

AONano™ | Vanadate Series

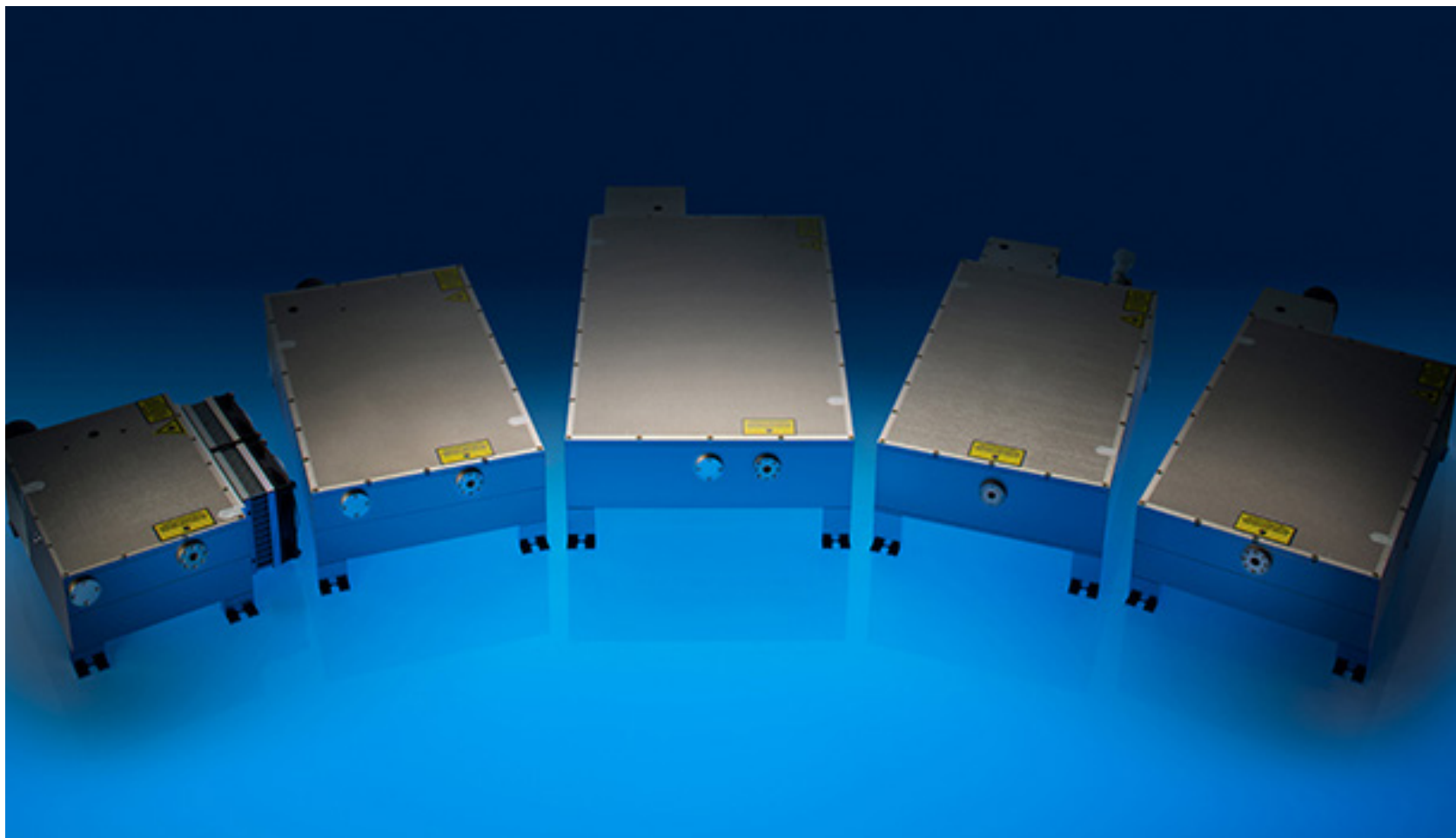
Industrial Nanosecond Lasers

Features & Benefits

Lowest Cost of Ownership in the Industry
Available in IR, Green, UV and Deep UV
High Performance, Reliable Design
Excellent Beam Quality of $M^2 < 1.2$
Simple, Intuitive Control Features
Average Powers up to 50 Watts

Applications

Rapid Prototyping
Marking, Engraving & Coding
Diamond Cutting and Marking
Scientific and Biomedical Injector
Rigid PCB and Flex Circuit Processing
Semiconductor/PV Processing/Wafer Scribing



AONano | Vanadate 1064

| SPECIFICATIONS* | 10-100-V | 20-100-V | 30-100-V | 40-100-V | 50-100-V |
|---|--------------------------|-----------|----------|----------|----------|
| Wavelength (nm) | 1064 | | | | |
| Average Power (Watts) | 10 | 20 | 30 | 40 | 50 |
| Energy (μJ) | 100 | 200 | 300 | 400 | 500 |
| Specified Repetition Rate (kHz) | 100 | | | | |
| Repetition Rate (kHz) | Single Shot to 300 | | | | |
| Pulse Width (ns) | <40 | <40 | <50 | <50 | <60 |
| Beam Quality (M ²) | <1.3 | | | | |
| Beam Roundness (%) | >90 | | | | |
| Beam Diameter (mm) | ~1.0 | ~1.1 | ~1.1 | ~1.2 | ~1.2 |
| Beam Divergence (mRad) | <2.5 | <2.5 | <2.0 | <2.0 | <2.0 |
| Point Stability (μrad/°C) | <20 | | | | |
| Polarization Ratio | 100:1 Linear, Horizontal | | | | |
| Pulse-to-Pulse Stability (% RMS) | <2 | | | | |
| Average Power Stability (% over 12 hours) | <3 | | | | |
| Cold Start Warm-Up (mins.) | <40 | | | | |
| Standby Warm-Up (mins.) | <10 | | | | |
| Operational Temperature Range (°C) | 15 to 35 | | | | |
| Operation Humidity Range (%) | 20 to 80 non-condensing | | | | |
| Storage Temperature Range (°C) | -20 to 50 | | | | |
| Storage Humidity Range (%) | 20 to 80 non-condensing | | | | |
| Input Voltage (VAC) | 90 to 260 | | | | |
| Line Frequency (Hz) | 47 - 63 | | | | |
| Communication | RS-232 | | | | |
| Cooling | Air | Air/Water | Water | Water | Water |

AONano | Vanadate 532

| SPECIFICATIONS* | 5-40-V | 10-40-V | 15-50-V | 20-50-V | 25-50-V | 30-50-V | 35-50-V | 40-50-V |
|---|-------------------------|---------|-----------|---------|---------|---------|---------|---------|
| Wavelength (nm) | 532 | | | | | | | |
| Average Power (Watts) | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 |
| Energy (μJ) | 125 | 250 | 300 | 400 | 500 | 600 | 700 | 800 |
| Specified Repetition Rate (kHz) | 40 | | 50 | | | | | |
| Repetition Rate (kHz) | Single Shot to 300 | | | | | | | |
| Pulse Width (ns) | <18 | <16 | <30 | <30 | <30 | <30 | <30 | <30 |
| Beam Quality (M ²) | <1.2 | | | | | | | |
| Beam Roundness (%) | >90 | | | | | | | |
| Beam Diameter (mm) | ~0.5 | ~0.5 | ~0.7 | ~0.7 | ~0.7 | ~0.8 | ~0.9 | ~0.8 |
| Beam Divergence (mRad) | <2.2 | <2.0 | <2.0 | <1.8 | <1.8 | <1.8 | <1.8 | <1.8 |
| Point Stability (μrad/°C) | <20 | | | | | | | |
| Polarization Ratio | 100:1 Linear, Vertical | | | | | | | |
| Pulse-to-Pulse Stability (% RMS) | <2 | | | | | | | |
| Average Power Stability (% over 12 hours) | <3 | | | | | | | |
| Cold Start Warm-Up (mins.) | <40 | | | | | | | |
| Standby Warm-Up (mins.) | <10 | | | | | | | |
| Operational Temperature Range (°C) | 15 to 30 | | | | | | | |
| Operation Humidity Range (%) | 20 to 80 non-condensing | | | | | | | |
| Storage Temperature Range (°C) | -20 to 50 | | | | | | | |
| Storage Humidity Range (%) | 20 to 80 non-condensing | | | | | | | |
| Input Voltage (VAC) | 90 to 260 | | | | | | | |
| Line Frequency (Hz) | 47 - 63 | | | | | | | |
| Communication | RS-232 | | | | | | | |
| Cooling | Air | Air | Air/Water | Water | Water | Water | Water | Water |

AONano | Vanadate 355

| SPECIFICATIONS* | 0.5-100-V | 1-100-V | 2-30-V | 3-30-V | 5-30-V | 10-30-V | 15-30-V | 20-40-V |
|---|--------------------------|---------|--------|--------|--------|---------|---------|---------|
| Wavelength (nm) | 355 | | | | | | | |
| Average Power (Watts) | 0.5 | 1 | 2 | 3 | 5 | 10 | 15 | 20 |
| Energy (μJ) | 5 | 10 | 67 | 100 | 167 | 333 | 500 | 500 |
| Specified Repetition Rate (kHz) | 100 | | 30 | | | | | |
| Repetition Rate (kHz) | Single Shot to 300 | | | | | | | |
| Pulse Width (ns) | <45 | <35 | <15 | <15 | <15 | <20 | <20 | <15 |
| Beam Quality (M ²) | <1.2 | | | | | | | |
| Beam Roundness (%) | >90 | | | | | | | |
| Beam Diameter (mm) | ~0.6 | ~0.5 | ~0.4 | ~0.4 | ~0.4 | ~0.6 | ~0.6 | ~0.6 |
| Beam Divergence (mRad) | <2.2 | <1.6 | <1.6 | <1.6 | <1.8 | <1.5 | <1.5 | <1.5 |
| Point Stability (μrad/°C) | <20 | | | | | | | |
| Polarization Ratio | 100:1 Linear, Horizontal | | | | | | | |
| Pulse-to-Pulse Stability (% RMS) | <2 | | | | | | | |
| Average Power Stability (% over 12 hours) | <3 | | | | | | | |
| Cold Start Warm-Up (mins.) | <40 | | | | | | | |
| Standby Warm-Up (mins.) | <10 | | | | | | | |
| Operational Temperature Range (°C) | 15 to 30 | | | | | | | |
| Operation Humidity Range (%) | 20 to 80 non-condensing | | | | | | | |
| Storage Temperature Range (°C) | -20 to 50 | | | | | | | |
| Storage Humidity Range (%) | 20 to 80 non-condensing | | | | | | | |
| Input Voltage (VAC) | 90 to 260 | | | | | | | |
| Line Frequency (Hz) | 47 - 63 | | | | | | | |
| Communication | RS-232 | | | | | | | |
| Cooling | Air | Air | Air | Air | Water | Water | Water | Water |

AONano | Vanadate 266

| SPECIFICATIONS* | 0.5-30-V | 1-30-V | 1.5-30-V | 2-30-V | 3-30-V | 4-30-V | 5-30-V |
|---|--------------------------|--------|----------|--------|--------|--------|--------|
| Wavelength (nm) | 266 | | | | | | |
| Average Power (Watts) | 0.5 | 1 | 1.5 | 2 | 3 | 4 | 5 |
| Energy (μJ) | 16 | 33 | 50 | 67 | 100 | 133 | 167 |
| Specified Repetition Rate (kHz) | 30 | | | | | | |
| Repetition Rate (kHz) | Single Shot to 300 | | | | | | |
| Pulse Width (ns) | <15 | | | | <20 | | |
| Beam Quality (M ²) | <1.2 | | | | | | |
| Beam Roundness (%) | >85 | | | | | | |
| Beam Diameter (mm) | ~3.0 | | | | | | |
| Beam Divergence (mRad) | <1.0 | | | | | | |
| Point Stability (μrad/°C) | <20 | | | | | | |
| Polarization Ratio | 100:1 Linear, Horizontal | | | | | | |
| Pulse-to-Pulse Stability (% RMS) | <2 | | | | | | |
| Average Power Stability (% over 12 hours) | <3 | | | | | | |
| Cold Start Warm-Up (mins.) | <40 | | | | | | |
| Standby Warm-Up (mins.) | <10 | | | | | | |
| Operational Temperature Range (°C) | 15 to 30 | | | | | | |
| Operation Humidity Range (%) | 20 to 80 non-condensing | | | | | | |
| Storage Temperature Range (°C) | -20 to 50 | | | | | | |
| Storage Humidity Range (%) | 20 to 80 non-condensing | | | | | | |
| Input Voltage (VAC) | 90 to 260 | | | | | | |
| Line Frequency (Hz) | 47 - 63 | | | | | | |
| Communication | RS-232 | | | | | | |
| Cooling | Air | Air | Air | Air | Water | Water | Water |

AONano | Vanadate Series
Nanosecond Industrial Lasers

Dimensions & Weight

| DIMENSIONS | COMPACT | MEDIUM | LARGE |
|-------------------------------------|-------------------------------|-------------------------------|-----------------------------------|
| Laser Head, in (mm) L x D x H | 8 x 5 x 3.45 (203 x 127 x 88) | 9 x 8 x 3.75 (229 x 203 x 95) | 13.74 x 8 x 3.75 (350 x 203 x 95) |
| Laser Controller, in (mm) W x D x H | 15 x 15 x 5 (381 x 381 x 5) | 19 x 17 x 7 (482 x 432 x 178) | |
| Umbilical, in (m) | 100 (2.5) | | |

| WEIGHTS | COMPACT | MEDIUM | LARGE |
|----------------------------|----------|----------|-----------|
| Laser Head, lbs (kg) | 13 (5.9) | 19 (8.6) | 25 (11.3) |
| Laser Controller, lbs (kg) | 15 (6.8) | 22 (10) | 25 (11.3) |

COMPLIANCE: CDRH, ROHS, CE

**Advanced Optowave Corporation follows a policy of continuous product improvement. Specifications are subject to change without notice. Advanced Optowave Corporation offers a limited warranty for all Femtosecond IR/GR laser systems. For full details on warranty coverage, or for further product information, please contact us.*

