



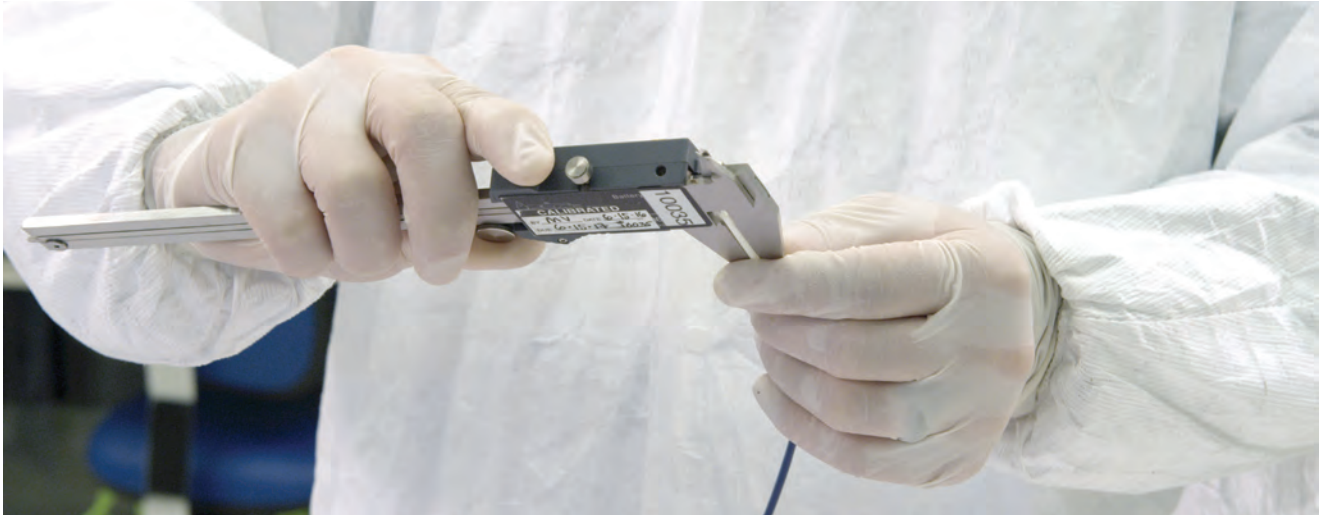
Case Study | Zeus Industrial Products, Inc.

# Cost Saving Catheter Construction Solutions

How the Z-Team developed a customized catheter production solution resulting in an **annual savings** of **\$550,000.**



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## CHALLENGE

*A global medical device company was experiencing difficulty with their heat shrink recovery process during catheter construction.*

While the Zeus Heat Shrink met the specifications of incoming inspection, the product was recovering too tightly over the catheter shaft during the reflow process. The catheter's underlying braid was showing through the reflowed thermoplastic, resulting in blisters along the length of the catheter.

This heat shrink recovery and reflow process resulted in ~65% yield loss for the specific production part, causing significant additional cost, diminished yields, and an increase in inspections.

## CUSTOMER ISSUES

- Additional Costs
- Diminished Yields
- Frequent Inspections



## ANALYSIS

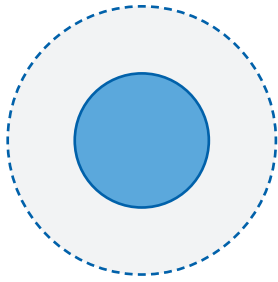
*The Zeus **Z-Team** visited this medical device company to assist them in arriving at short-and-long-term solutions to their production issue.*

Root cause analysis was performed by Zeus on the customer's heat shrink recovery process using Six Sigma tools. The analysis highlighted a need to alter the specifications of the heat shrink's recovered and expanded inside diameter (ID) sizes. For the short term, Zeus increased our inspection levels and shipped only materials that conformed to the newly proposed dimensions.

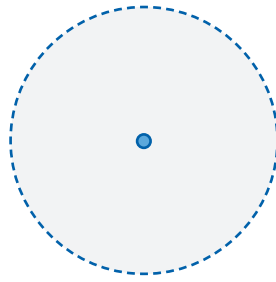
In the meantime, engineers from Zeus worked to refine the in-house process capabilities to meet the newly derived specifications for the heat shrink. After organized validations, Zeus and the OEM agreed that the best avenue through for consistently achieving yields above 95% was to increase the recovered ID size and reduce the expanded ID size of the heat shrink.

## Z-TEAM SOLUTIONS

- ID Size Change
- More Inspections
- Material Change



50%  
reduction in tolerance



95%  
reduction in yield loss



\$500  
annual savings in thousands

## RESULTS

*There was a decrease in tolerance by 50% leading to 95% lower yield loss. Together, these improvements saved this customer more than \$500,000 annually.*

The new heat shrink specifications decreased the shrink ratio of the material and also reduced the tolerance by 50%. The result was a heat shrink with an optimal performance window that precisely fit the customer's catheter assembly needs.

The collaboration between the Z-Team and this customer resulted in reduced yield loss of this production item to less than 3%, decreased required inspections and sorting time, and allowed for lower inventory levels.

### CUSTOMER RESULTS

- Performance Gain
- Loss Reduction
- Lower Inspection Time



# Get to know Zeus.



**2,400+**  
TEAM MEMBERS



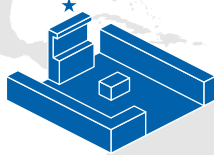
**ZOS**  
OPERATIONAL  
EXCELLENCE



**100+**  
COUNTRIES  
SERVED



**160+**  
SCIENTISTS, ENGINEERS,  
AND R&D PERSONNEL



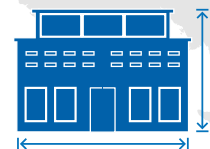
**35+**  
DEVOTED  
CLEAN ROOMS



**CERTIFIED**  
ISO 9001 | AS 9100  
ISO 13485



**CLASS VI**  
APPROVED RESINS &  
PIGMENTS AVAILABLE



**13**  
WORLD-CLASS  
FACILITIES

## — OUR MISSION —

PROVIDE SOLUTIONS · ENABLE INNOVATION · ENHANCE LIVES

Zeus, headquartered in Orangeburg, South Carolina, is the world's leading polymer extrusion and catheter design manufacturer. With over 55 years of experience in medical, aerospace, energy, automotive, fiber optics, and other leading industries, Zeus's mission is to provide solutions, enable innovation, and enhance lives. The company employs over 2,400 people worldwide with facilities in Aiken, Columbia, Gaston, Orangeburg, and St. Matthews, South Carolina; Branchburg, New Jersey; Chattanooga, Tennessee; San Jose, California; Arden Hills, Minnesota; Guangzhou, China; and Letterkenny, Ireland. For more information, visit [www.zeusinc.com](http://www.zeusinc.com).



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