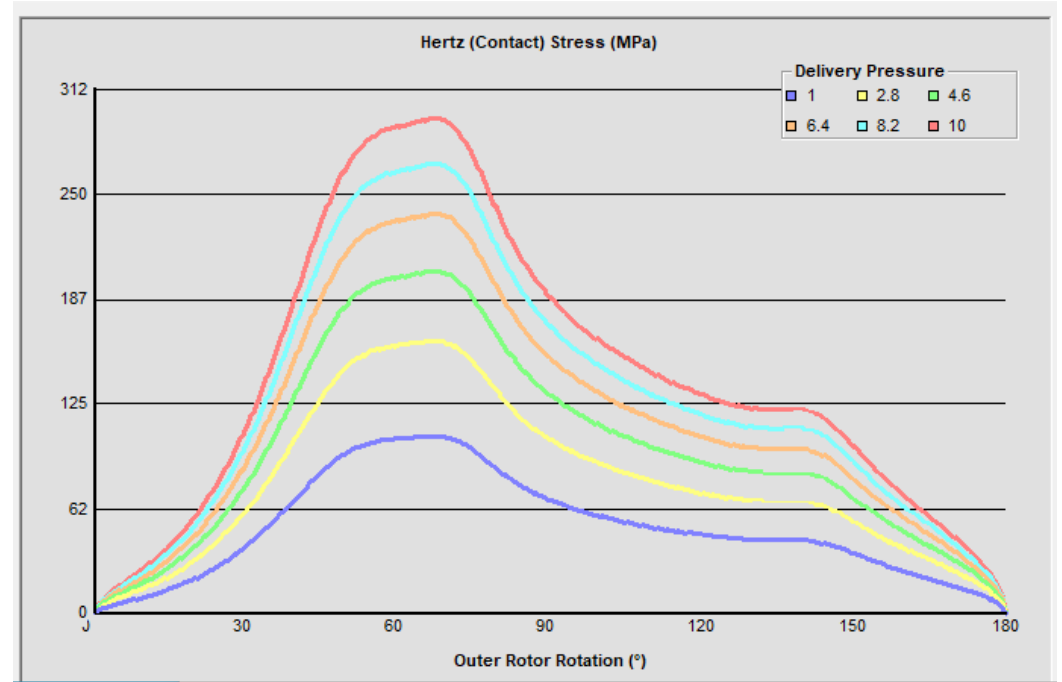
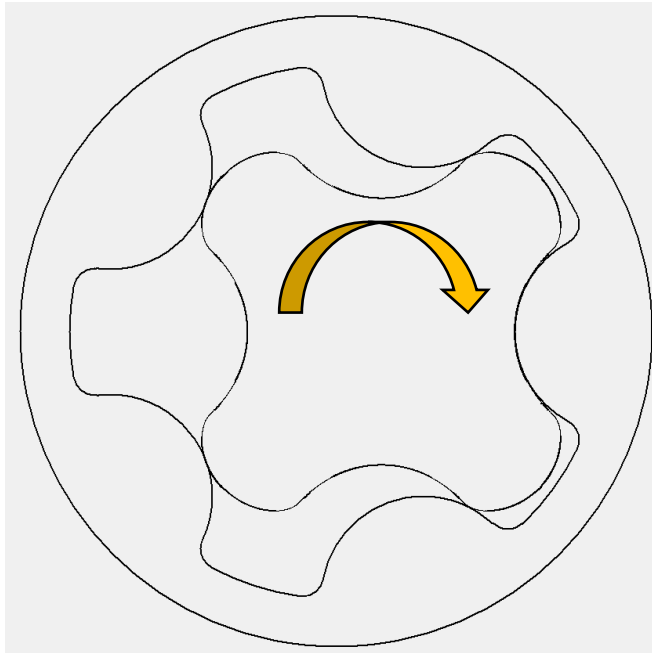


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## **Gerotor Contact Stress Plot Explanation**

**19/04/2021**

## Gerotor Contact Stress



The graph plots the contact stress between the inner and outer rotors as the gerotor assembly rotates. Only one outer rotor lobe is considered for the calculations.

The following page shows an example gerotor set and the contact point as rotation occurs.

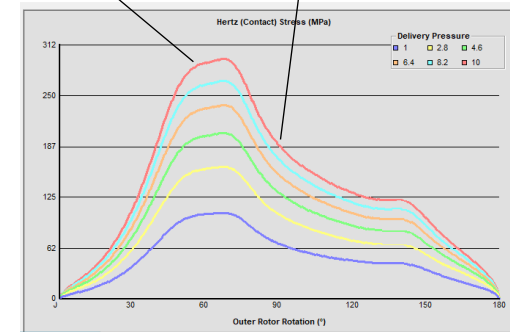
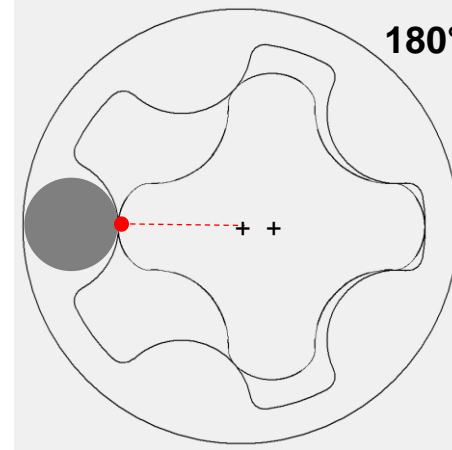
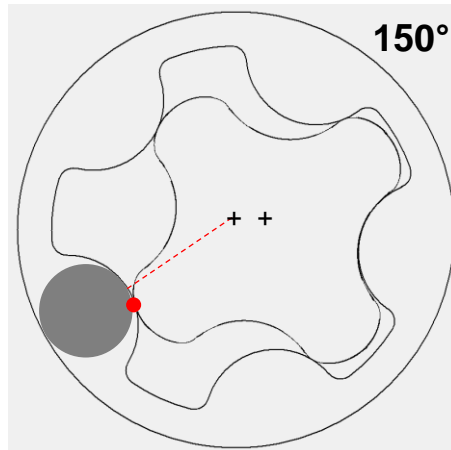
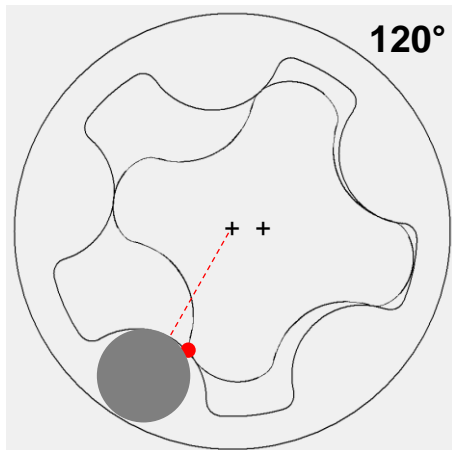
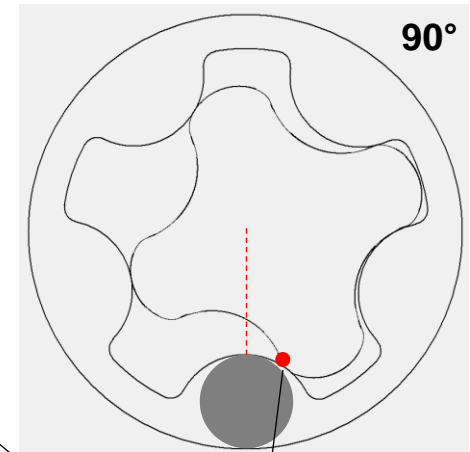
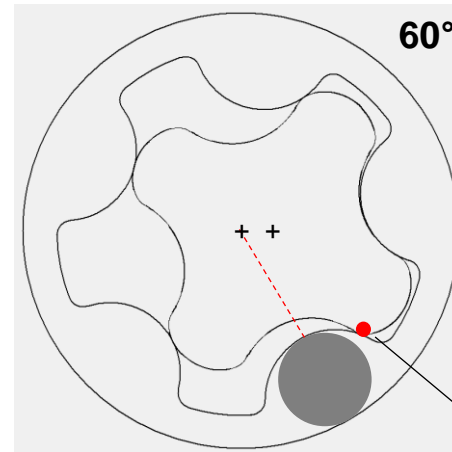
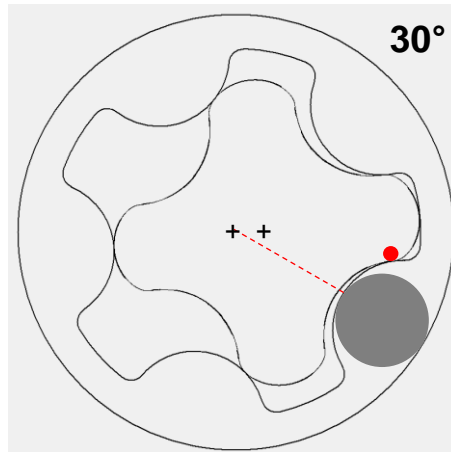
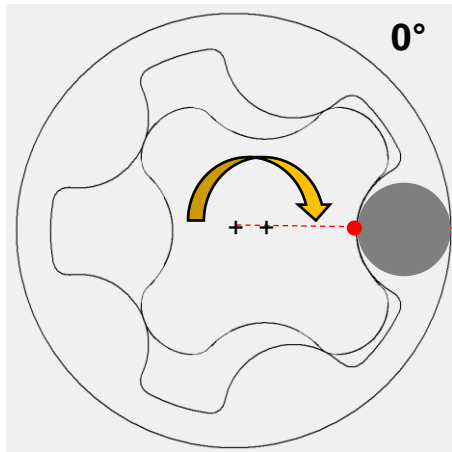
Please note that contact is only at the 'inlet' side of the gerotor, as there is a gap between lobes on the 'outlet' side due to the outlet pressure holding the rotors apart. This is why the graph is only for 180° of rotation and not 360°.

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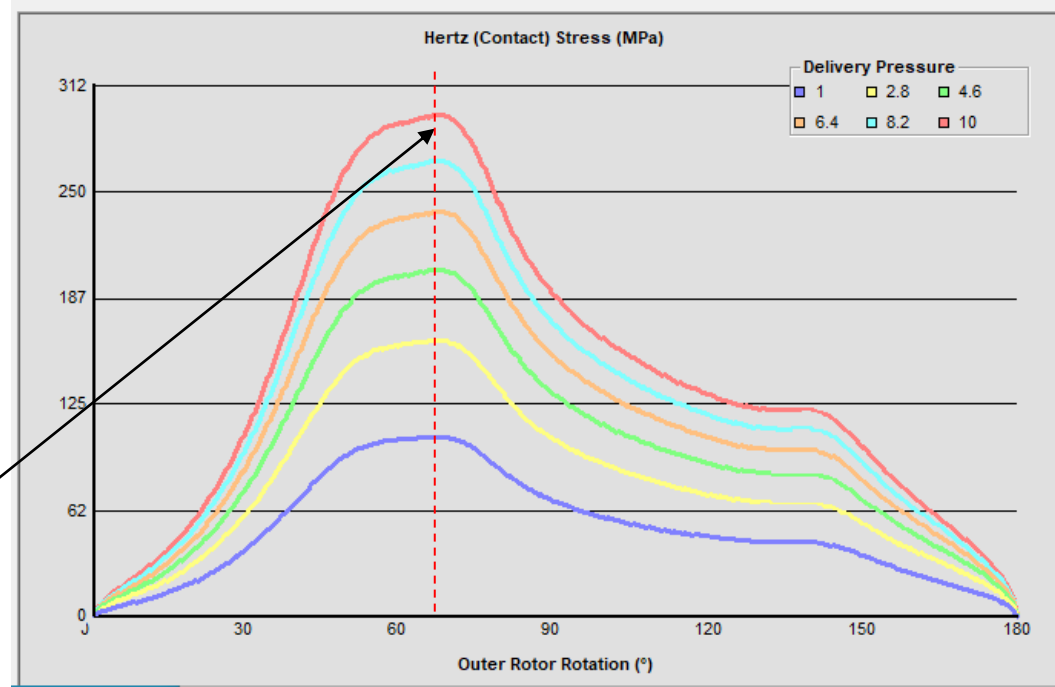
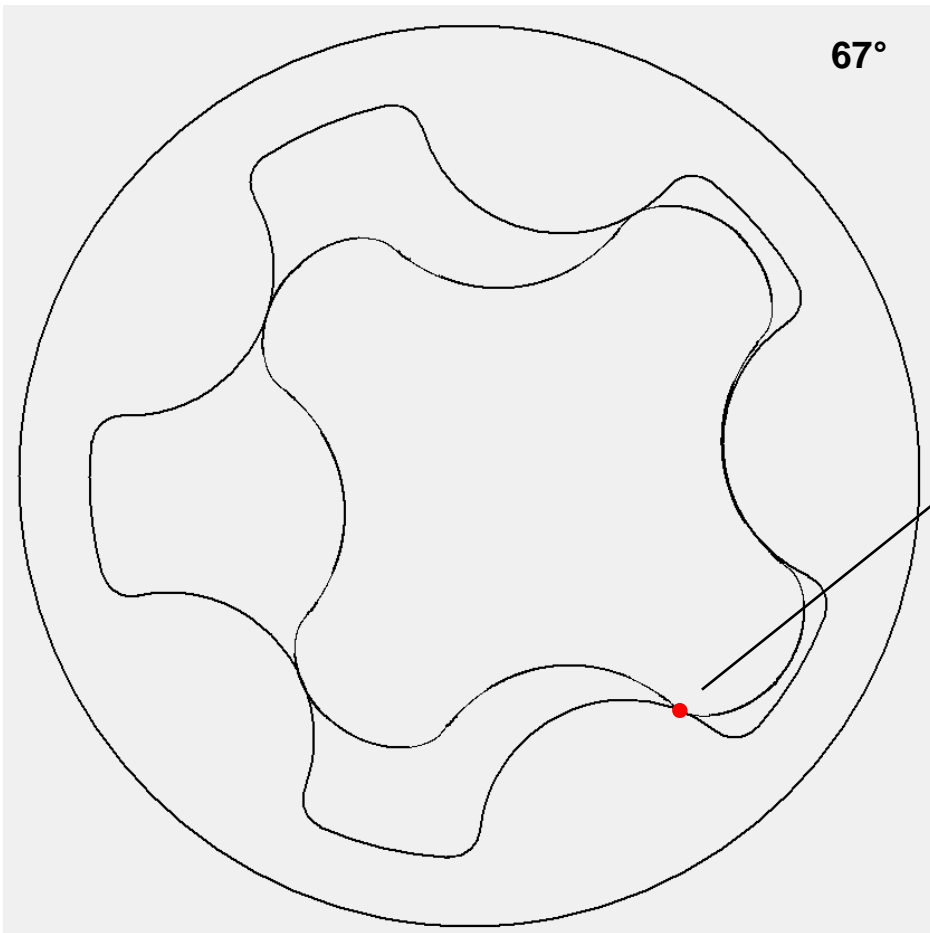
● = Contact Point under consideration  
 + = Centre of Rotation (Inner and Outer Rotors)

● = Outer rotor lobe used for contact stress calculation (visual aid only)



The position of the outer lobe under consideration is shown by the dark grey circle.  
 The actual contact point is shown as the red dot.

## Position of Maximum Stress



This is the highest stress point. Examining the geometry between the inner and outer lobes at this point it can be seen that the smallest radius of the inner lobe is in contact at this point – leading to the highest stress. Changes in the geometry of the gerotor can help this situation (usually a change in the Outer Rotor Lobe Radius).

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