



Industrial Heating

TruHeat VCSEL 3012

Lower CO2 emission

Thanks to higher efficiency

Homogeneous heating

Direct heat treatment for high quality results

Precise control

Local control by individually addressable emission zones

VCSEL based laser heat treatment for battery foil drying Cost and time efficient solution with high process results

The TruHeat VCSEL 3012 systems are used to efficiently dry slurry coatings.

The infrared laser solution provides a direct drying process and homogenization of the thermal profiles. Not only is the process fast, but the heating can be controlled quickly to adapt to speed changes in the production line.

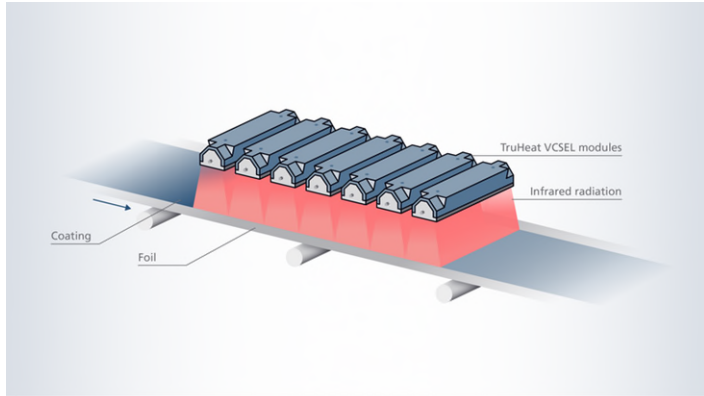
The entire production line benefits from the small footprint and reduction in oven length, resulting in overall cost savings.

These laser sources deliver directed large-area beams within a compact and robust systems, that is easy to scale. The highly accurate and homogeneous laser beam of the VCSEL-based laser source achieves highly efficient processes.

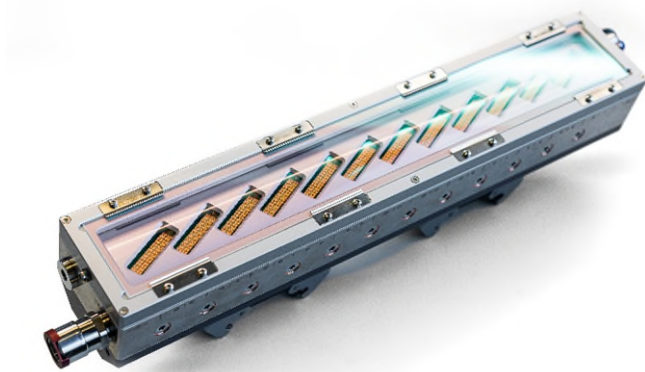
TruHeat VCSEL systems for efficient laser heat treatment

Key features of industrial TruHeat VCSEL systems:

- High power infrared laser source based on VCSEL (Vertical Cavity Surface Emitting Laser) technology
- Scalable output power
- Precisely controllable by individually addressable emission zones (tailored intensity profiles, spatially and in time)
- Compact, robust and easy to integrate
- Lower cost than conventional laser systems



Modular concept for complete system



TruHeat VCSEL 3012

TruHeat VCSEL Series 3012:

efficient drying of active material coating

TruHeat VCSEL Series 3000 are available in 2 versions

TruHeat VCSEL Series 3012			
Lasers Module		TruHeat VCSEL 3012 (2.4 kW)	TruHeat VCSEL 3012 (4.8 kW)
Optical power (max.)	kW (cw)	2.4	4.8
Emission area	mm ²	300 x 95	300 x 95
Distinct emission zones		12	24
Power density	W/cm ²	5 (typical)	10 (typical)
Wavelength	nm	980 ± 20	
Beam half angle		typ. 10° (enclosing 95% power)	
Front glass		double borosilicate, anti-reflex coated	
Laser module size	mm	W87 x L547 x H133 (with connectors)	
		W87 x L475 x H84 (without connectors)	
Driver Unit			
Number of driver racks		1	2
Laser control		typically 10 ms time constant; individual control of laser emission zones, integrated laser zone monitoring	
Machine communication		Ethernet-based (EtherCAT® protocol)	
Mains voltage		3 phase 400 V (±10%), 47-63 Hz	

For more information visit

www.trumpf.com/s/vcSEL-heating-systems



Safety information:

⚠ The products contain laser arrays that can emit invisible high power laser radiation of class 4, which can cause serious injury. The machine manufacturer is responsible to fulfill the relevant laser-related and other safety regulations.

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