

# AONano™ | Vanadate Series

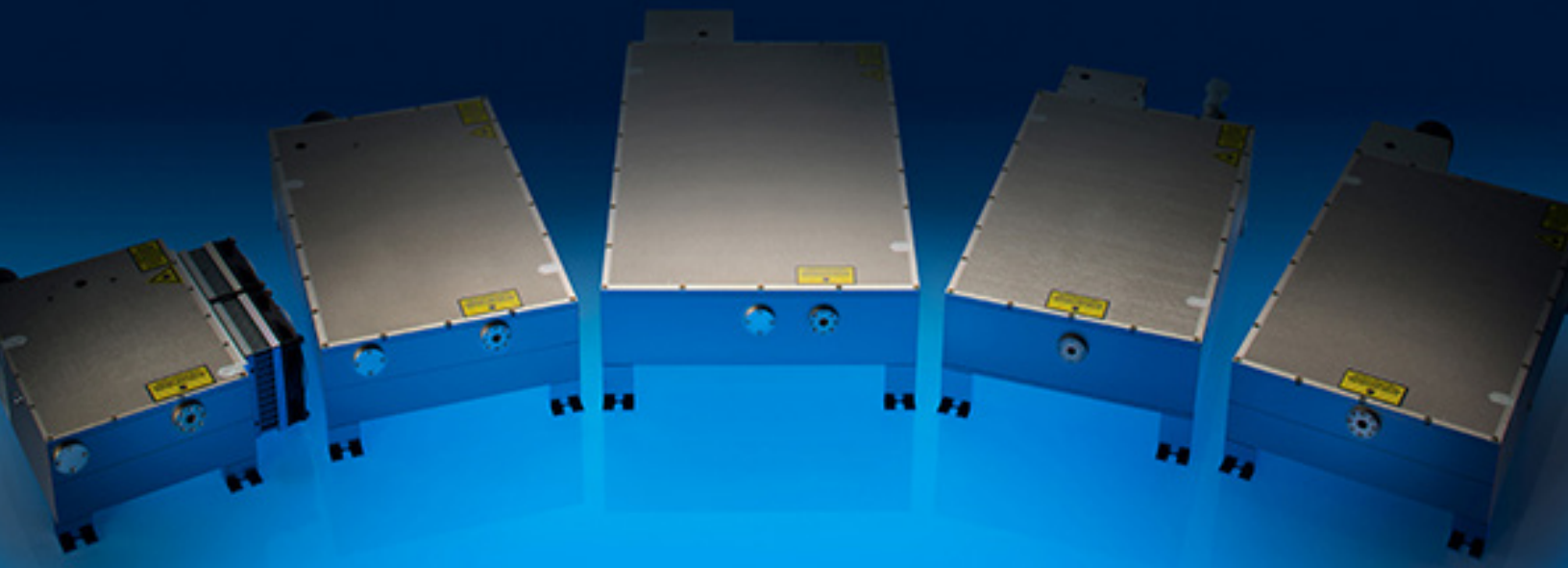
## Industrial Nanosecond Lasers

### 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 Series

## Nanosecond Industrial Lasers

		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 <sup>2</sup> )		<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 <sup>2</sup> )		<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

		<b>AONano   Vanadate 355</b>							
<b>SPECIFICATIONS*</b>		<b>0.5-100-V</b>	<b>1-100-V</b>	<b>2-30-V</b>	<b>3-30-V</b>	<b>5-30-V</b>	<b>10-30-V</b>	<b>15-30-V</b>	<b>20-40-V</b>
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					40
Repetition Rate (kHz)		Single Shot to 300							
Pulse Width (ns)		<45	<35	<15	<15	<15	<20	<20	<15
Beam Quality (M <sup>2</sup> )		<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

		<b>AONano   Vanadate 266</b>						
<b>SPECIFICATIONS*</b>		<b>0.5-30-V</b>	<b>1-30-V</b>	<b>1.5-30-V</b>	<b>2-30-V</b>	<b>3-30-V</b>	<b>4-30-V</b>	<b>5-30-V</b>
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	<20
Beam Quality (M <sup>2</sup> )		<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

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**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)	4.5 (2.0)	6 (2.7)	20 (9.0)
Laser Controller, lbs (kg)	12 (5.4)	15 (6.8)	30 (13.6)

**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.

