



## **Press Release**

# **Improved vehicle safety with brake pad scorching using VCSEL-based heating systems**

**Brake pad scorching with TruHeat VCSEL systems for higher quality and more safety // More sustainable processing with VCSEL-based systems // Lower CO2 emissions and a smaller footprint in the factory // Reliable, contactless laser heat treatment**

*Ulm, May 31, 2023* – TRUMPF Photonic Components, a global leader in VCSEL solutions, offers VCSEL-based heating systems for the scorching of brake pads, to achieve higher quality and, in turn, greater safety with vehicle brake pads. A shorter bedding-in of new pads and possible initial fading is prevented by the scorching process step. “Scorching is a key process step in the manufacturing of brake pads to achieve material properties that lead to high quality and safety,” says Ralph Gudde, Vice President Marketing and Sales at TRUMPF Photonic Components. In the end, the driver safety is increased as the vehicle maintains stable braking performance in different braking conditions. “Not only the process quality is increased by using our TruHeat VCSEL systems, but the processing also becomes more sustainable,” adds Gudde. This manufacturing step requires high temperatures. VCSEL-based heating systems offer direct and homogenous infrared laser power, generating high temperatures with reduced energy loss and lower CO2 emissions.

### **Making brake pad scorching more sustainable**

Scorching is the last processing step of brake pad manufacturing. In it, the surface is exposed to high temperatures reaching around 700 degrees Celsius for a short time. In doing so, the effective running-in period is shortened and driving safety with good braking force is ensured, because the scorching brings the surface of the friction material close to the carbonization point to a depth of about one to two millimeters. “Using a laser-based systems leads to lower CO2 emissions and a reduced energy demand, compared to processing with gas ovens or hot plates,” explains Gudde. TruHeat VCSEL systems offer high power density and process the pads without contact, avoiding any contamination or material wear and, thus, increase processing safety. The production line can be



## **Press Release**

shortened as the VCSEL-based heating systems are compact and require a smaller footprint compared to other manufacturing equipment, all the while being easy to integrate.

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### **Brake pad scorching for driver safety**

The scorching of brake pads is a mandatory processing step to achieve high quality for more safety for vehicle brakes.



### **TRUMPF manufacturers in Germany**

TRUMPF designs and manufactures its VCSEL-based systems in Germany. The TruHeat VCSEL systems are based on single VCSEL emitters.



### **TruHeat VCSEL systems for laser heat treatment**

TruHeat VCSEL systems generate homogenous and direct infrared light, not only for brake pad scorching but also, for example, for the softening of high strength steels.

### **About TRUMPF Photonic Components**

TRUMPF Photonic Components is a global technology leader, supplying VCSEL and photodiode solutions for consumer electronics, datacom, automotive, industrial sensing and heating markets. So far, more than two billion VCSEL chips and photodiodes have been shipped worldwide. The staff continues to drive its technological know-how that has been established for over 20 years now in order to maintain its leadership position. The long-established technology was acquired by TRUMPF in 2019. The company has its headquarters in Ulm, Germany, with further sales locations in the Netherlands, China, Korea and the USA.



## **Press Release**

TRUMPF Photonic Components belongs to the TRUMPF Group, a high-technology company that offers production solutions in the machine tool and laser sectors.

TRUMPF is one of the world technological and market leaders for machine tools used in flexible sheet metal processing, and also for industrial lasers and metal 3D printing. In the 2021/22 fiscal year, the company employed some 16,500 people and generated sales of about 4.2 billion euros. With over 80 subsidiaries, the TRUMPF Group is represented in nearly every European country, in North America, South America and Asia. The company has production facilities in Germany, France, the United Kingdom, Italy, Austria, Switzerland, Poland, the Czech Republic, the United States, Mexico and China.

For more information about TRUMPF Photonic Components visit:

[www.trumpf.com/s/VCSEL-solutions](http://www.trumpf.com/s/VCSEL-solutions)

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