

Elegance through technology

odelo produces taillight for Audi A6 with innovative process and PLEXIGLAS® molding compounds

- **Automotive supplier odelo applies simultaneous Branson laser welding process in the production of taillights for the Audi A6.**
- **PLEXIGLAS® molding compounds and an innovative welding process enhance creative scope for taillights**
- **Brand PMMA from Röhm allows perfectly formed light designs**

As well as design, the interplay between its properties, the quality of the materials and the way they are processed are all key elements of an attractive taillight. The taillights of the Audi A6 use components made from Röhm's PLEXIGLAS® molding compounds. They are produced by odelo, a leading manufacturer of vehicle lighting components, using the simultaneous Branson laser welding process that allows complex and angled components to be joined with minimal joining webs.

Its use of this technology won odelo the 2019 GKV/TecPart Award – presented by the Verband Technische Kunststoff-Produkte e.V. industry association to honor outstanding and innovative technical products, modules and component groups made from plastic.

The two-part taillight of the Audi A6 is assembled from two bonded, graduated components. An arrow-shaped signature light guide reinforces the dynamic form. This light guide is made from light-scattering PLEXIGLAS® Satinice, which provides homogeneous light diffusion without any hotspots. The cover is manufactured from signal red PLEXIGLAS®.

Innovative welding process for elegantly shaped taillights

State-of-the-art processing technology takes the design of modern vehicle lighting to an entirely new level, simplifying the production of taillights with highly graduated geometries. Taillights comprise multiple components which are welded together – in case of the A6, this includes the housing made from ABS plastic and the PLEXIGLAS® cover. There are various ways to join components. Previously common, the vibration welding process with infrared preheating has the disadvantage that relative movements of the components can result in uneven fusing and fitting tolerances. As a result, welding seams can disrupt the look of the finished product.

Branson's simultaneous laser welding process, introduced in 2016, joins the outer edges of the components via laser beams directly and without any vibrating relative movement. This allows the external edges of the component to be joined directly and without vibrating relative movement by means of laser radiation, thus allowing the interior design of the combination rearlight to be connected directly to the weld seam. These weld connections provide considerable visual and mechanical quality.

During the development phase, odelo used comprehensive optical simulations to determine how a homogeneous transfer of laser output could be achieved while avoiding localized overheating or non-welded spots at the same time. This also requires maximum precision in the injection molding of individual taillight components to ensure that the parts are highly accurate at the joining zone.

“The taillights of the A6 are characterized primarily by their joining technology, combined with a functional glass edge design and an angled component gradation. This innovative

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combination allows a particularly high degree of design freedom and allows the end customer a continuous light image independent of the viewing angle,” says Muhammet Yildiz, CEO of the odelo Group.

The main innovation of the combination rear lamp is the joining technique.

“PLEXIGLAS® enables creative thinking”

The processing method further expands the already tremendous creative scope that PLEXIGLAS® provides in automotive design. The brand polymethyl methacrylate (PMMA) from Röhm is initially completely colorless, allowing precise coloring. This is of particular relevance for the standardized signal colors used in the automotive industry, which remain permanently color stable due to the material’s outstanding UV and weather resistance. PLEXIGLAS® also features a balanced property profile, a broad creative scope and good processability. “PLEXIGLAS® gives our customers the freedom to think creatively,” says Arne Schmidt, head of Technical Marketing in the PLEXIGLAS® Molding Compounds business unit at Röhm GmbH.

[Pictures - use only together with the article]



odelo was awarded the 2019 GKV/TecPart Award for the taillight in the Audi A6. The automotive supplier bonded the component made from PLEXIGLAS® molding compound using an innovative laser welding process.

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Dynamic: This arrow-shaped signature light guide is made from light-scattering PLEXIGLAS® Satinice, which provides optimal light diffusion without any hotspots. The cover is made from PLEXIGLAS® colored in signal red.

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The simultaneous Branson laser welding process allows complex and angled components to be joined with minimal joining webs. The PLEXIGLAS® cover is bonded to the housing without any visible seams. This extends the creative scope and provides consistent illumination.

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About Röhm

With 3,500 employees and 14 production sites worldwide, Röhm is one of the leading manufacturers in the methacrylate business. The medium-sized company with branches in Germany, China, the USA, Mexico, and South Africa has more than 80 years of experience in methacrylate chemistry and a strong technology platform. Our best-known brands include PLEXIGLAS®, ACRYLITE®, MERACRYL®, DEGALAN®, DEGAROUTE® and CYROLITE®.

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