

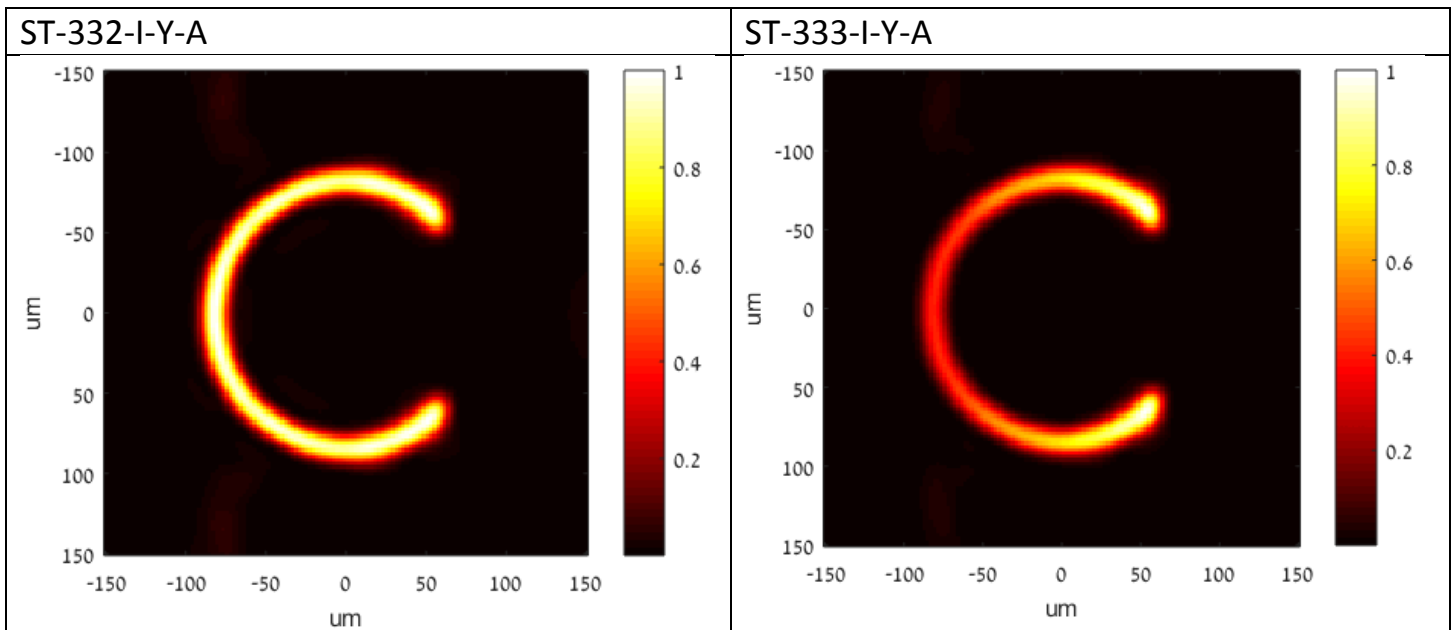
C Shape Advanced Beam Shaping for Welding Applications

HOLO/OR has ongoing cooperation with international research institutes on developing state of the art industrial laser technologies.

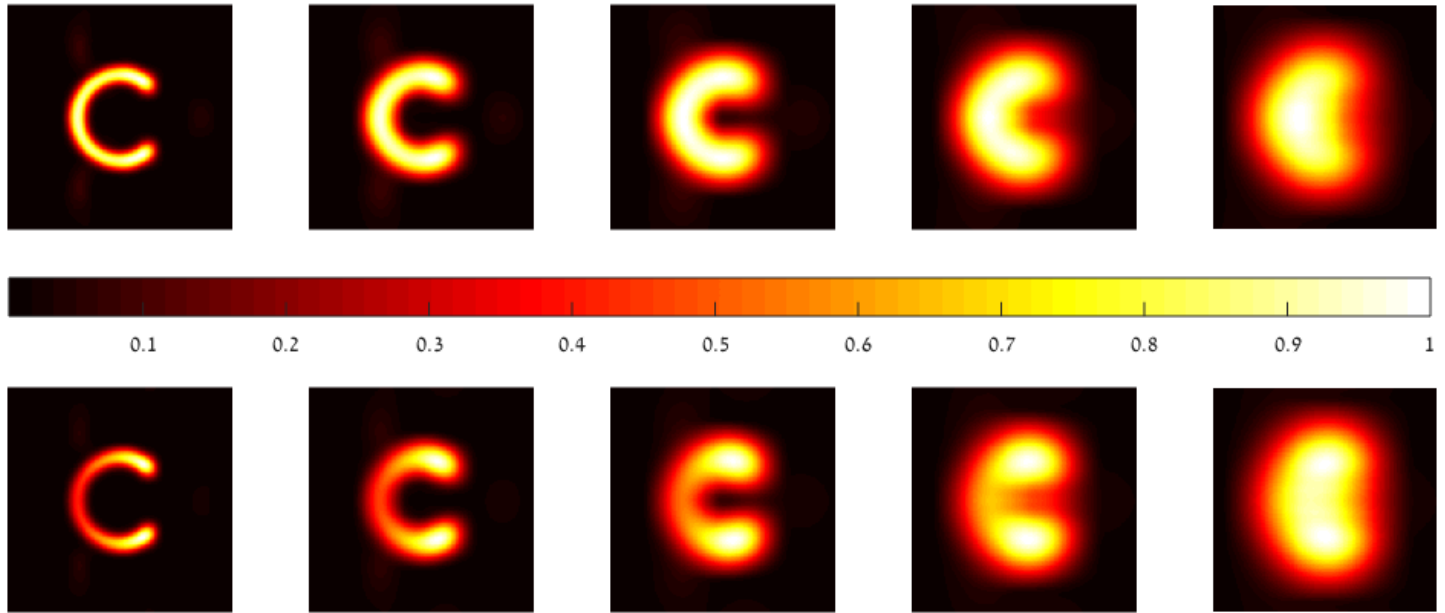
During the [Tailorweld](#) project, we developed custom C Shape beam shaper elements that improve the welding process.

It was found that the C Shape intensity distribution has advantages in the width/depth ratio, reducing oxidation and eliminating hot cracking by giving bubbles a place to escape the weld area.

Based on the research recommendation, we released two new C Shape products: ST-332-I-Y-A (uniform C) and ST-333-I-Y-A (optimized edges intensity distribution).



The thermal effect simulation below was prepared by the Gaussian filter method. The upper line shows the heat transfer function effect on a uniform C Shape, and the bottom line on C Shape with optimized edges.



The Research was cited in the following articles:

Sundqvist, Jesper, et al. "Numerical sensitivity analysis of single pulse laser welding with a C-shaped beam." *Journal of Laser Applications* 27.S2 (2015): S29010.

<https://lia.scitation.org/doi/full/10.2351/1.4906466>

Sundqvist, Jesper, et al. "Numerical optimization approaches of single-pulse conduction laser welding by beam shape tailoring." *Optics and Lasers in Engineering* 79 (2016): 48-54.

<https://doi.org/10.1016/j.optlaseng.2015.12.001>

Kong, Choon Yen, et al. "Single-pulse Conduction Limited Laser Welding Using A Diffractive Optical Element." *Physics Procedia* 83 (2016): 1217-1222.

<https://doi.org/10.1016/j.phpro.2016.08.128>

[For more information click here.](#)