

### Smooth Brazing Seams on Hot-dipped Surfaces

## Diffraction Optical Element for Efficient Laser Brazing

Holo/OR, industrial partner of LASER COMPONENTS, has developed a diffractive optical element (DOE) that significantly accelerates the laser brazing process for hot-dip galvanized metal sheets. It provides better melting performance and cleaner edges. The DOE made of UV fused silica has an efficiency of 90%. It splits the incoming beam into three beams with different diameters and power levels. Two smaller stripping beams ensure that the zinc coating is preheated, cleaned and preconditioned for brazing. The large center beam performs the actual brazing process. Its homogeneous energy distribution ensures that the brazing material is melted evenly. So far, similar results could only be achieved with several lasers or complex optomechanical elements.

Laser brazing uses a laser to melt the brazing material and join two metallic components together. In contrast to the welding process, the parts themselves are only minimally heated. In the case of hot-dip galvanized sheets, this means that the zinc layer evaporates only in a very limited area and the sheets are hardly deformed during processing. Providing connections with high mechanical stability without impairing the corrosion protection, laser brazing has become an important process in the automotive industry. On the other hand, oxides and impurities in the zinc layer of the soldered seam can cause irregularities such as splashes, pores or uneven surfaces. This effect is now prevented by the new DOE.

### More Information

[www.lasercomponents.com/us/product/diffractive-optical-elements-for-beam-shaping/](http://www.lasercomponents.com/us/product/diffractive-optical-elements-for-beam-shaping/)

### Trade Shows

**LaSys**, June 05 - 07, 2018, Messe Stuttgart, Germany, **Booth 4C33**  
**ANGACOM**, June 12 - 14, 2018, Messe Köln, Germany, **Booth 7.B09**  
**Photonex Edinburgh**, June 14, 2018, South Hall Complex, University of Edinburgh, UK, **Booth S5**  
**automatica**, June 19 - 22, 2018, Messe München, Germany, **Booth B5.501**  
**Sensor+Test**, June 26 - 28, 2018, Messe Nürnberg, Germany, **Booth 1.256**  
**Sensors Expo & Conference**, June 27 - 28, 2018, San Jose, CA, USA, **Booth 225**  
**SPIE Optics+Photonics**, August 19 - 23, 2018, San Diego, CA, USA, **Booth 527**  
**Photon 2018**, September 04 - 05, 2018, Aston University, **Booth 5**  
**SPIE Security & Defense**, September 11 - 13, 2018, Berlin, Germany **Stand 403**  
**Photonex Europe**, October, 10 - 11, 2018, Ricoh Arena, Coventry, UK, **Booth D15**  
**Vision**, November 06 - 08, 2018, Messe Stuttgart, Germany, **Booth 1G31**  
**electronica**, November 13 - 16, 2018, Messe München, Germany

### The Company

LASER COMPONENTS specializes in the development, manufacture, and sale of components and services in the laser and optoelectronics industry. At LASER COMPONENTS, we have been serving customers since 1982 with sales branches in five different countries. We have been producing in house since 1986 with production facilities in Germany, Canada, and the United States. In-house production makes up approximately half of our sales revenue. A family-run business, we have more than 220 employees worldwide.