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"The Candle": TRUMPF celebrates GLOW light art festival with an anniversary laser

The German laser specialist TRUMPF supplies high-tech companies all over the world and is celebrating its 100th birthday this year. To mark the occasion, the company will be shining a show laser at the GLOW light art festival. In good weather, the laser will be visible for up to 80 kilometers around Eindhoven.

The world's longest birthday candle - a green laser from TRUMPF - will be burning at the GLOW light art festival in Eindhoven, Netherlands, from 11 to 18 November 2023. To mark its centenary, the German high-tech company TRUMPF is projecting one of the world's most powerful show lasers into the sky. For this promotion, the company's engineers worked with Lightline, a show laser manufacturer, to convert an industrial high-performance laser into an event laser. "We would like to use this festival and our anniversary as an opportunity to give something back to our employees, partners, customers and all other residents of Brainport Eindhoven. This laser consumes very little energy, and yet our research indicates that it is the most powerful show laser beam in the world," explains project manager Philipp Barthold.

The Netherlands is an important TRUMPF market

With around 18,400 employees, TRUMPF generated sales of €5.4 billion in the last fiscal year. With more than 80 companies, the group is represented in nearly every European country, in North and South America, and in Asia. As the world's leading laser manufacturer, the company supplies the Dutch company ASML with high-power lasers for EUV lithography for the production of state-of-the-art microchips. In Eindhoven, TRUMPF also develops and sells photonic chips that are used in products such as smartphones. In the Netherlands, the company is also recognized as one of the leading manufacturers of digitally networked machines and systems for sheet metal processing. The show laser is located at TRUMPF's site in the north-west of Eindhoven. It will light up on several days during the light art festival, depending on weather conditions and air traffic. Reaching a height of around 10 kilometers, the green beam of light will be visible within a radius of up to 80 kilometers.

Low energy consumption

The green light is generated by a laser with three kilowatts of power. "This laser is extremely energy-efficient. When operated for one hour, the laser consumes about as much energy as eight people blow-drying their hair at the same time", explains Barthold. Around 35 laser specialists, safety specialists, design engineers and other experts were involved in the project. In addition to TRUMPF's laser expertise, the operation of a laser of this type requires extensive specialist knowledge. Among other things, the airspace must be monitored so as not to cause any risk to air traffic. The show laser company Lightline is responsible for this and for operation of the laser. Lightline has over 30 years of international experience in show laser technology and specializes in challenging laser applications. Lightline's customers include world-famous names in the entertainment industry.

Initial activation: The birthday laser was lit up for first time on TRUMPF's actual birthday, 6 August 2023, at the company's Ditzingen headquarters.

Key questions and answers about the TRUMPF mega-laser

What height does the laser reach?
The laser remains clear and distinct at an altitude of ten kilometers. It then begins to weaken as the particles in the air decrease.

Why is the laser green?
TRUMPF is one of the leading companies manufacturing green light lasers. These are used primarily by the automotive industry for the production of components for electric cars.

How much energy does the laser consume?
The laser consumes about as much energy as eight people blow-drying their hair at the same time.

How thick is the laser beam?
The laser beam is approximately two centimeters wide when it exits the laser system.

Why does the laser sometimes switch off?
If an aircraft approaches, a specially installed radar system ensures that the laser switches off.

How likely is it that the laser will dazzle an airline pilot?
TRUMPF has taken steps to eliminate this risk: The laser points vertically upwards. It is highly unlikely that an aircraft will fly exactly over the laser and that the pilot will look down at the same time. TRUMPF has also registered the laser with the aviation authorities. Aircraft and helicopters with a corresponding system will see the laser as an obstacle on the map. Two radar systems also monitor the airspace. If an aircraft approaches, the laser switches off.

What happens if the laser tips over?
There is a double safety device. The service engineers have permanently mounted the laser on a structure. If the structure should tip over - although this is actually impossible - the enclosed protective housing comes into play. The laser will then shine against a sheet of steel surrounding it. Two Lightline employees monitor the laser at all times. The laser can be switched off at any time using various emergency stop buttons.

What does the laser cost?
The 3kW green laser is priced at a low six-figure euro amount.

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