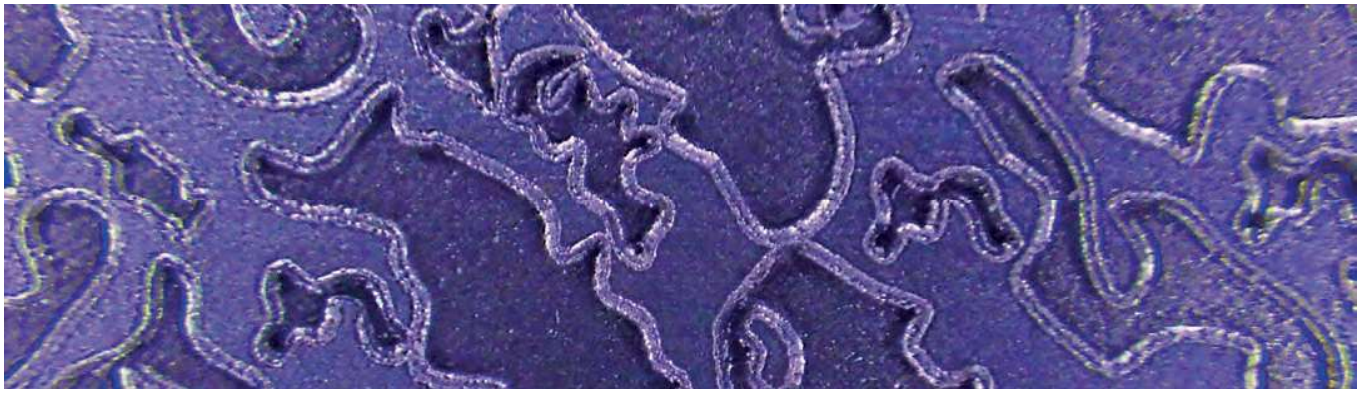
# Lasers in tire molding

Minute details can now be engraved into tire molds in 3D texturing using laser technology



Laser engraving is one of the latest trends in the tire molding business. This methodology enables users to engrave very small details with traditional machining processes, which is not normally possible. The technology is not powerful enough to replace CNC methodology yet, however, and is also limited by the fact that there is a requirement for larger surfaces, but it is currently suitable for use in many situations in tire production, useful for both tire manufacturers and mold makers.

Currently, it is most widely used for high-contrast texturing in sidewall plates. These textures are generated by application of a tiny laser beam on the surface of the sidewall plate. When the rubber is cured, one can see the velvet-like appearance on the sidewall. This laser engraved part catches the light to contrast with the other parts of the tire. It can therefore be seen at a distance and is usually applied to the brand logo on the sidewall.

**Above:** Laser etching on bladder mold close-up

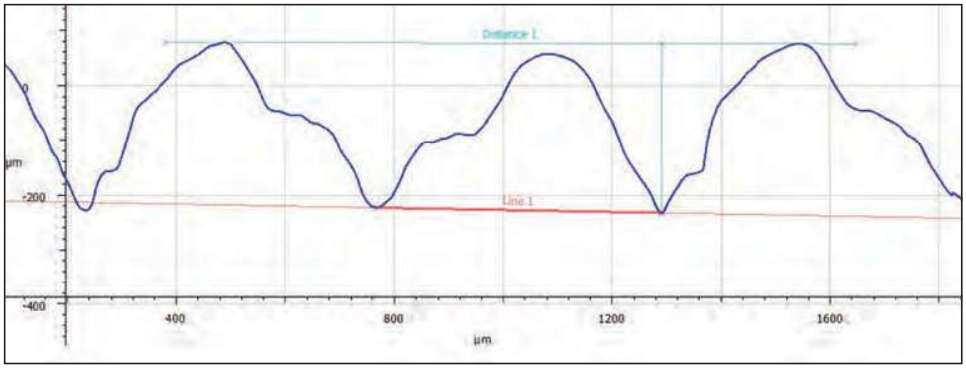
**Right:** High contrast texturing created using laser engraving tools

**Below:** This inspection diagram illustrates the uniformity and precision of the technique

This application can also be used in other molding equipment, such as bladder molds. These molds generally have etching details, which transfer to the bladders after bladder curing and from bladder to innerliner after tire curing. These details are usually produced by chemical etching. However, it is now also possible to do it by laser engraving, which is more precise, faster and cheaper. It also enables the creation of new patterns that cannot be done with acid etching.

Another use case is for tread segments, where laser engraving enables more detailed and maybe more creative indicators, marks or logos to be placed on tire treads, which is impossible with regular CNC engraving.

All these applications are available from Uzer Makina. The company has recently added a brand-new laser engraving machine to its machine portfolio and it is able to machine parts up to 1,700mm. The new machine has a 160/254mm focal length and 1,200




x 900 x 1,200mm x-, y-, z-axis travel path. After the application, visual and geometric control is carried out with the help of an optical measuring device featuring the latest technology. All information regarding distance, depth and angle, along with the standard deviation, is provided.

Uzer Makina will be attending Tire Technology Expo 2020, having been a regular exhibitor for the past few years. The show will be held in Hannover, Germany, on February 24, 25, 26 and 27, 2020. The company's booth will be in Hall 21 – 9042. Uzer Makina will also showcase a sample sidewall plate during the show. **tire**

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