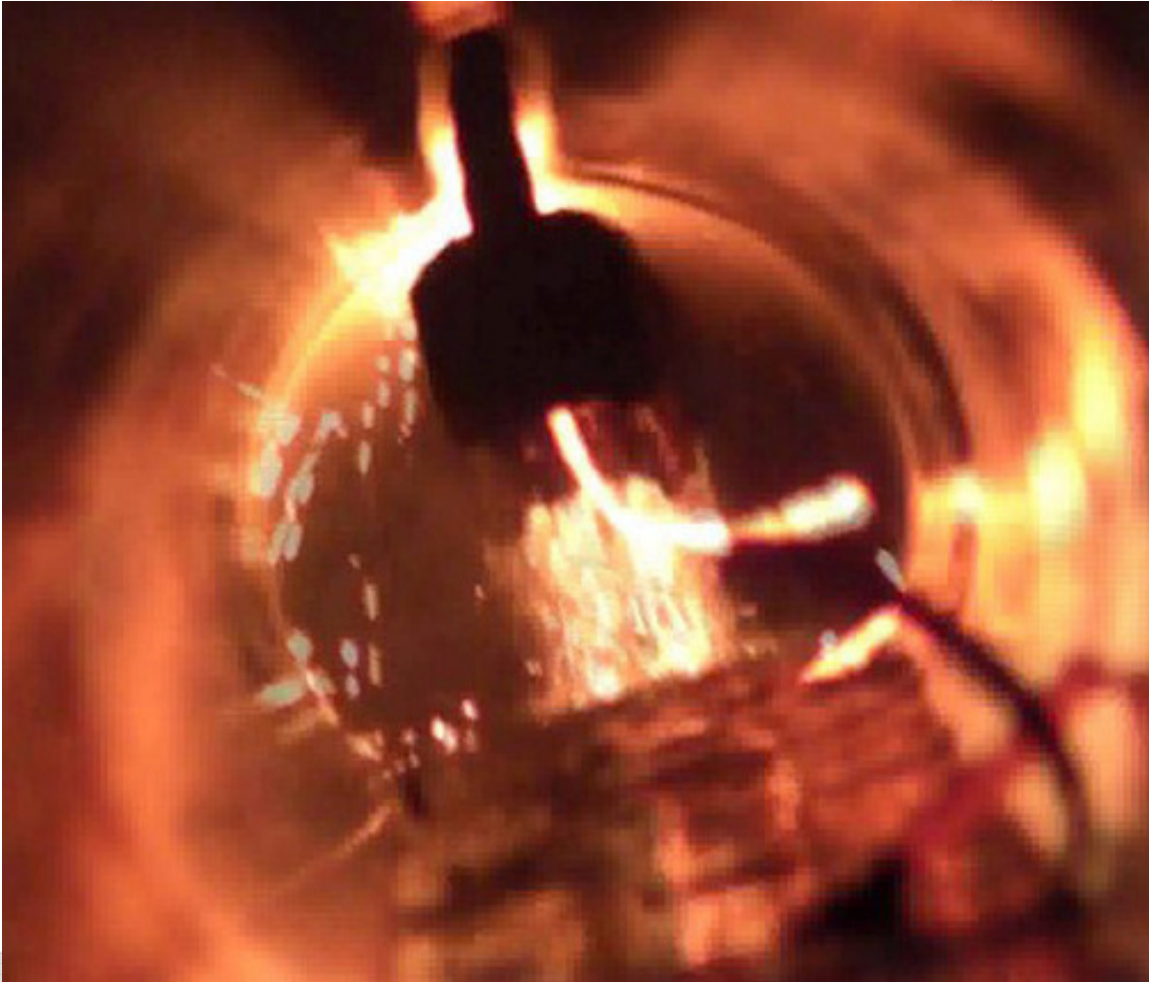


SImilcut llc

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ID SCARFING AND CHOPPING



SImilcut designs its ID scarfing and chopping equipment to produce a quality reliable scarf while minimizing scrap and reducing mill down time. The equipment must be robust and reliable to give consistent, reliable and repeatable settings.

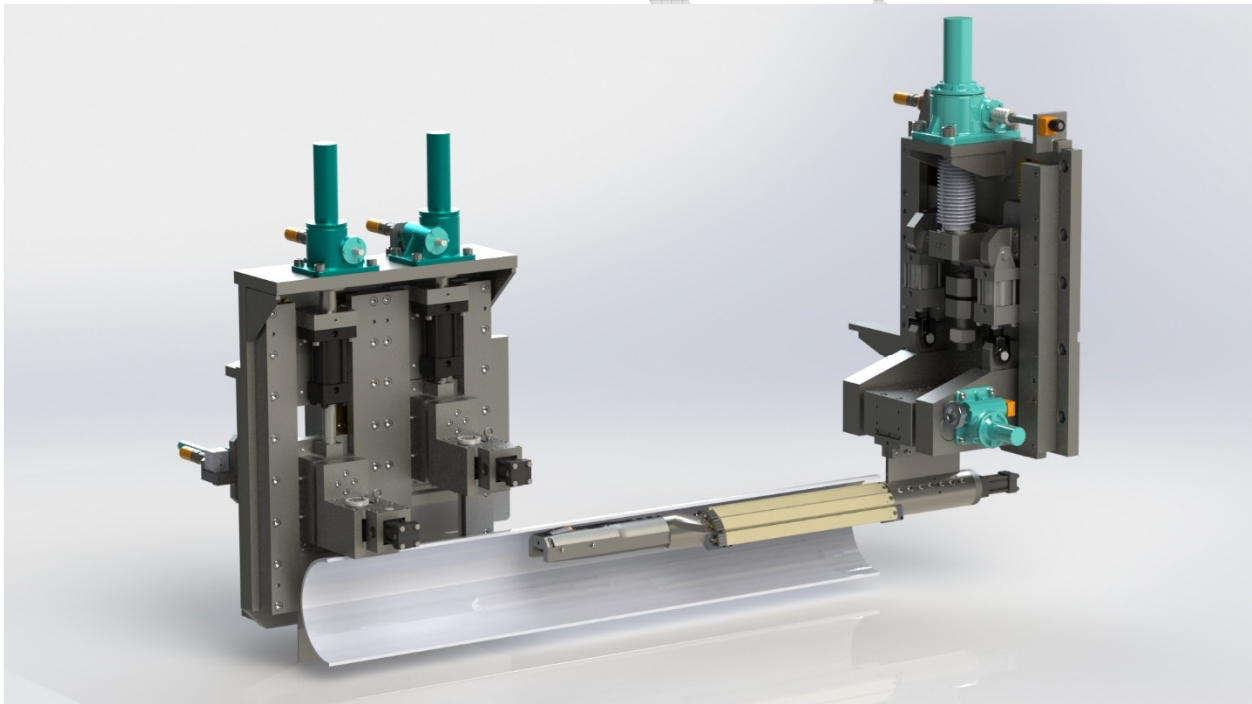
Our design process begins with a few simple principles.

We want to scarf as close to the weld point as possible. This creates a solid scarfing platform and allows for cutting a hot scarf. Being

able to scarf the material in its plastic state means less cutting force is required improving not only the scarf quality but the longevity of the cutting components.

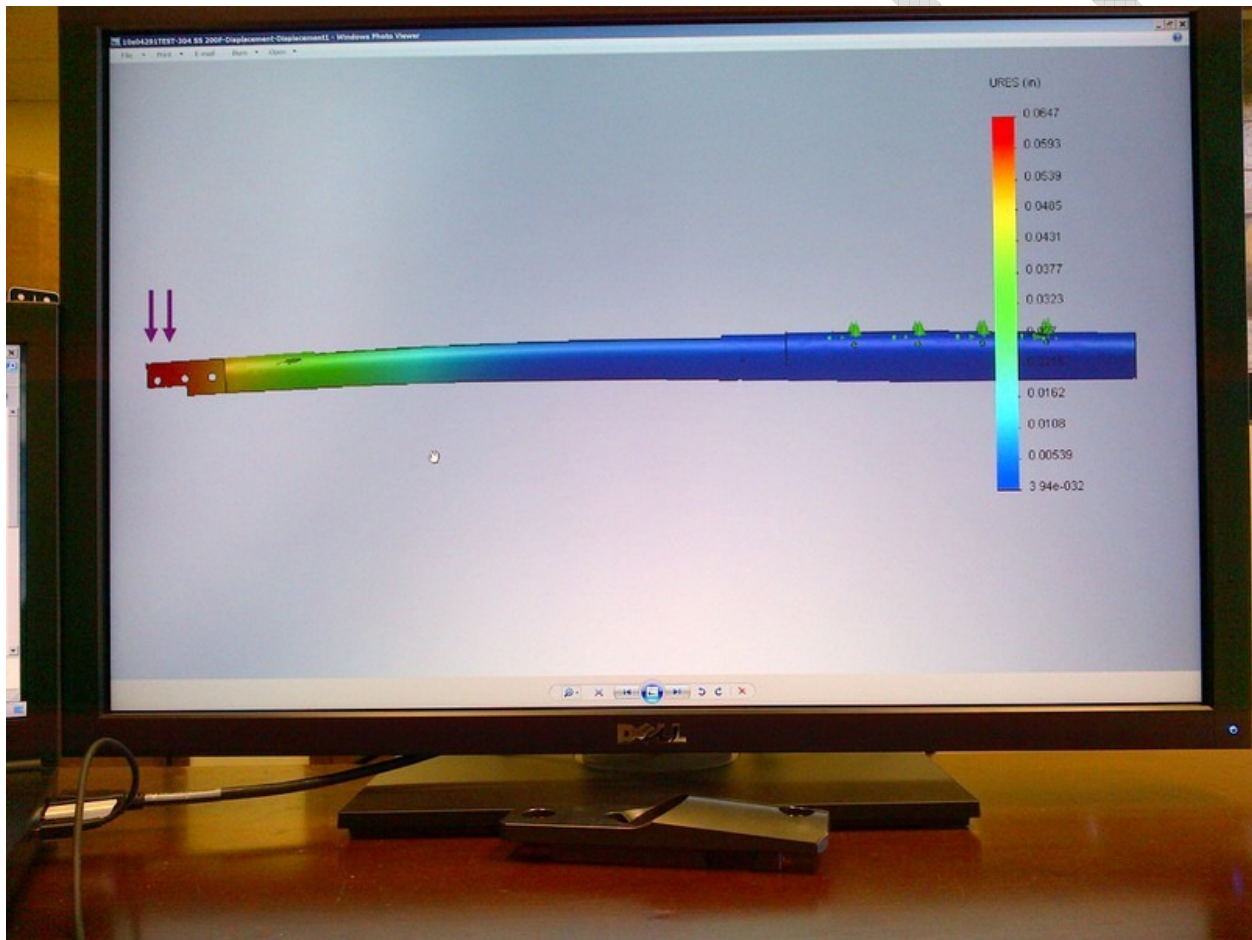
We eliminate completely or use as few internal rolls as possible.

Internal rolls are a problematic feature of any ID scarfing application. They can easily create a number of material defects including rolling in weld splatter, freezing up and dragging, and wear causing scarf depth variations. We will always try to specify a cantilevered cutting arrangement with no wheels. A single lower wheel may be required for some chopping applications where longer than ideal cutting lengths are dictated by existing mill arrangements.



For high quality ID scarfing bar strength is very important and the relationship of the bar diameter to its length is critical. The distance from the bar mounting point to the cutting point will dictate the bar design and the material specified for the bar. It is important to note

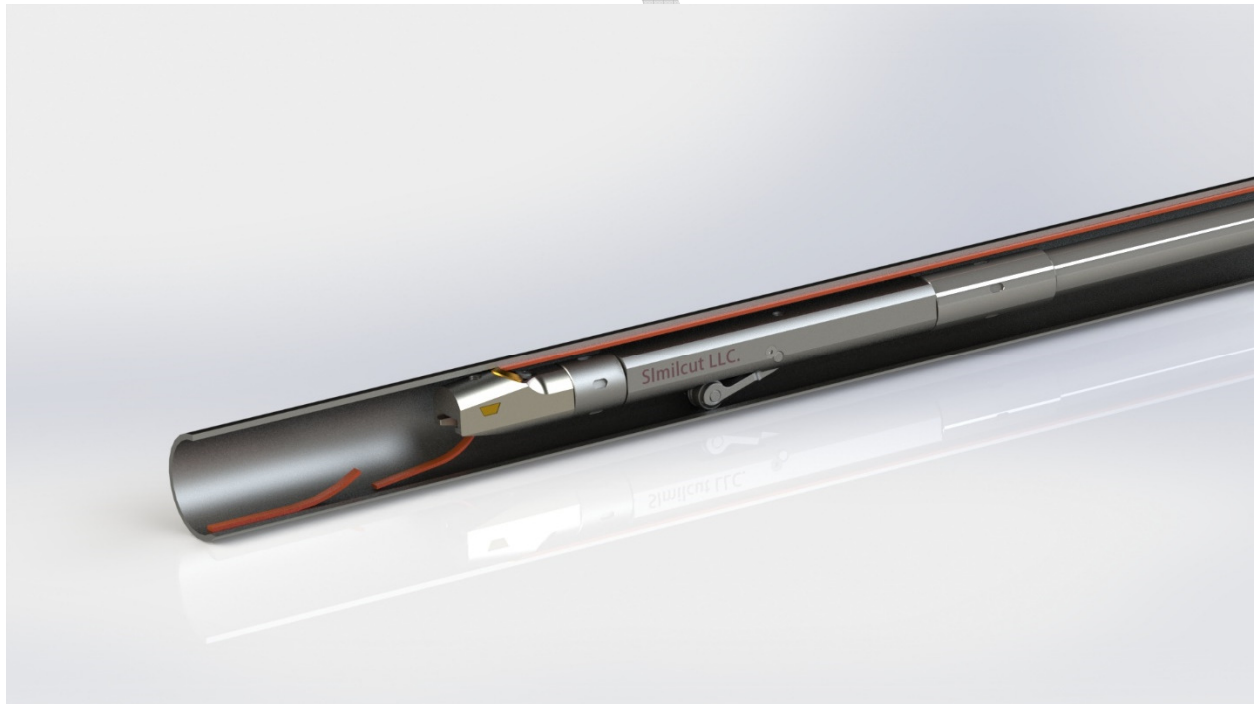
that each installation can be different. To achieve the best quality trouble free scarfing and chopping each application has to be evaluated individually and the equipment designed accordingly. This is a case where a standard equipment line cannot be applied to an individual application. Deflection and harmonics from the scarfing forces are amplified through the bar that can and will cause many scarfing problems even with wheeled heads if the bar is not designed correctly.



Working knowledge along with finite element analysis is the key to specifying the best possible overall design for each application. A separate analysis must be completed for each project before the detailed engineering can be started. Yield strength and elasticity simulations are most important and can be greatly affected by

operating temperatures and small details such as beveled or radiused edges on critical parts.

Scarf choppers can be designed to cut two ways. The first is dual directional the other is single cut. The dual directional chopper cuts forward and backward while a single cut unit cuts on the out stroke only. The single stroke is preferred because it has some advantages in that it does not create as much deformation of the scarf as the dual directional units. This will reduce the chance of scarf jamming in the pipe and the amount of force required to clear the chopped scarf at the end of the mill line. However the single chop unit must actuate very quickly with consideration being given to shock and heat generation in the system.



Although impeders are not a part of the scarfing process their design and placement is critical to the overall process. Internal pipe clearances usually determining the impeder design. The largest

ferrite mass is desirable at certain radial locations. Longitudinal placement is equally critical along with proper cooling and directed flushing to reduce weld splatter build up.



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