



NAMTEC Cluster Presentation

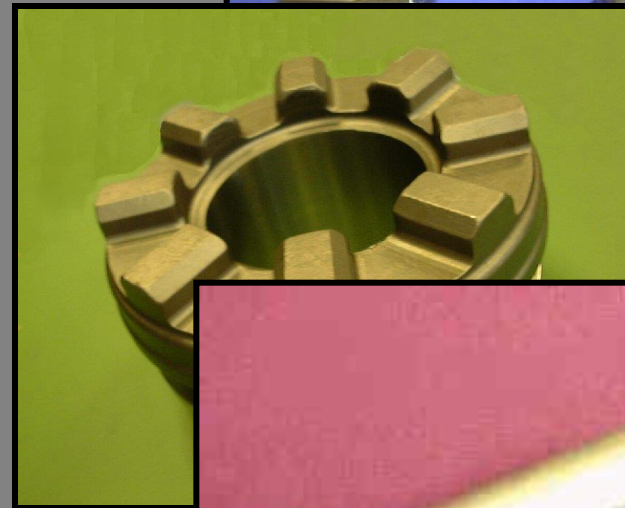
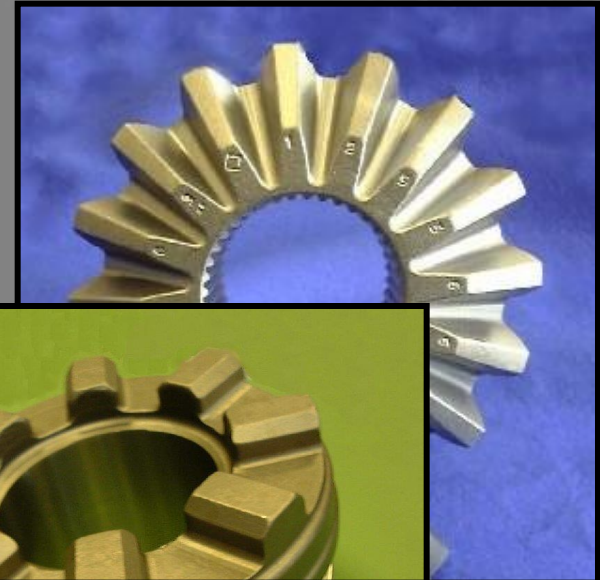
- Cramlington Precision Forge
- 23 Toothed Gear Problem
- Geared Shaft Problem





Cramlington Precision Forge

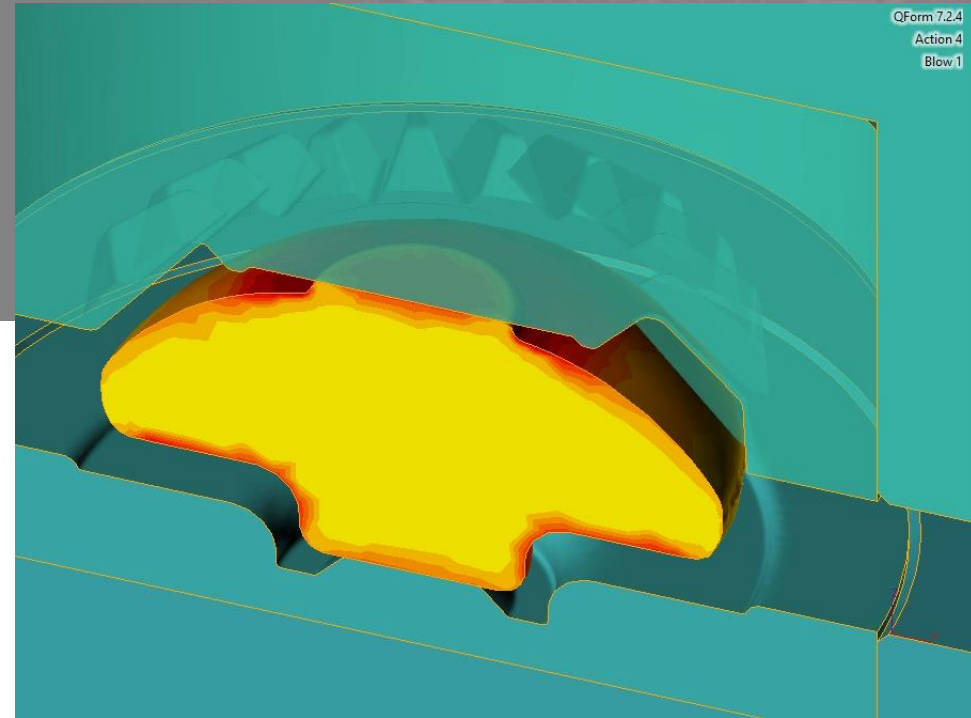
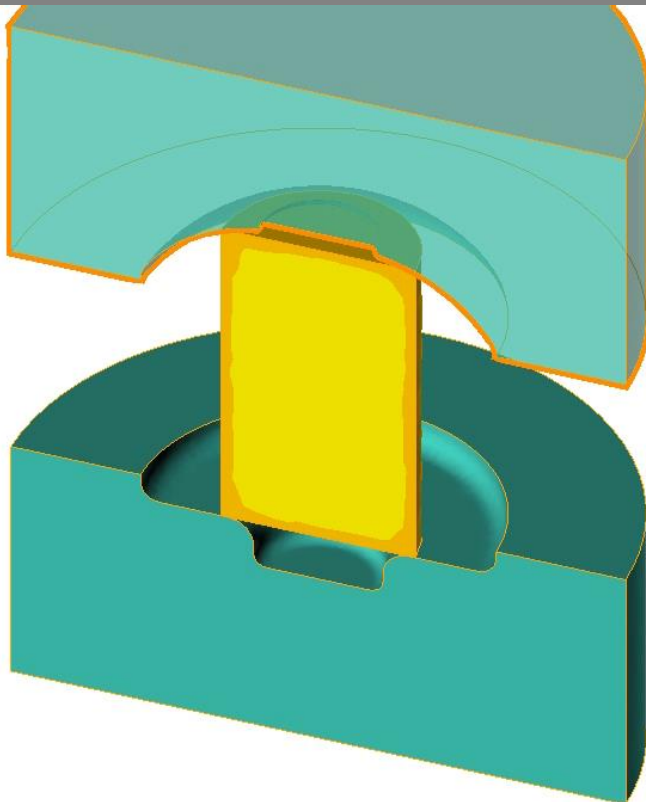
- ◆ Owned by T V Sundram Fasteners Company (India) Since 2002
- ◆ Core Products are Precision-Forged Bevel Gears, Clutches and Shaft Blanks
- ◆ Approx 54 Employees with £4 Million Turnover (2005)





23 Tooth Bevel Gear

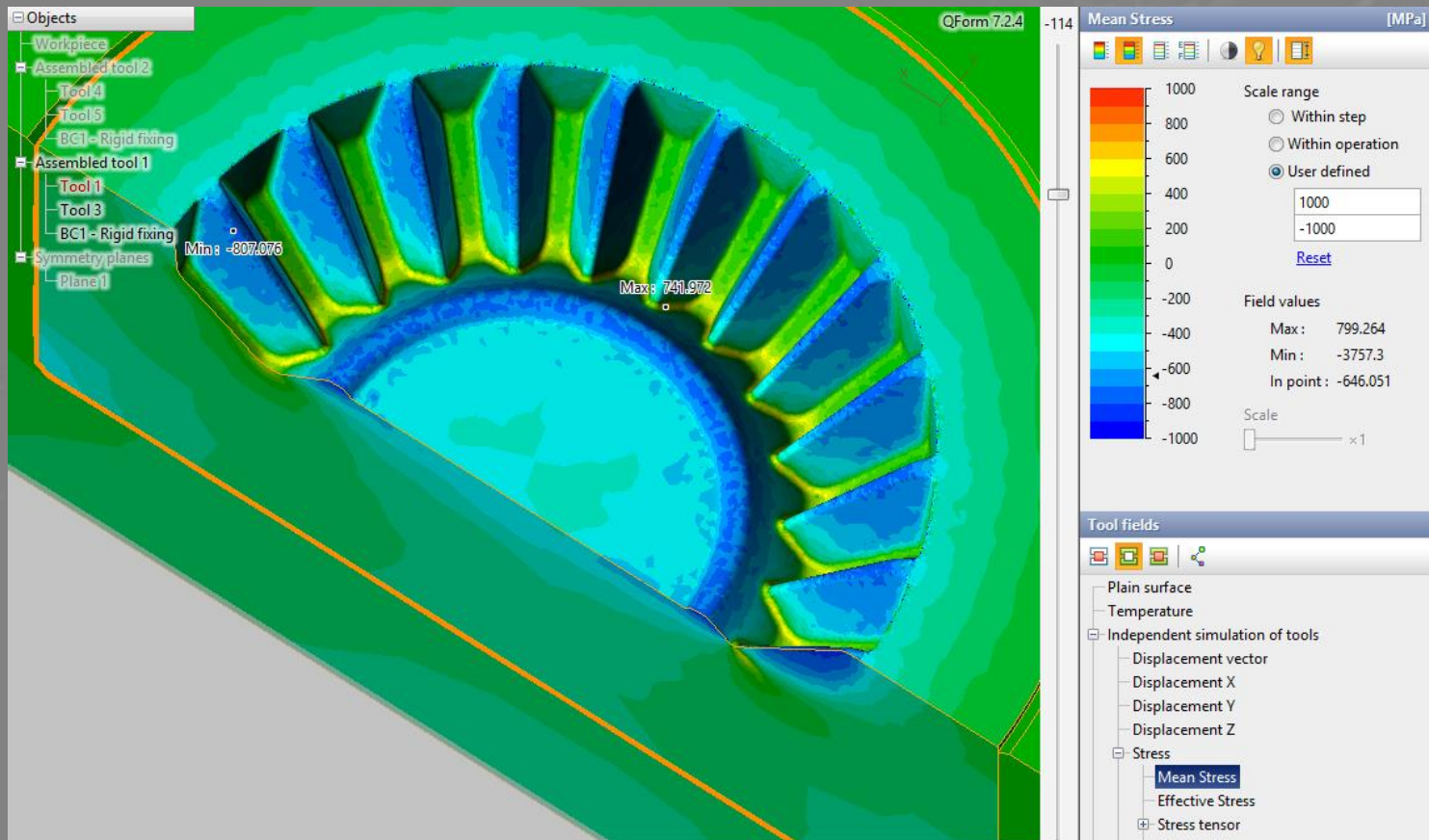
- ◆ Simulated in Half Section on QForm





23 Tooth Bevel Gear

- ◆ Maximum Stress Shown Where Dies Were Cracking





23 Tooth Bevel Gear

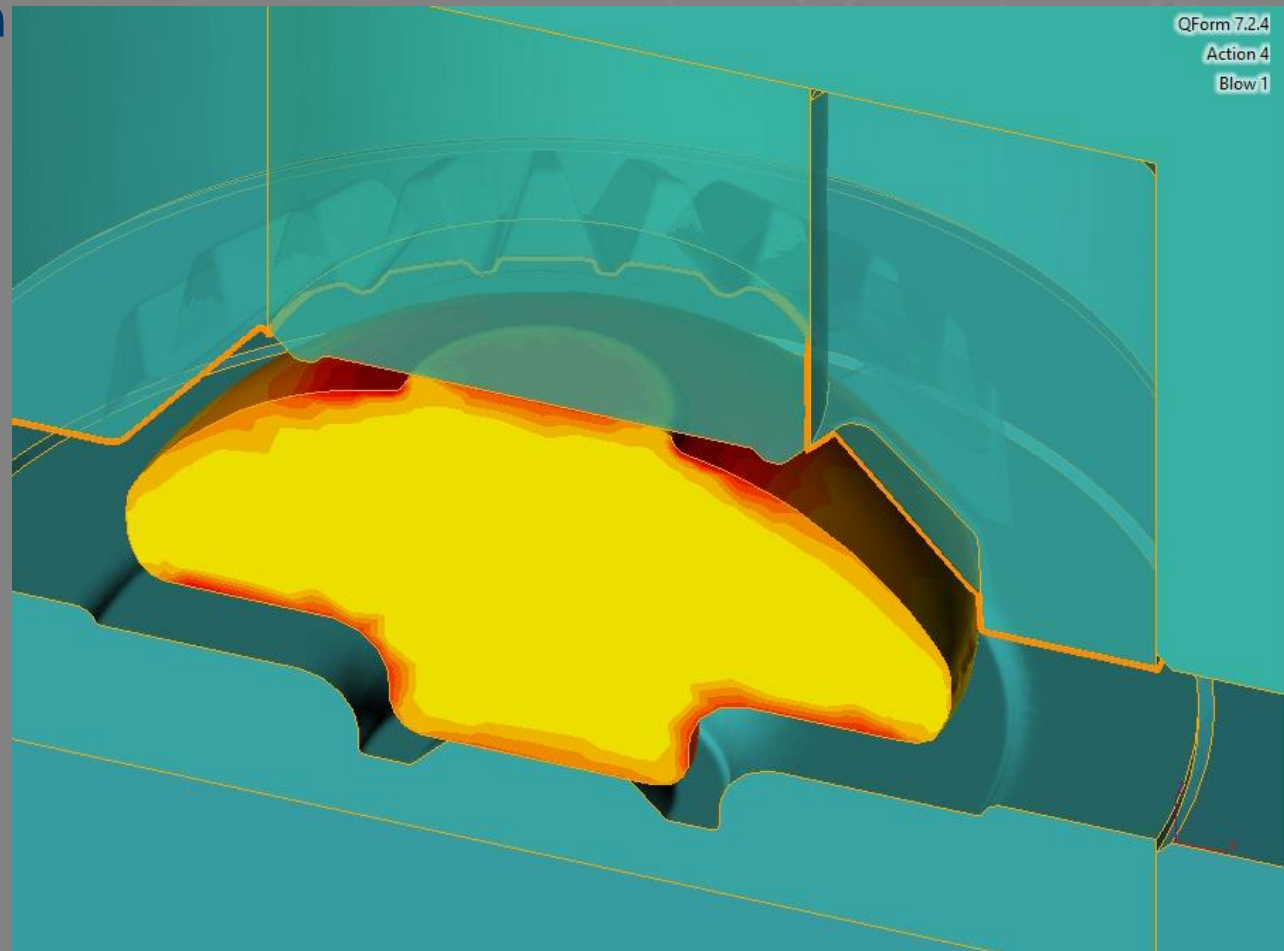
- ◆ **23 Toothed Gear with Finish-Forged Teeth for Combined Harvester PTO Application**
- ◆ **Dies Cracking After Around 400 Parts**
- ◆ **Improvement Needed for Production Quantities**





23 Tooth Bevel Gear

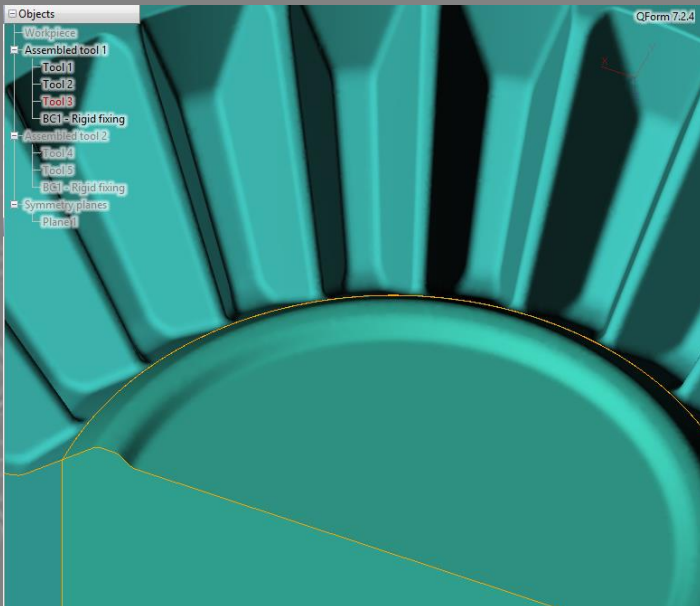
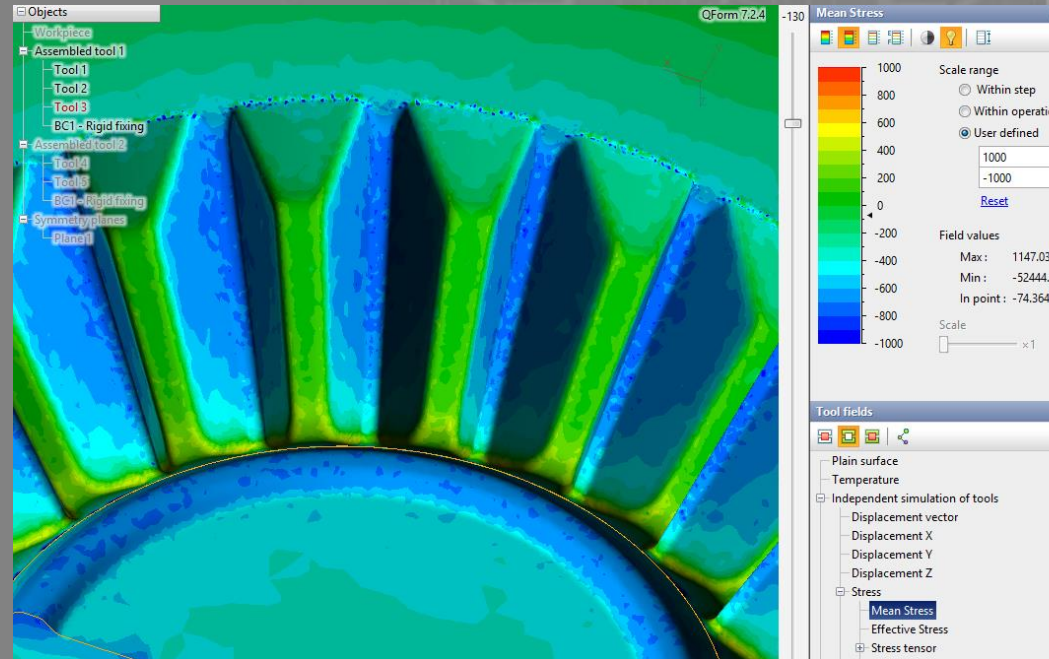
- ◆ Simulated in Half Section on QForm





23 Tooth Bevel Gear

- ◆ “Inserted” Die Now Machined





23 Tooth Bevel Gear

- ◆ “Inserted” Die Now Machined
- ◆ To Trial on Next Production Batch
- ◆ Potential Improvement in Die Life:
- ◆ Potential Cost Saving: ~£2000/year

