

# Optical Mirrors

## YAG Series High-Power Laser Mirrors

The Robust Defense for kW-Class Lasers

- High Damage Threshold
- Quartz Substrate
- High Reflectivity
- Precision Surface



## One Platform Many Possibilities

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## Overview

### Maximum Power Handling: The Ultimate Mirrors for YAG & Fiber Lasers

The VenusLab YAG High-Power Mirror Series addresses the "burnout" challenge in high-energy laser transmission. While standard glass mirrors risk thermal fracture or coating delamination under high energy densities, our YAG Series utilizes **UV Fused Silica** substrates coated with high-density dielectric layers.

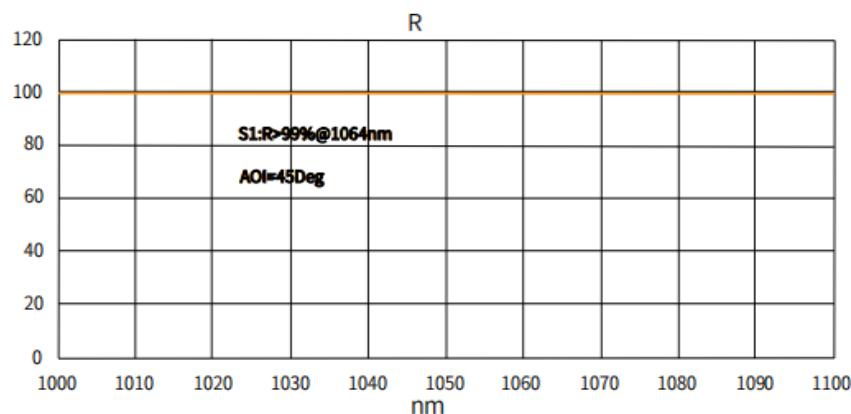
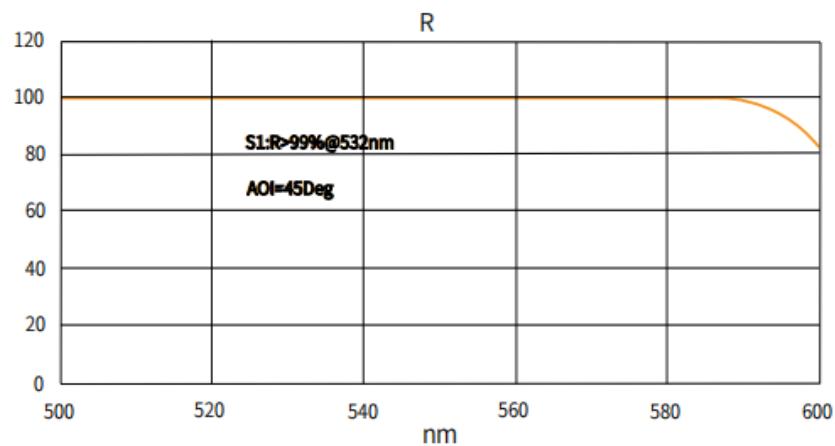
This combination not only achieves **99% high reflectivity** at 1064nm and 532nm but, more importantly, drastically reduces coating absorption. Tested to withstand damage thresholds up to **20 J/cm<sup>2</sup>** at 1064nm, these mirrors ensure virtually zero energy attenuation even after multiple reflections, making them perfect for laser marking, cutting machines, and medical laser beam guidance.

### Key Applications

- **Industrial Laser Machining:** Beam steering for Laser Cutting, Welding, and Marking machines.
- **Nd:YAG Laser Cavities:** Rear mirrors or folding mirrors for high-power resonators.
- **Medical Laser Systems:** Precise delivery of high-energy pulses for dermatology or surgery.

## Reference Curve Diagram

Reference Curve for YAG High-Power Mirror



## Qualification

### YAG High-Power Mirror Technical Specifications

Technical Parameter	Specification Data
Substrate Material	Fused Silica
Coating Type	High-Power Dielectric High Reflective Coating
Surface Flatness	/10 (Standard) @ 632.8nm
Clear Aperture	> 90% of Diameter
Reflectivity	R 99%
Incidence Angle	0° (Normal) or 45° (Steering)
Damage Threshold	> 15 J/cm <sup>2</sup> @ 532nm (10ns) > 20 J/cm <sup>2</sup> @ 1064nm (10ns)

## Selection Chart

### YAG Mirror Ordering Information & Model List

Model	Angle (°)	Wavelength (nm)	Dia (mm)	Thk (mm)	Flatness	R (%)	Damage Threshold
VLHR-YAG-20-532-45	45	532	20	4	/10	99	>15J/cm <sup>2</sup>
VLHR-YAG-25A-532-45	45	532	25.4	5	/10	99	>15J/cm <sup>2</sup>
VLHR-YAG-30-532-45	45	532	30	5	/10	99	>15J/cm <sup>2</sup>
VLHR-YAG-50-532-45	45	532	50	5	/10	99	>15J/cm <sup>2</sup>
VLHR-YAG-50A-532-45	45	532	50.8	6	/10	99	>15J/cm <sup>2</sup>
VLHR-YAG-25A-1030-45	45	1030	25.4	5	/10	99	>20J/cm <sup>2</sup>
VLHR-YAG-40-1030-45	45	1030	40	6	/10	99	>20J/cm <sup>2</sup>
VLHR-YAG-50A-1030-45	45	1030	50.8	6	/10	99	>20J/cm <sup>2</sup>
VLHR-YAG-100-1030-45	45	1030	100	10	/4	99	>20J/cm <sup>2</sup>
VLHR-YAG-20-1064-45	45	1064	20	4	/10	99	>20J/cm <sup>2</sup>
VLHR-YAG-25A-1064-45	45	1064	25.4	5	/10	99	>20J/cm <sup>2</sup>
VLHR-YAG-30-1064-45	45	1064	30	5	/10	99	>20J/cm <sup>2</sup>
VLHR-YAG-50-1064-45	45	1064	50	5	/10	99	>20J/cm <sup>2</sup>
VLHR-YAG-76-1064-45	45	1064	76.2	10	/8	99	>20J/cm <sup>2</sup>
VLHR-YAG-20-1064-0	0	1064	20	3	/10	99	>20J/cm <sup>2</sup>
VLHR-YAG-25A-1064-0	0	1064	25.4	5	/10	99	>20J/cm <sup>2</sup>
VLHR-YAG-30-1064-0	0	1064	30	5	/10	99	>20J/cm <sup>2</sup>
VLHR-YAG-50-1064-0	0	1064	50	5	/10	99	>20J/cm <sup>2</sup>
VLHR-YAG-76-1064-0	0	1064	76.2	10	/8	99	>20J/cm <sup>2</sup>

## Service & Support

We are dedicated to delivering exceptional optoelectronic solutions to every client. From precision manufacturing and secure delivery to full-lifecycle technical support, we are here to ensure a seamless and reliable experience at every step.

### 1. Warranty Policy

#### Quality First, Worry-Free Operation

**Warranty Period:** We offer a **two-year** warranty service for all of our core optoelectronic products, effective from the date of shipment.

**Coverage:** We provide free repair or replacement services for malfunctions caused by material defects or workmanship errors under normal operating conditions.

**Rapid Response:** Upon receiving a warranty claim, we guarantee to initiate the assessment process within **24 hours** to minimize your equipment downtime.

### 2. Technical Support

#### Expert Team, Full-Process Guidance

**Technical Consultation:** Our team of senior optical engineers provides **24/7 online support** to assist with installation, commissioning, optical path alignment, and parameter optimization.

**Scheduled Maintenance:** We offer full-lifecycle maintenance recommendations, including firmware upgrades, optical component cleaning guidelines, and precision calibration services.

**Training Services:** We provide customized remote or on-site operational and safety training to ensure your team can operate the equipment efficiently and safely.

### 3. Logistics & Delivery

#### Precision Packaging, Global Reach

**Professional Packaging:** Given the fragile nature of optical instruments, we utilize industrial-grade shockproof, anti-static, and moisture-proof vacuum packaging to ensure zero damage during transit.

**Logistics Partners:** We partner with top-tier global logistics providers (**DHL / FedEx / UPS / SF Express**) to offer reliable shipping with real-time tracking.

**Shipping Insurance:** All shipments are fully insured to eliminate logistics risks.

### 4. Compliance & Certification

#### Strict Standards, Total Compliance

**Quality Certification:** Our manufacturing process is **ISO 9001 certified**, and our products comply with international standards such as **CE and RoHS**.

**Export Compliance:** "Committed to environmental responsibility, all our products comply with **RoHS 2.0** and **REACH standards**, ensuring safety and global compliance."

## Explore Series

Model	Thk (mm)	Damage Threshold	Angle (°)	R (%)	Dia (mm)	Wavelength (nm)
VLHR-YAG-25A-1064-45	5	>20J/cm <sup>2</sup>	45	99	25.4	1064
VL-HR-YAG-25A-532-45	5	>15J/cm <sup>2</sup>	45	99	25.4	532
VL-HR-YAG-25A-1064-0	5	>20J/cm <sup>2</sup>	0	99	25.4	1064

 Get in touch with our team to explore configurations, request a quote, or learn more about customized solutions tailored to your needs.

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