

Talon® Mark

High-Power UV Nanosecond Laser for
Ultra-High-Speed Precision Marking and Coding



Talon Mark is a high-performance industrial laser engineered for ultra-high-speed on-the-fly marking and coding applications in the Food & Beverage industry. Its broad operating range makes it ideal for demanding environments where extended production cycles depend on consistent beam quality and maximum uptime. Key features such as advanced pulse control for first-pulse suppression, pulse-on-demand, and pulse-synchronized output deliver superior process control and consistently precise marking results.

Unprecedented Combination of Performance, Reliability and Cost

Expanding on the proven success of the Talon family of UV and green Q-switched lasers, Talon Mark offers an unmatched blend of performance, reliability, and cost-efficiency. Leveraging Spectra-Physics' proprietary *It's in the Box™* architecture—which integrates the laser and controller into a single, compact unit—Talon Mark

delivers over 20 W of UV power and greater than 400 μJ per pulse, with exceptional pulse-to-pulse stability and high-quality TEM_{00} mode, sustained over tens of thousands of operating hours.

User-Friendly and High Reliability

Designed for seamless integration, Talon Mark comes in a ready-to-install package that simplifies implementation into manufacturing tools. All Talon lasers are bore-sighted, making any necessary replacements quick and hassle-free. Remote control is supported via RS-232 or USB interfaces, while onboard electronics feature extensive data logging capabilities. With stable mode quality across its full operating range and robust design elements—including long-life diodes and innovative optical and electronics engineering—Talon Mark is built for continuous, 24/7 high-speed precision marking in even the most demanding environments.

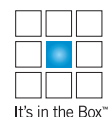
The Talon Mark Advantage

- Design for consumer goods marking
- 20 W, 400 μJ for high-throughput, high-contrast marks
- Scanner ready for user friendly, seamless integration
- Cleanroom sealed manufacturing for climate-proof operation
- Industrial manufacturing standards to ensure 24/7 reliability and predictable long lifetime for low COO



Applications

- Laser Marking and Coding for Food & Beverage
- Ultra-High-Speed Marking and On-The-Fly-Marking (MOTF) for Packaging
- Precision Marking in Medical and Life, Health, and Science



Talon Mark Specifications^{1, 2}

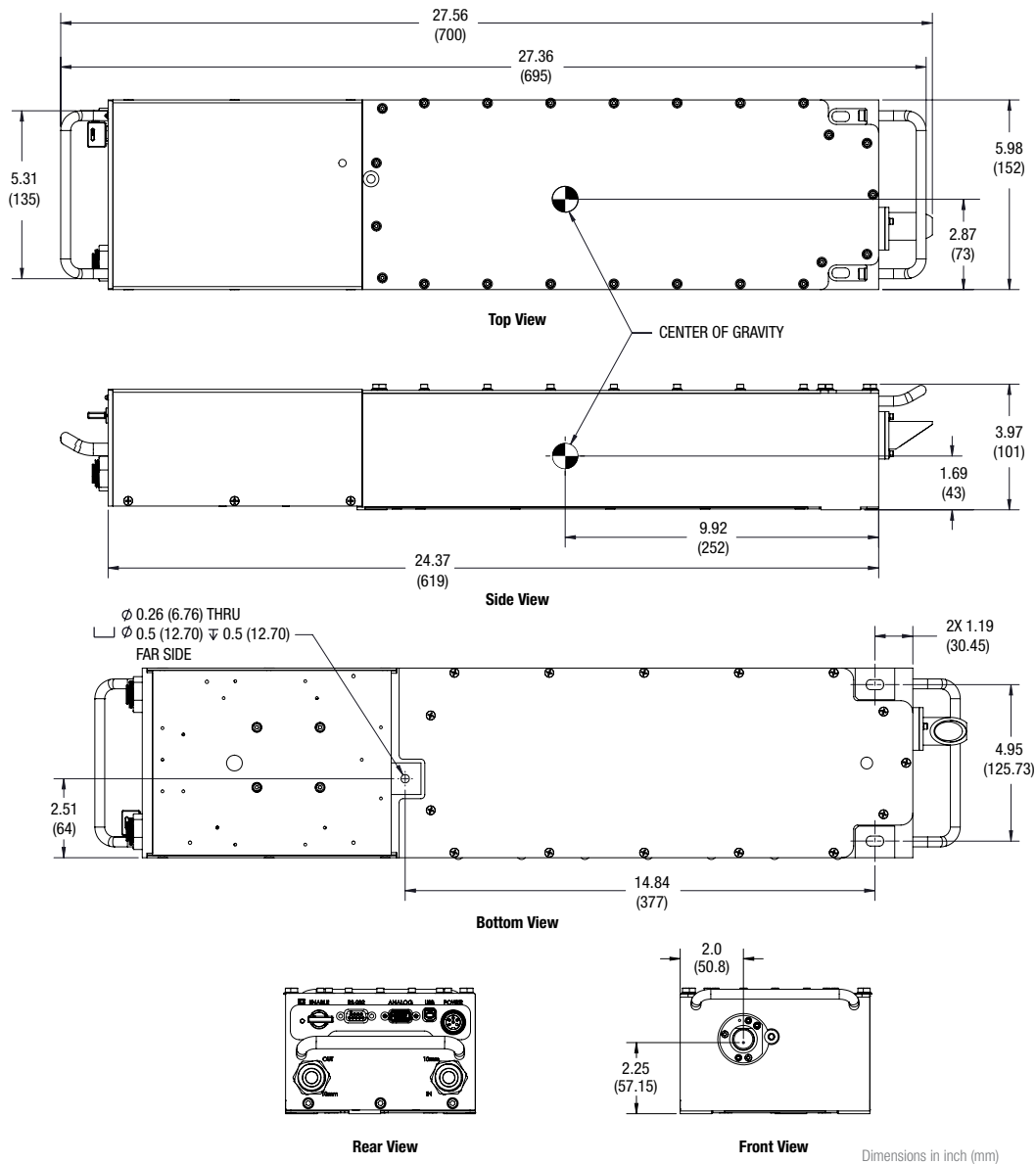
	Talon Mark UV15	Talon Mark UV20
Output Characteristics		
Wavelength	355 nm	355 nm
Power	>15 W @ 50 kHz	>20 W @ 50 kHz
Pulse Energy	>300 μJ	>400 μJ
Repetition Rate	up to 150 kHz	
Pulse Width	<28 ns @ 50 kHz	
Pulse-to-Pulse Energy Stability	<2% rms @ 50 kHz	
Beam Characteristics		
Spatial Mode	TEM ₀₀	
M ²	<1.2	
Polarization Ratio	>100:1 vertical	
Output Beam Diameter	2.0 mm collimated	
Beam Divergence (full angle)	<0.3 mrad	
Beam Circularity	>90%	
Operating Conditions / Environmental Range		
Input Voltage	48 VDC	
Temperature Range	18 to 35°C operating -20 to 50°C non-operating	
Humidity	8–95%, non-condensing	
Coolant Set Temperature	20°C–25°C	
Total Power Consumption	<300 Watts	<300 Watts
Physical Characteristics		
Dimension (L x W x H)	620 x 153 x 102 mm ³	
Weight (Laser)	11.5 kg	
Features		
Integration Ready	Integration and installation ready, compatible with most scanners and timing control cards	
Pulse Energy Control	Advanced pulse control modes for on-the-fly precision marking including First Pulse Suppression, Pulse-on-demand (POD), Pulse-synchronized-Output (PSO)	
CW Alignment Beam Mode	Lower power CW UV beam for easy and secure alignment and guidance	
Internal Power Monitor	Integrated power sensor for real time power monitoring	
Sacrificial Window	Customer accessible and field replaceable output window for long system lifetime in harsh environments	

Due to our continuous product improvement, all specifications are subject to change without notice.

1. All beam parameter specifications are at 50 kHz.

2. The Talon Mark is a Class IV – High Power Laser, whose beam is, by definition, a safety and fire hazard. Take precautions to prevent exposure to the direct and reflected beams. Diffuse as well as specular reflections can cause severe skin or eye damage

Talon Mark Dimensional Drawings



Talon Mark Laser Dimensions