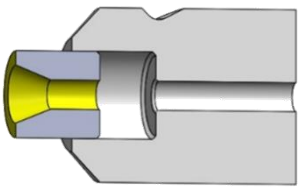
1. Single Ring – Internal & External Pressure
2. Two Ring Die Assembly – Stresses
3. Two Ring Die Assembly – Interference
4. Two Ring Die Assembly – Optimum Dimension
5. Three Ring Middle Slotted Assembly – Stresses
6. Three Ring Die Assembly 32-1 – Stresses
7. Three Ring Die Assembly 32-1 – Optimum Dimensions
8. Three Ring Die Assembly 123 Holistic – Stresses
9. Three Ring Die Assembly 123 Holistic – Interference
10. Three Ring Die Assembly 123 Holistic – Optimum Dimensions
11. Suggested Dimensions – Casing / Inserts
12. Interference Fit Press Force
13. Taper Setback Calculator

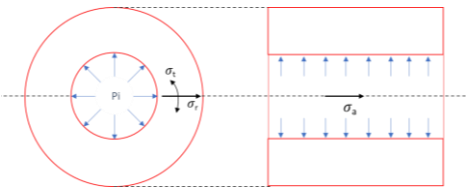
Cost - $200 / Year. Click to Purchase

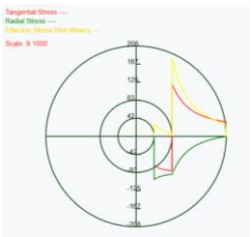
Contact – info@nagform.com

Company Information

Metal Forming Systems, Inc.
7974 N. Lilley Road
Canton MI – 48187
Ph. 734.6581716

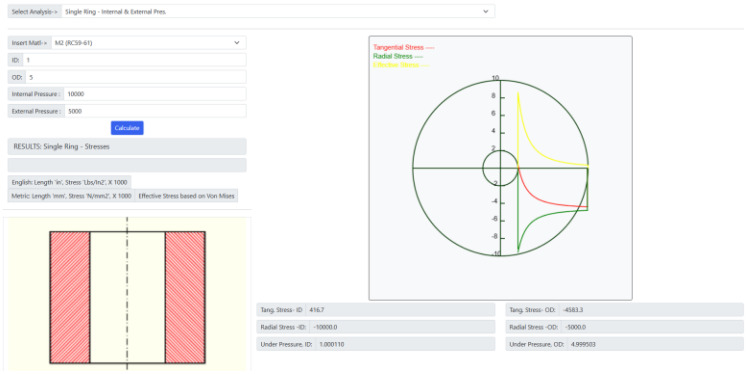




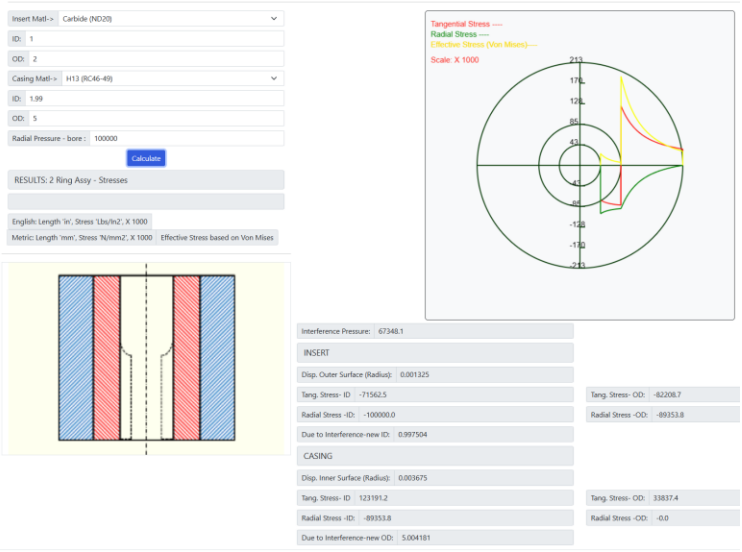


EXAMPLES

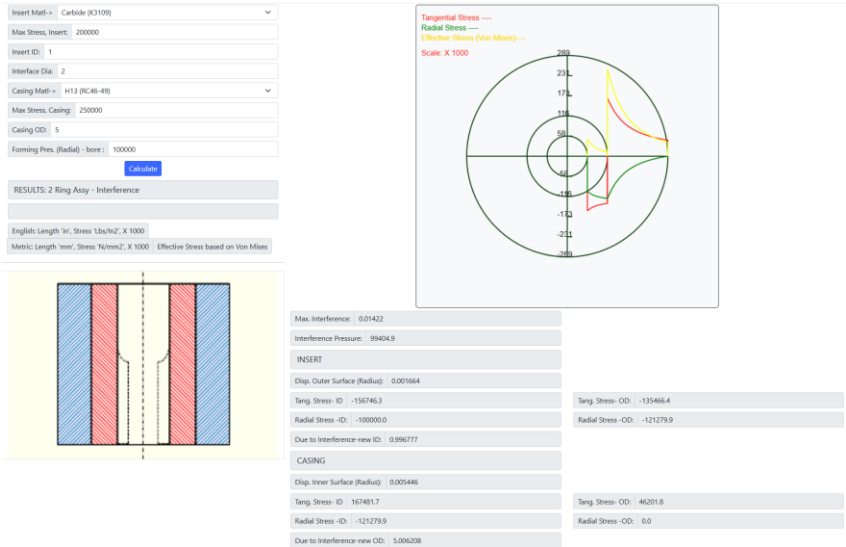
1. Single Ring – Internal & External Pressure



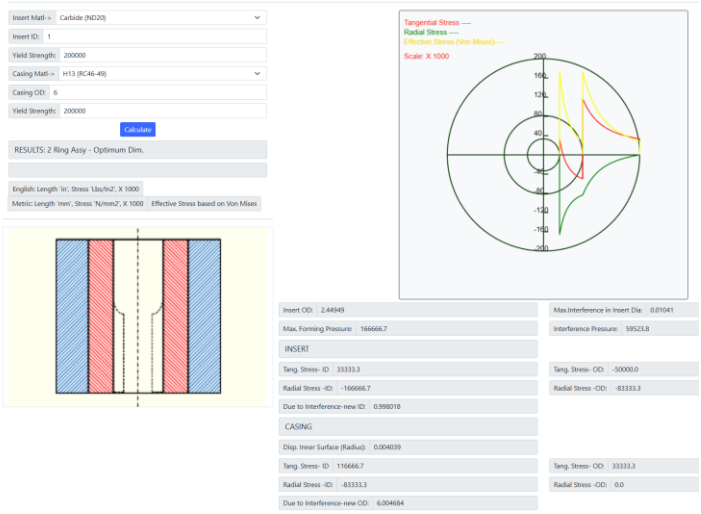
2. Two Ring Die Assembly – Stresses



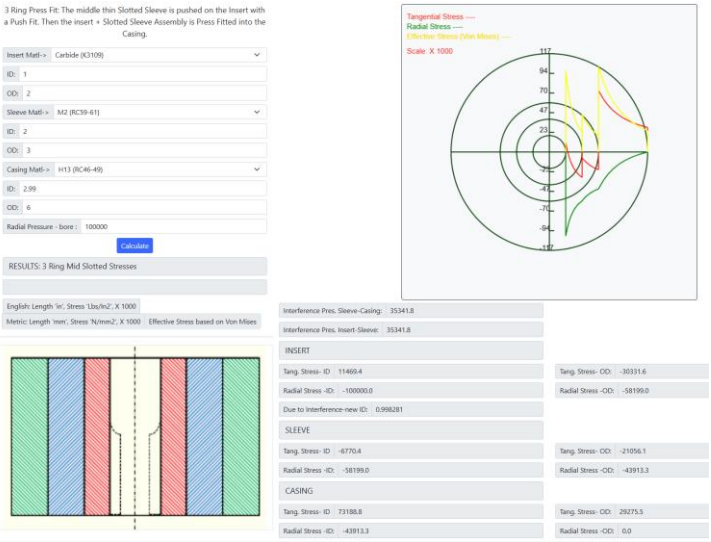
3. Two Ring Die Assembly – Interference



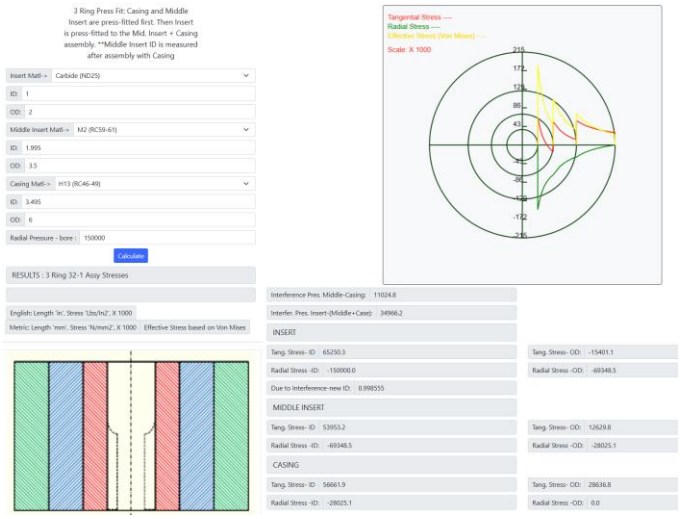
4. Two Ring Die Assembly – Optimum Dimension



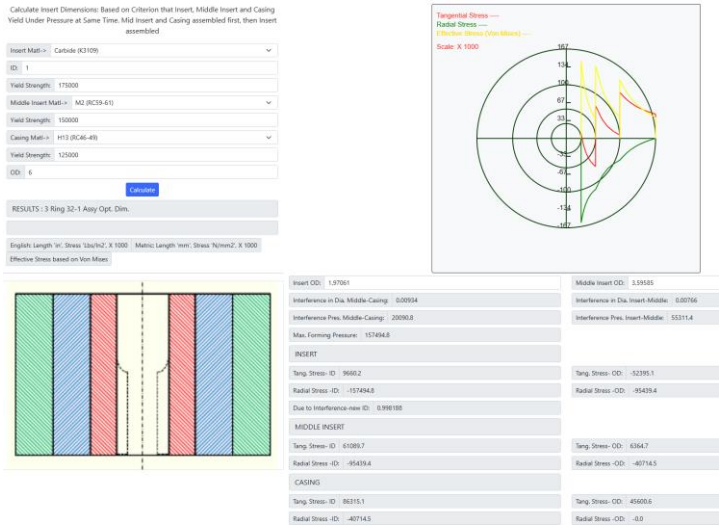
5. Three Ring Middle Slotted Assembly – Stresses



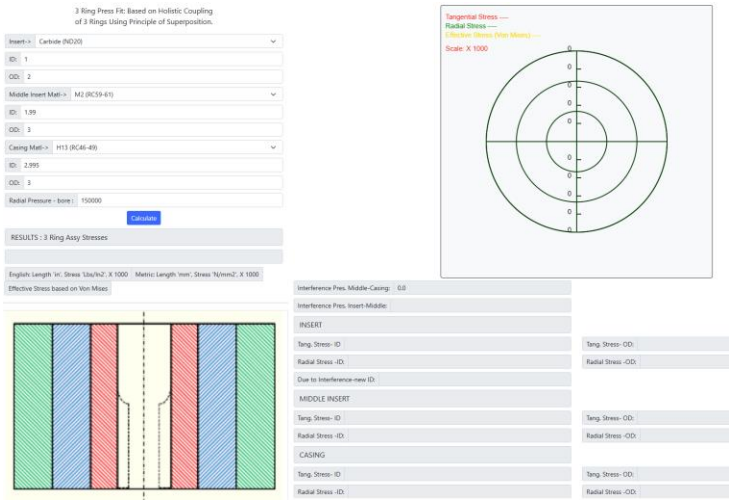
6. Three Ring Die Assembly 32-1 – Stresses



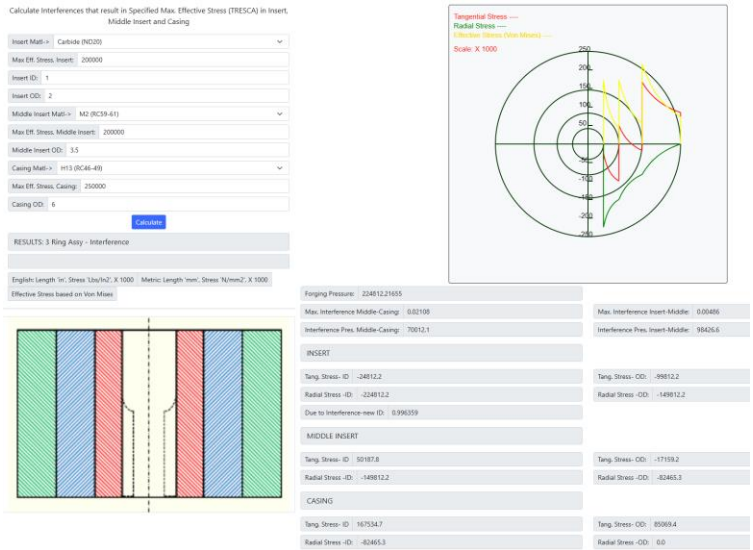
7. Three Ring Die Assembly 32-1 – Optimum Dimensions



8. Three Ring Die Assembly 123 Holistic – Stresses



9. Three Ring Die Assembly 123 Holistic – Interference



10. Three Ring Die Assembly 123 Holistic – Optimum Dimensions