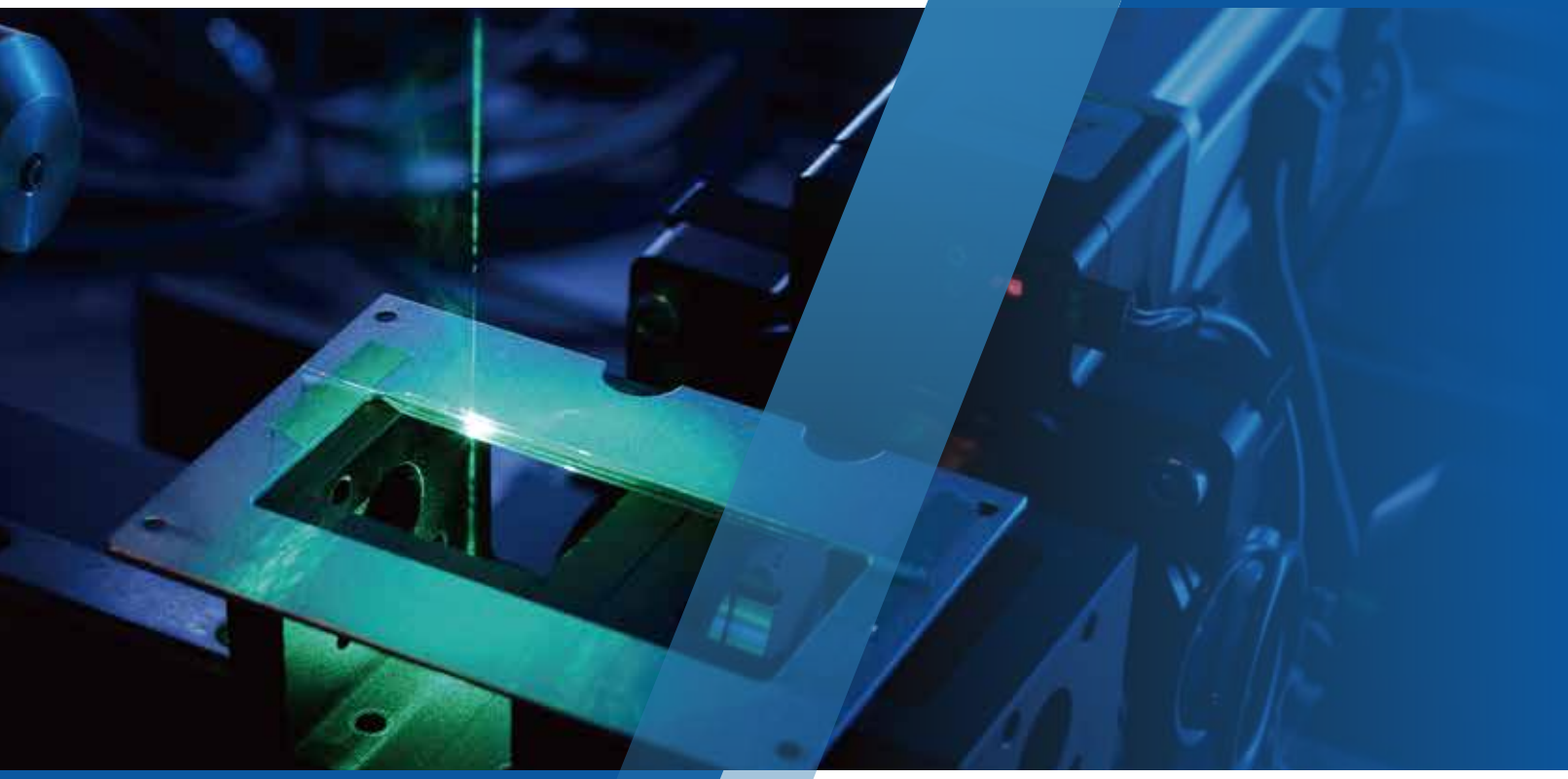
Advanced Optowave



*INNOVATING THE WORLD*

# Product Brochure

ADVANCED OPTOWAVE CORPORATION

# ABOUT US

***Focus on the micro-machining field,***
***Laser source manufacturer and solutions provider***

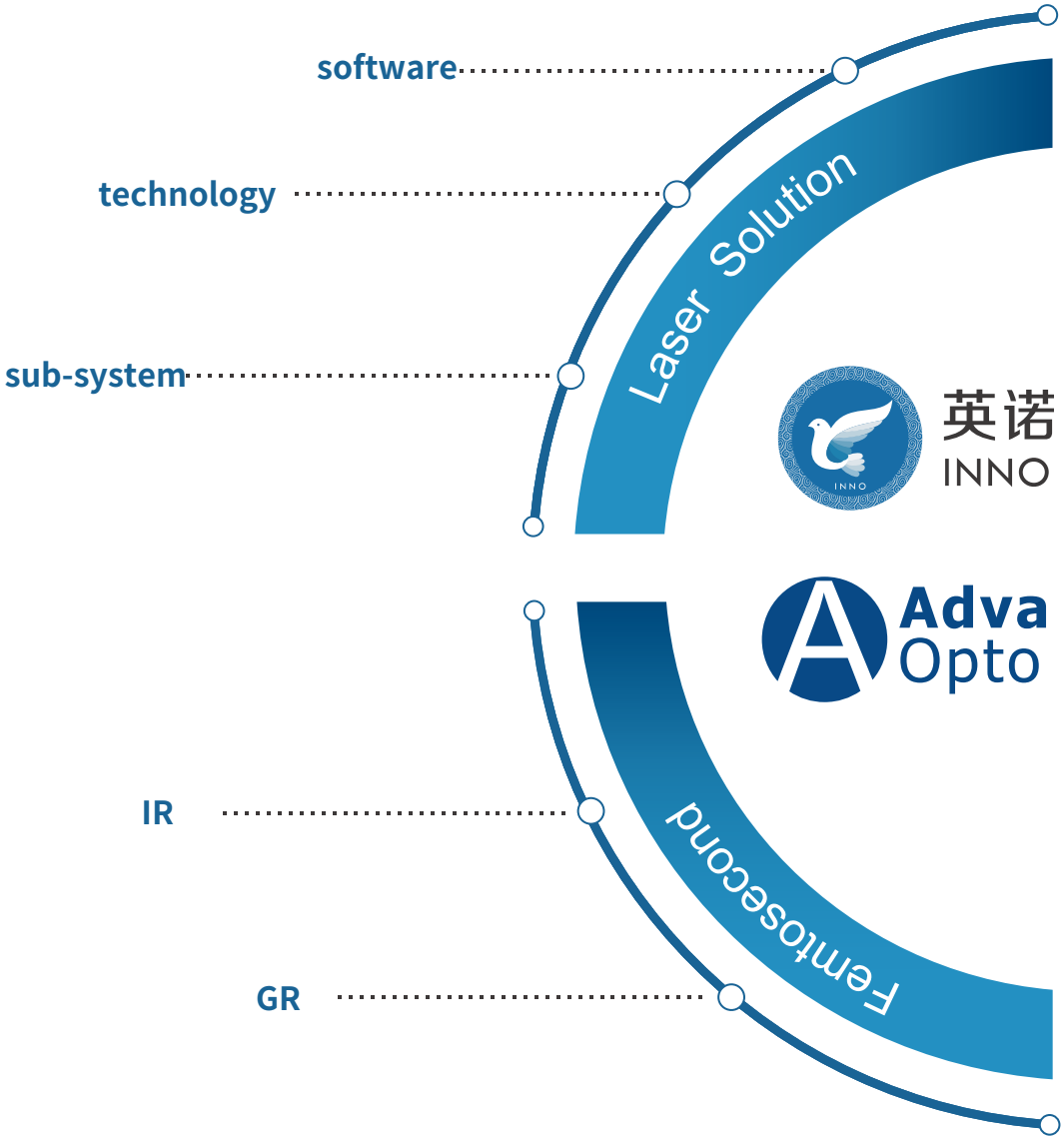
# ADVANCED OPTOWAVE CORPORATION

# AOC

Founded in 2007, Advanced Optowave Corporation has been a laser solution provider. We are now the US subsidiary of INNO Laser, who were listed on the Shenzhen Stock Exchange in 2021. We are focusing on the laser and laser application R&D, worldwide sales and marketing for non-China market, and the local service and support for our customers.

The volume manufacturing of our products is in INNO, which provides fast delivery, high capacity and competitive pricing. AOC laser product portfolio consists of a broad spectrum of pulsed lasers, including DPSS QS-ns lasers, ultrafast lasers and MOPA-ns lasers, covering different wavelengths from IR to DUV, and different pulse widths from nanosecond, picosecond to femtosecond. By combining the innovative laser technologies with laser process development capability, AOC can offer complete laser application solutions. With advanced optical design, vision system, motion control system and self-developed software, AOC is now supplying laser micro-processing systems.

AOC products strongly enhance our customer's capabilities and productivity in consumer electronics, biomedical applications, semiconductor and other areas. As of today, there are more than 50,000 lasers and 5,000 laser micro-process systems installed worldwide. Laser for Better Life is the company mission of AOC.




### Competitive industrial laser

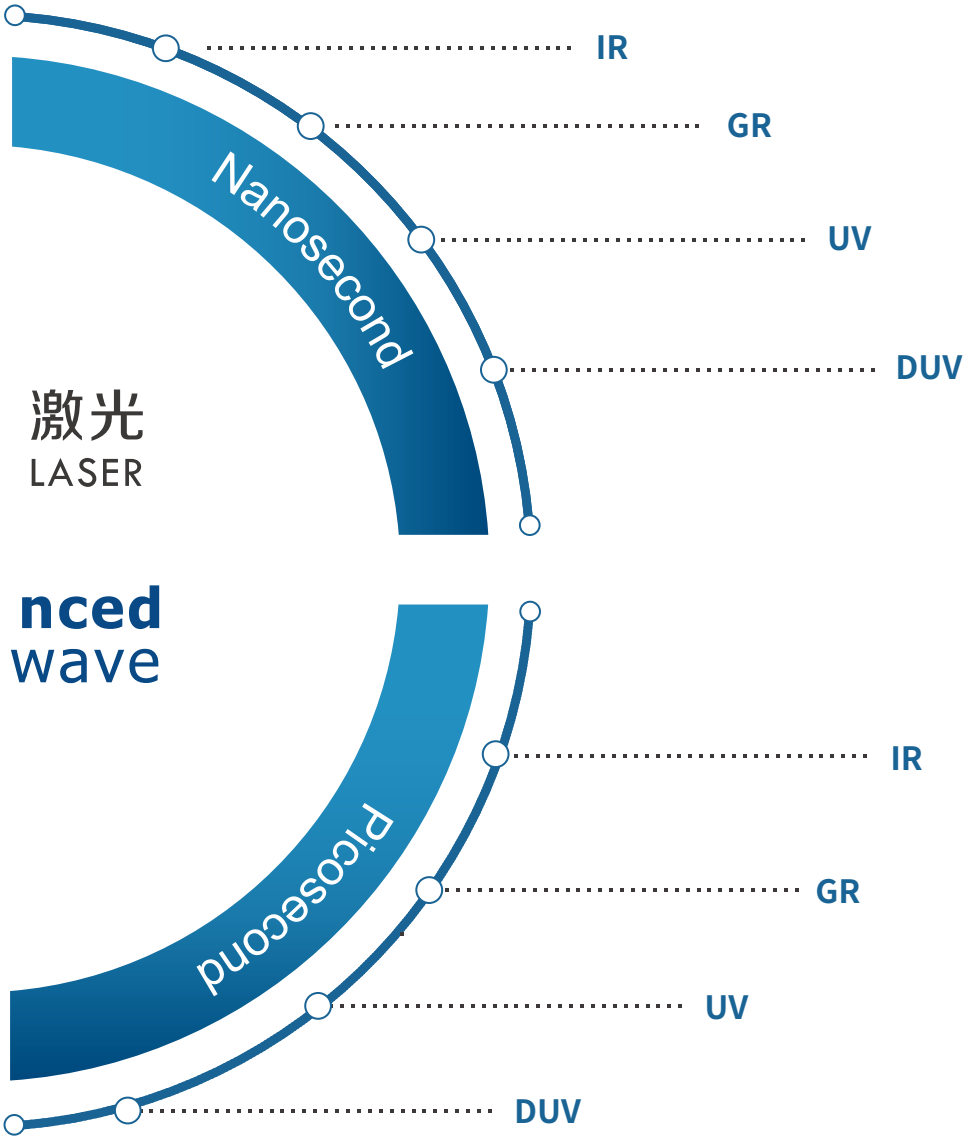
Establish the R&D centers in China and North America, possessing several core technologies independently researched and developed, the breakthrough technologies bring excellent competitiveness.

### Reliable quality assurance

The mature and exquisite manufacturing technology and strict quality control system, satisfying the customer's demand for 7days of 24h production.

### Simple human-computer interaction

Simplify the functions and operations, adjust the parameter freely and lexibly based on the actual operating environment.




### The world's leading laser system solutions

Backed by years of laser processing knowledge and system integration expertise, providing integrators with professional laser system solutions.

### Excellent laser process solutions

Depend on the most comprehensivelaser application process database in the field of micro-machining, we apply the research achievements to the production and provide end-user with excellent laser process solutions.

### Worry-free solution upgrade guarantee

Capture customer's needs accurately, tailor-made, continuously improving and upgrading, flexibly expanding, making the customers worry-free.

Advanced Optowave 英诺激光 INNO LASER

# Contents


We fully understand the customer's demand, listen to the voice from the market, provide customers with high quality, high efficiency, cost-effective laser solutions with professional technology and rich experience.

# *AONano Compact* Series

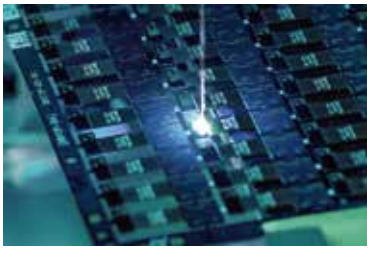
## Industrial Green nanosecond laser

- AIR and WATER cooling option
- Short pulse width, excellent beam quality
- TTL level signals & PWM pulse width modulation signals


## Features & Benefits:

Both air-cooled version and water-cooled version are available for this laser model. The compact size saves space for installation on the customer side, lowers the integration cost and simplifies the installation process. The umbilical length between the laser head and controller can be customized according to the customer's demand.

Both 5W version and 10W version available. The typical repetition range is 30kHz to 150kHz. The pulse energy can be beyond 100μJ. The short pulse width (<15ns @ 50k), the excellent beam quality ($M^2$<1.2), and the great beam roundness (> 90%) enable this laser model a perfect candidate for various application areas, including PCB marking, glass marking, glass engraving, and so on.



PCB marking

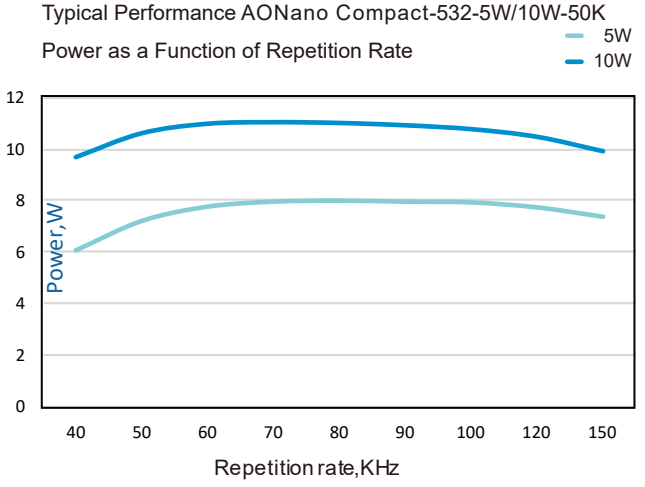
Glass marking

Glass ergravirg

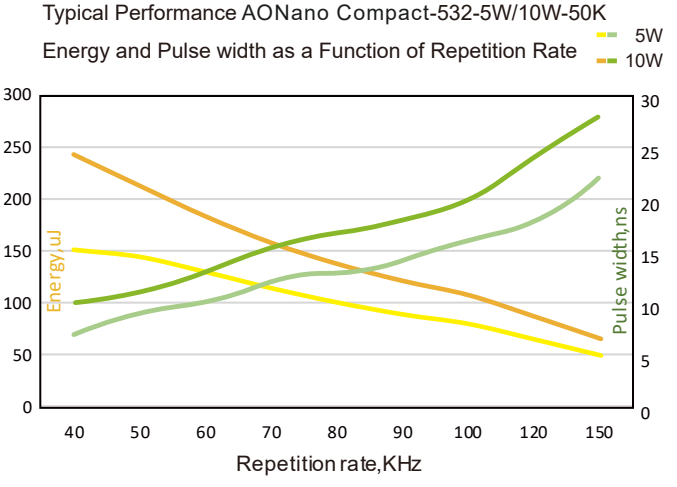


Advanced Optowave 英诺激光 INNO LASER

Typical Performance AONano Compact-532-5W/10W-50K
Power as a Function of Repetition Rate



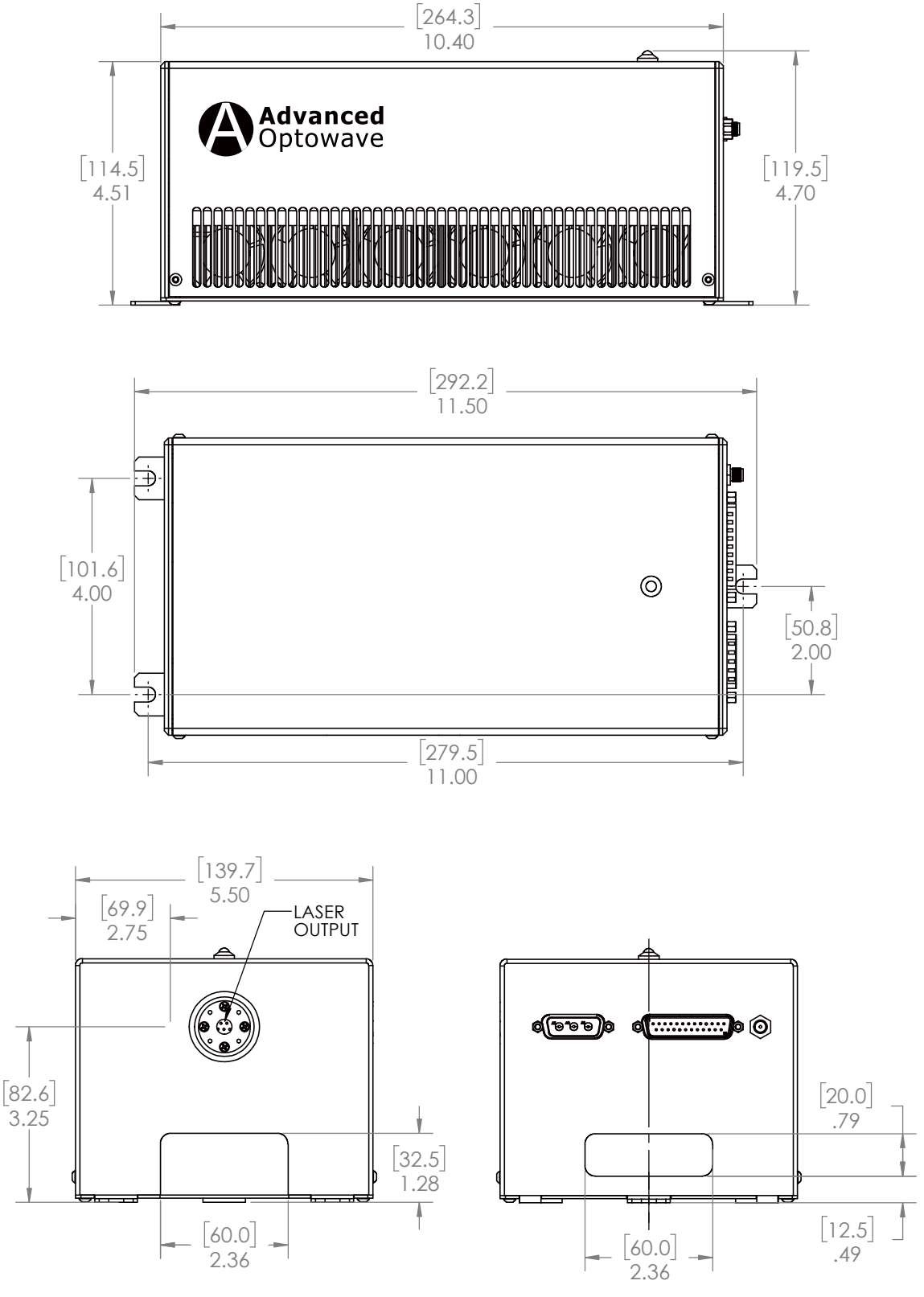

Typical Performance AONano Compact-532-5W/10W-50K
Energy and Pulse width as a Function of Repetition Rate




| Specification | AONano Compact 532 | |
|---|---|---|
| | 5W-50K | 10W-50K |
| Wavelength (nm) | 532 | |
| Average Power (Watts) | 5 | 10 |
| Energy (μJ) | >100 | >200 |
| Specified Repetition Rate(kHz) | 50 | |
| Repetition Rate (kHz) | 30 ~ 150 | |
| Pulse Width (ns) | <15 | |
| Beam Quality ($M^2$) | < 1.2 | |
| Beam Roundness (%) | > 90 | |
| Beam Diameter (mm) | ~0.5 | |
| Beam Divergence (mRad) | < 1.5 | |
| Point Stability (μrad/°C) | < 20 | |
| Polarization Ratio | 100:1 Linear, Horizontal | |
| Pulse-to-Pulse Stability (% RMS) | < 3 | |
| Average Power Stability(% over12 hours) | < 3 | |
| Cold Start Warm-Up (mins.) | < 40 | |
| Standby Warm-Up (mins.) | < 10 | |
| Operational Temperature Range (°C) | 15-30℃ | |
| 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 (VDC)/Rated Power(W) | 24/350 | |
| Communication | RS232 | |
| Cooling | Air/Water | |
| Laser head (kg) | 5.24 | |
| controller (kg) | 3.9 | |

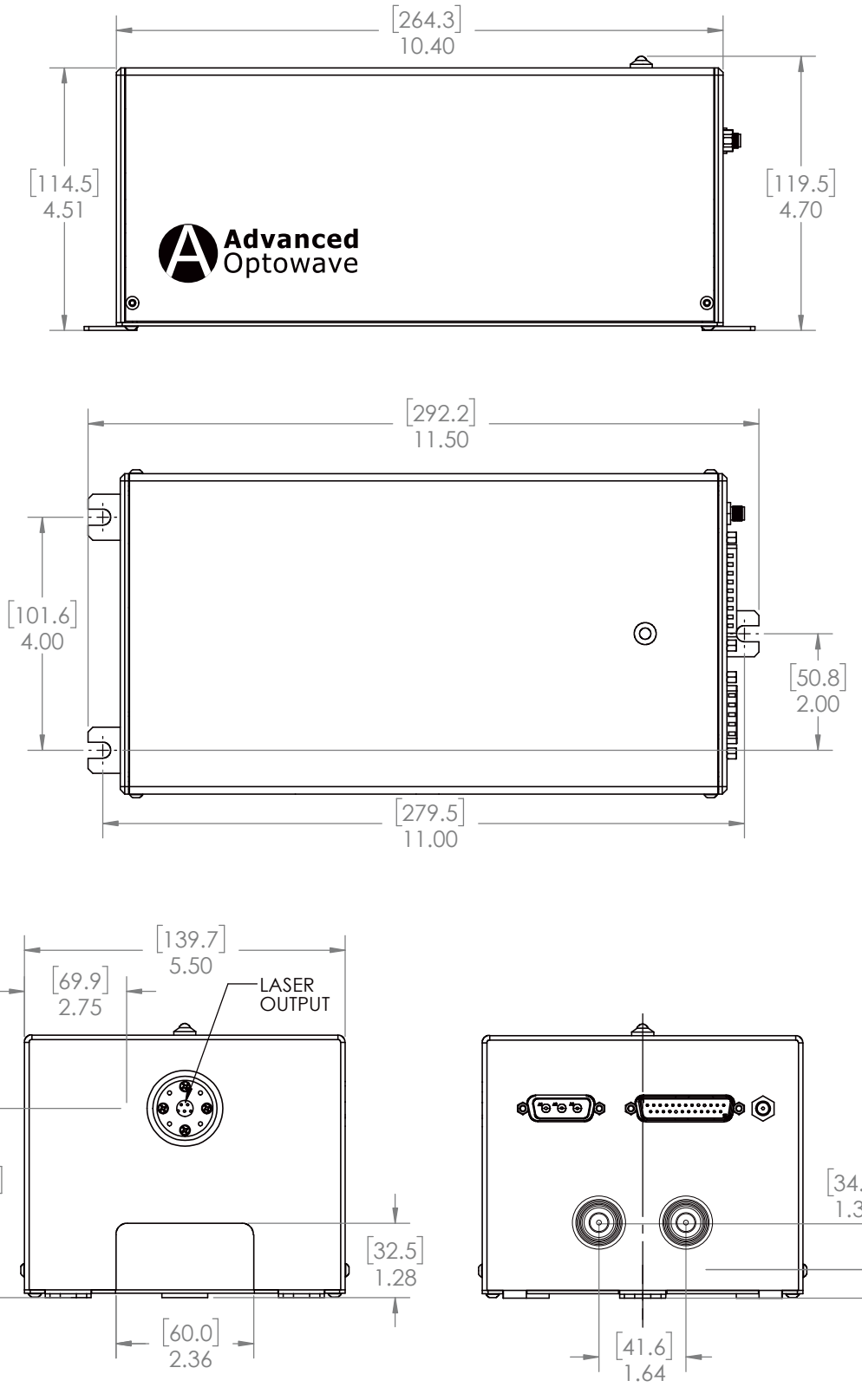
# AONano Compact SERIES

AONano Compact-532 (air cooling) Laser Size

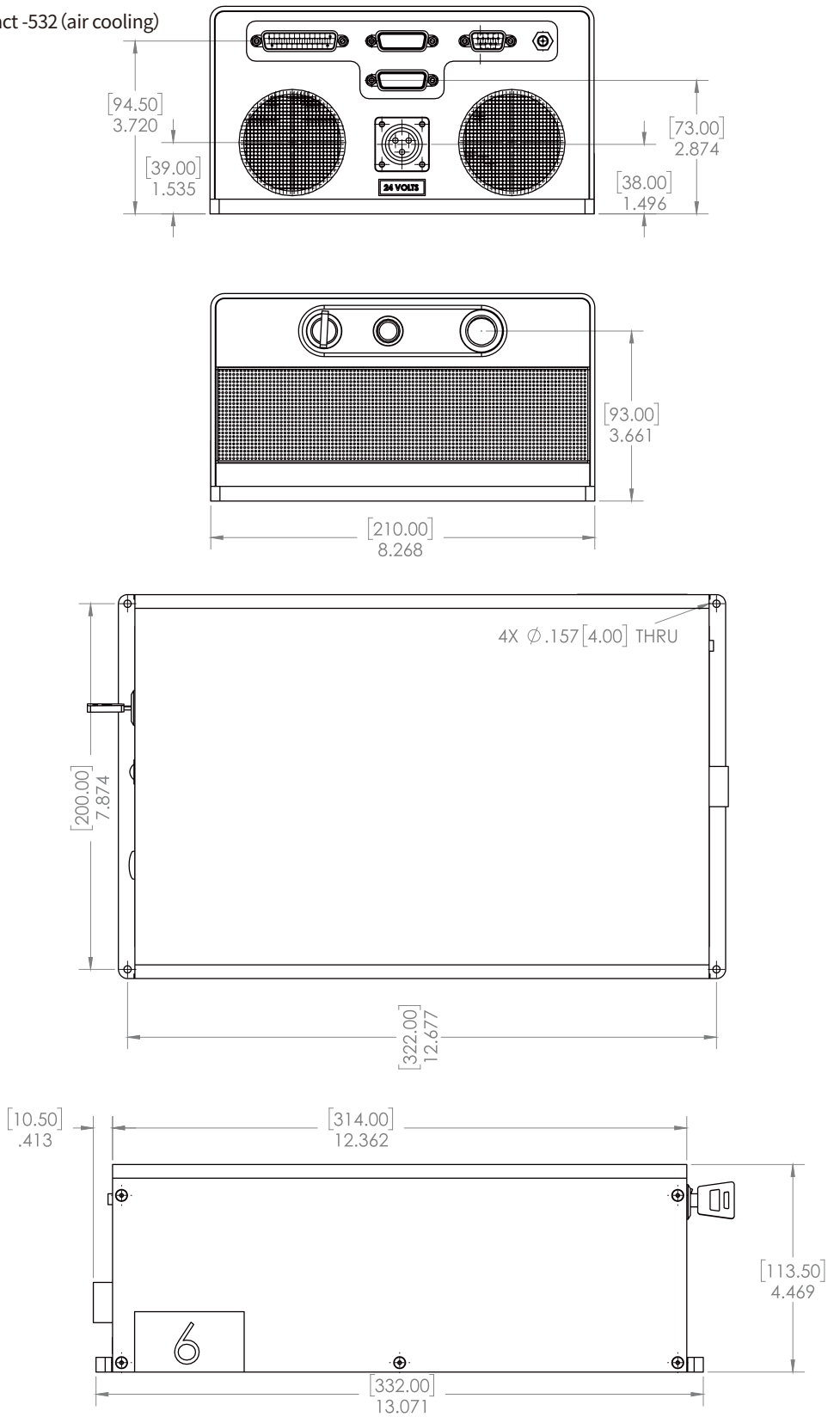


# AONano Compact SERIES

AONano Compact -532 (water cooling) Laser Size



AONano Compact -532 (air cooling)
Controller Size



# *AONano Precision* Series

## Industrial Green nanosecond laser

·Excellent performance
·Expanded the operating frequency range
·Flexible control mode
·Comprehensive power coverage


## ▶ Features & Benefits:

This is the high-power version of our AONano Compact-532 laser series. The all-in-one design makes the laser more compact and reduces the total weight. It saves space for installation on the customer side, lowers the integration cost and simplifies the installation process. The water-cooled design allows the laser to work reliably in various harsh and extreme environments and makes the laser to be the ideal candidate for the 7x24 non-stop production needs.

The output power of 20W, 35W, and up to 55W are available for selection. With the world-leading harmonic generation techniques, it has the highest conversion efficiency. With excellent beam quality, wide repetition rate and flexible control method, it is the perfect candidate for various application areas, including FPC/PCB cutting, solar cell processing, wafter processing and so on.

PCB cutting

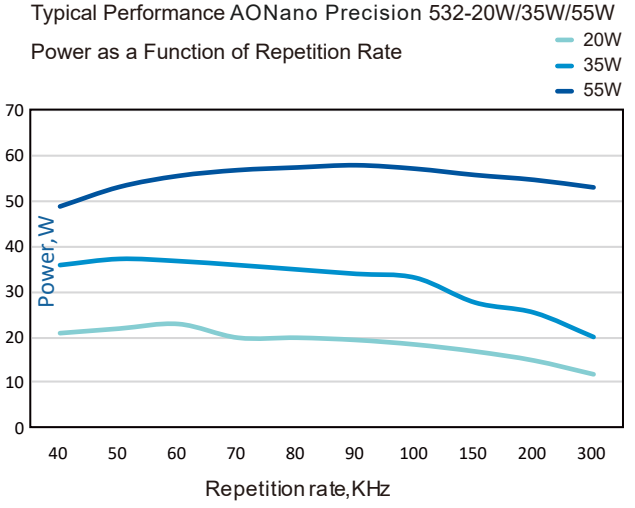
Cerumic cutting/Scribing

Carbon fiber cutting

Ferrite cutting

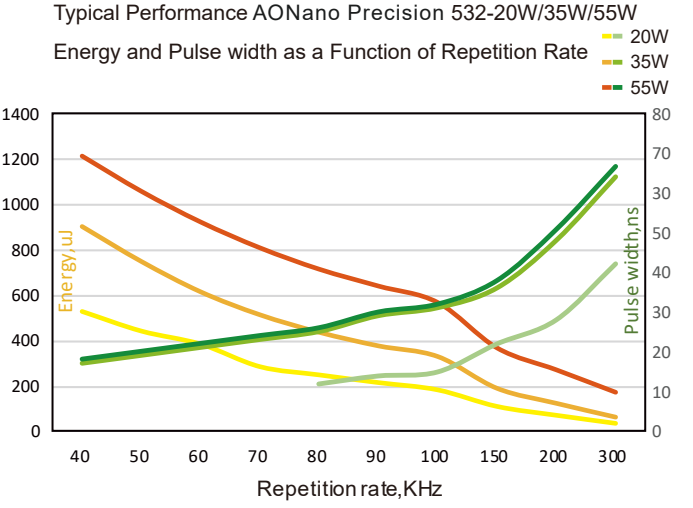
Typical Performance AONano Precision 532-20W/35W/55W

Power as a Function of Repetition Rate




Typical Performance AONano Precision 532-20W/35W/55W

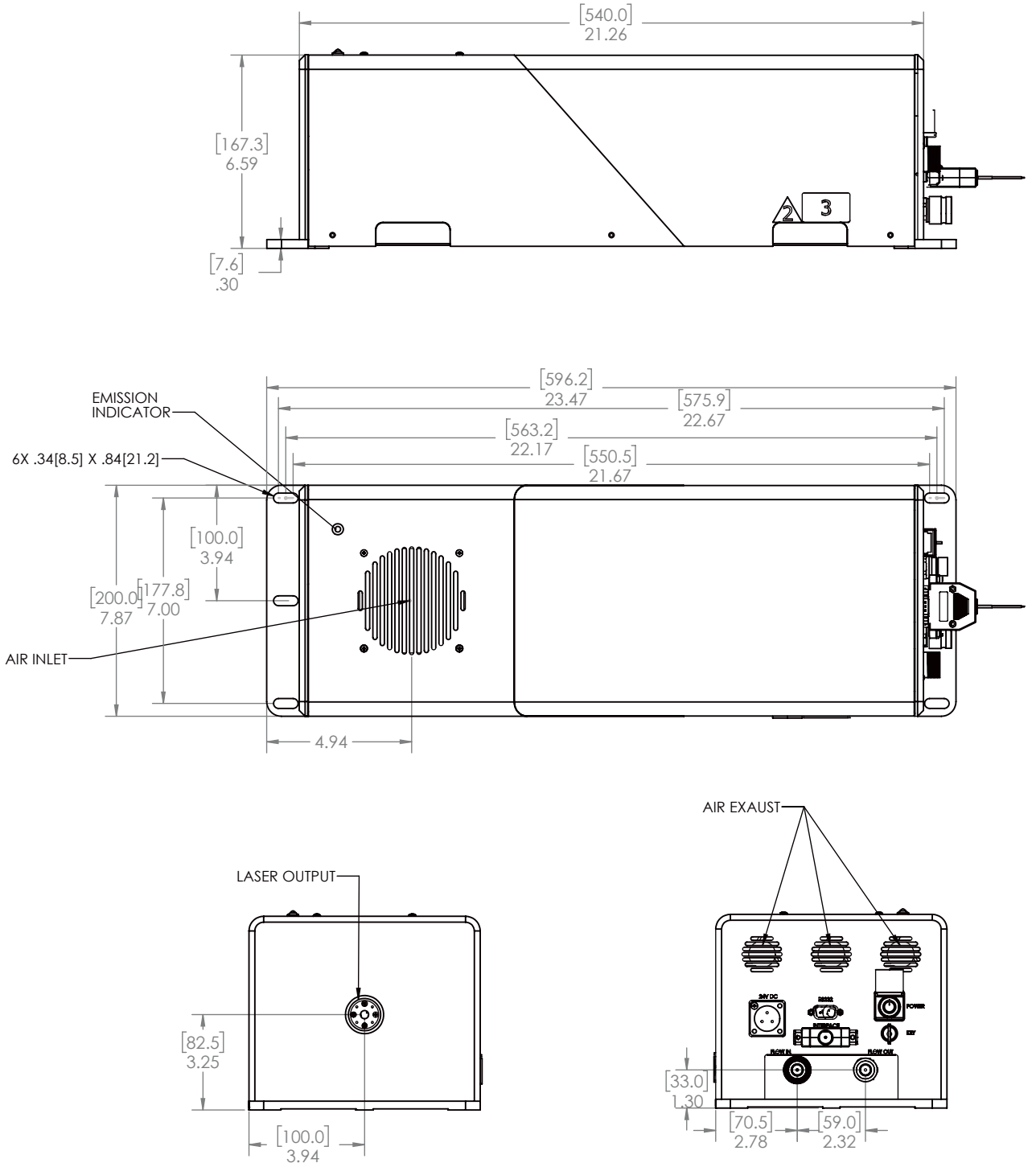
Energy and Pulse width as a Function of Repetition Rate




| AONano Precison 532 | | | |
|---|---|---|---|
| **Specification** | **20W-50K** | **35W-50K** | **50W-50K** |
| Wavelength (nm) | 532 | | |
| Average Power (Watts) | >20W@50KHz | >35W@50KHz | >50W@50KHz |
| Energy (μJ) | > 400 | >700 | >1mJ |
| Specified Repetition Rate(kHz) | 50 | 50 | 50 |
| Repetition Rate (kHz) | 30-150 | 40-300 | |
| Pulse Width (ns) | <15 | <22 | <20 |
| Beam Quality ($M^2$) | <1.2 | | |
| Beam Roundness (%) | >90 | | |
| Beam Diameter (mm) | ~0.85 | | |
| Beam Divergence (mRad) | <2 | | |
| Point Stability (μrad/℃) | <20 | | |
| Polarization Ratio | 100:1 Linear,Vertical | | |
| Pulse-to-Pulse Stability (% RMS) | <2 | <3 | |
| Average Power Stability(% over12 hours) | <3 | | |
| Cold Start Warm-Up (mins.) | <40 | | |
| Standby Warm-Up (mins.) | <10 | | |
| Operational Temperature Range (℃) | 15 to 35 | | |
| Operation Humidity Range (%) | 20 to 80,non-condensing | | |
| Storage Temperature Range (℃) | - 20 to 50 | | |
| Storage Humidity Range (%) | 20 to 80,non-condensing | | |
| Input Voltage (VDC)/Rated Power(W) | 24/450 | 24/600 | 24/600 |
| Communication | RS232 | | |
| Cooling | Water | | |
| Laser head (kg) | 20 | | |

# AONano Precision SERIES

AONano Precision -532 Laser Size



# *AONano Precision-DiamondCut* Series

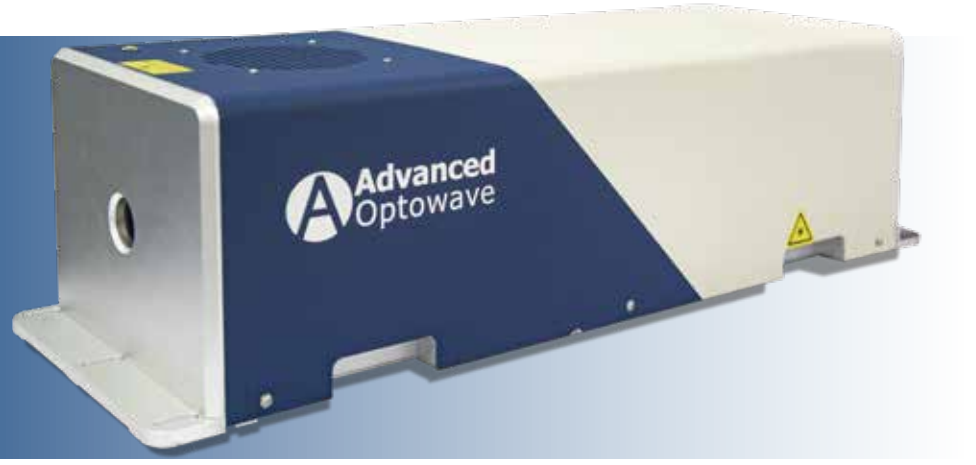
## Industrial Green nanosecond laser

·Up to 3 mJ pulse energy

·Long pulse width

·Excellent beam quality

·Diamond processing




## ▶ Features & Benefits：

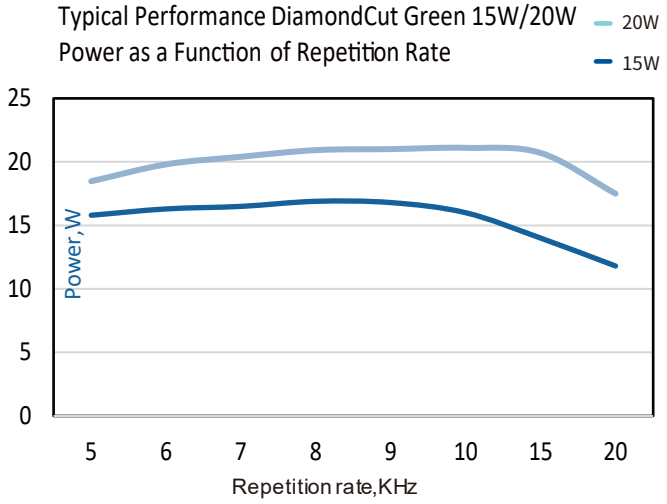
This is the high power energy version of our AONano Precision-532 laser series. The all-in-one design makes the laser more compact and reduces the total weight. It saves space for installation on the customer side, lowers the integration cost and simplifies the installation process. The water-cooled design allows the laser to work reliably in various harsh and extreme environments and makes the laser to be the ideal candidate for the 7x24 non-stop production needs.

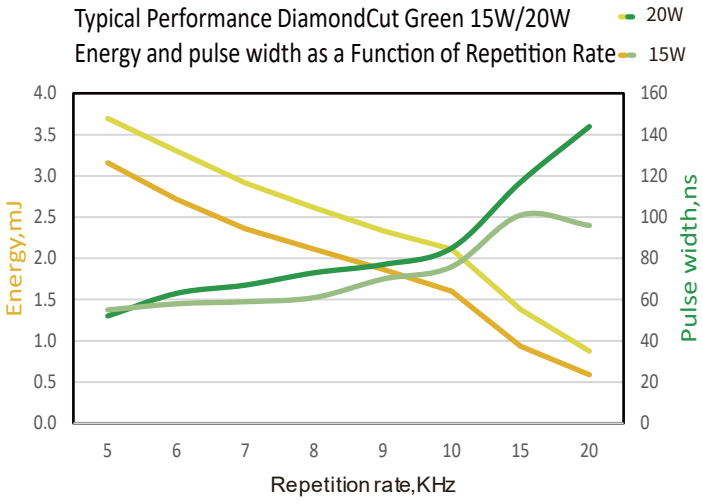
The output power of 15W and 20W are available for selection. The pulse energy is up to 3mJ with repetition rate from 5kHz to 30kHz. With its long pulse width of 90 ns, excellent beam quality, it is perfect candidate for super-material cutting, polishing, marking and engraving, especially for diamond.

Diamond cutting

Carbon fiber cutting

Mobilephone module/Fingerprint module cutting

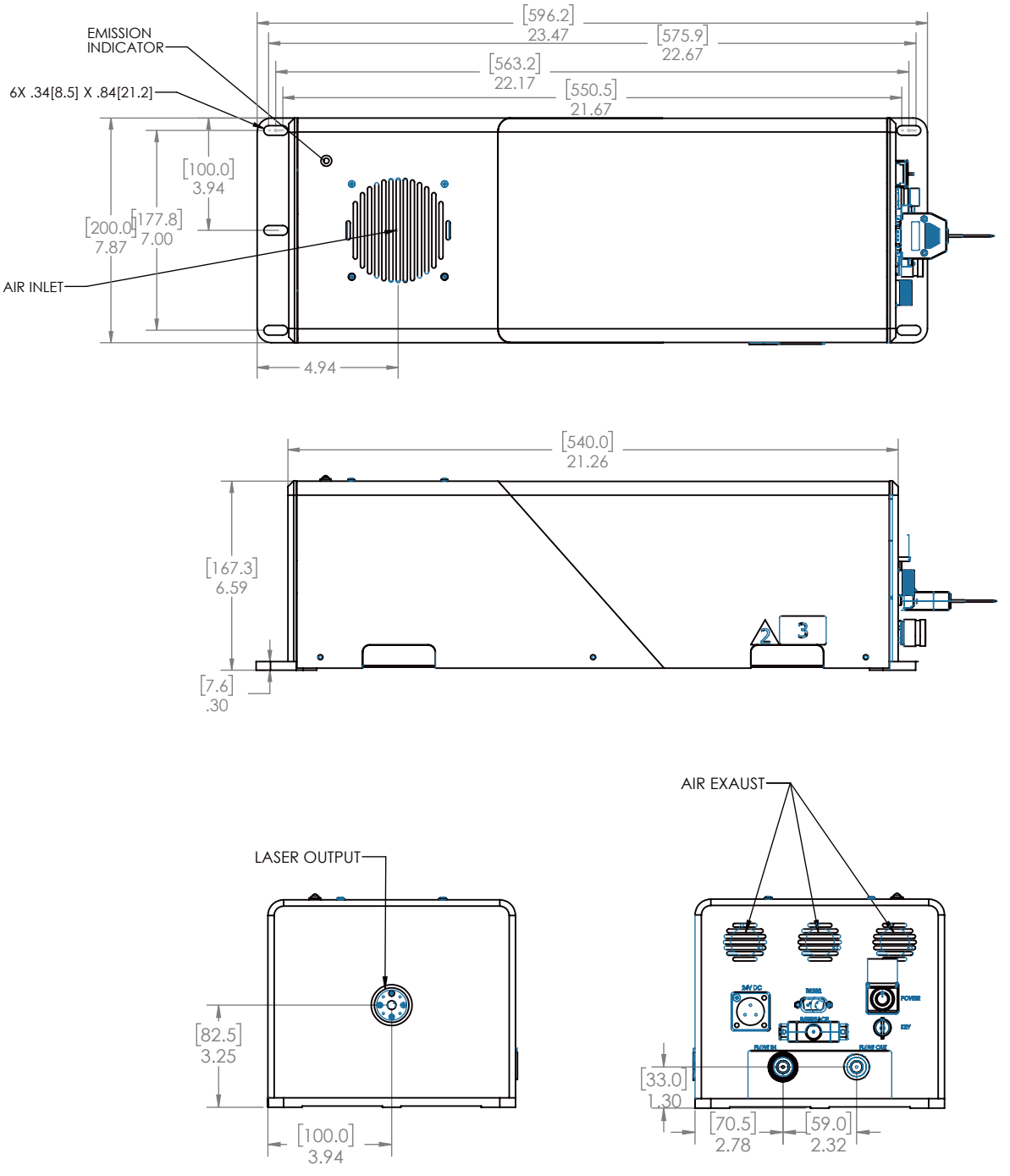



| DiamondCut 532 | | |
|---|---|---|
| **Specification** | **15W-8K** | **20W-8K** |
| Wavelength (nm) | 532 | |
| Average Power (Watts) | >15W@8KHz | >20W@8KHz |
| Energy (mJ) | > 1.8 | >2.5 |
| Specified Repetition Rate(kHz) | 8 | |
| Repetition Rate (kHz) | 5-20K | |
| Pulse Width (ns) | ~75 | |
| Beam Quality ($M^2$) | <1.2 | |
| Beam Roundness (%) | >90 | |
| Beam Diameter (mm) | ~1 | |
| Beam Divergence (mRad) | <2 | |
| Point Stability (μrad/°C) | <20 | |
| Polarization Ratio | 100:1 Linear,Vertical | |
| Pulse-to-Pulse Stability (% RMS) | <2 | |
| Average Power Stability(% over12 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 (VDC)/Rated Power(W) | 24/600 | |
| Communication | RS232 | |
| Cooling | Water | |
| Laser head (kg) | 26 | |

# AONano Precision DiamondCut SERIES

AONano Precision DiamondCut Laser Size



# *AONano Compact (ONE)* Series Air - cooled

## Industrial UV nanosecond laser

- Good heat dissipation structure
- PWF function
- TTL level signals & pulse width modulation signals
- Short pulse width, excellent beam quality

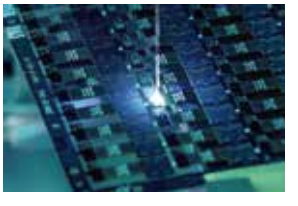
## Features & Benefits:

This is the upgraded version of our air-cooled AONano Compact-355 laser series. The all-in-one design makes the laser more compact and reduces the total weight. It saves space for installation on the customer side, lowers the integration cost and simplifies the installation process. The laser works reliably in the temperature range from 15℃ to 35℃ due to its industrial-leading thermal management system and heat dissipation structure.

Both 3W version and 5W version are available for this laser model. The typical repetition range is 30kHz to 150kHz. The pulse energy can be beyond 100μJ. The short pulse width (<15ns@50k), the excellent beam quality ($M^2$<1.2), and the great beam roundness (> 90%) enable this laser model a perfect candidate for various application areas, including consumer electronics material surface engraving, on-fly marking, glass internal writing, 3D printing and so on.

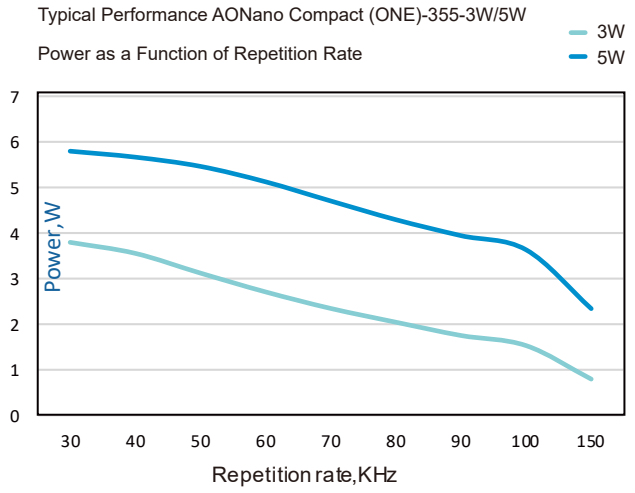
Package marking

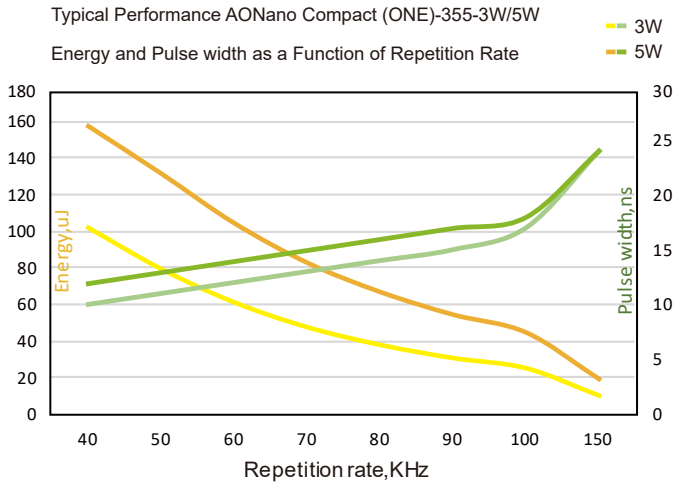
3C marking



FPC/PCB marking

3D printing

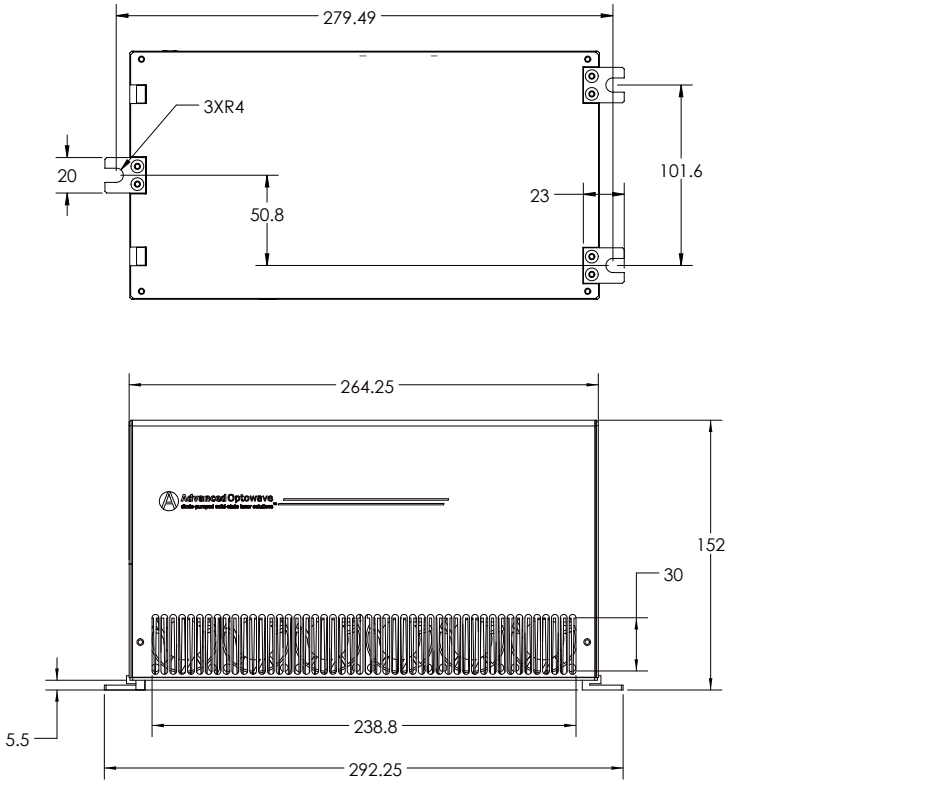



| AONano Compact (ONE) 355 | | |
|---|---|---|
| **Specification** | **3W-50K** | **5W-50K** |
| Wavelength (nm) | 355 | |
| Average Power (Watts) | >3W@50KHz | >5W@50KHz |
| Energy (μJ) | >100 | >166 |
| Specified Repetition Rate(kHz) | 50 | |
| Repetition Rate (kHz) | 30 ~ 150 | |
| Pulse Width (ns) | <15 | |
| Beam Quality ($M^2$) | < 1.2 | |
| Beam Roundness (%) | > 90 | |
| Beam Diameter (mm) | ~0.45 | |
| Beam Divergence (mRad) | < 1.5 | |
| Point Stability (μrad/°C) | < 20 | |
| Polarization Ratio | 100:1 Linear, Horizontal | |
| Pulse-to-Pulse Stability (% RMS) | < 3 | |
| Average Power Stability(% over12 hours) | < 3 | |
| Cold Start Warm-Up (mins.) | < 40 | |
| Standby Warm-Up (mins.) | < 10 | |
| Operational Temperature Range (°C) | 15-35℃ | |
| 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 (VDC)/Rated Power(W) | 12/350 | |
| Communication | RS232 | |
| Cooling | Air | |
| Laser head (kg) | 5.24 | |

# AONano Compact (ONE) SERIES (air cooling)

AONano Compact (ONE) -355 (air cooling) Laser Size



# *AONano Compact (ONE)* Series Water-Cooled

## Industrial UV nanosecond laser

·ALL-in-one design for ease of integration

·Strong anti-interference ability

·One-button start function

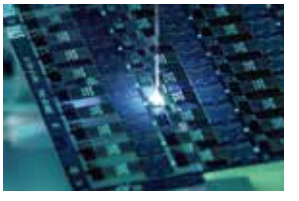

## Features & Benefits:

This is the upgraded version of our water-cooled AONano Compact-355 laser series. The all-in-one design makes the laser more compact and reduces the total weight. It saves space for installation on the customer side, lowers the integration cost and simplifies the installation process. The newly added one-button start feature significantly reduces the operational procedure of the customer and consequently improves the user experience.

The water-cooled design allows the laser to work reliably in various harsh and extreme environments and makes the laser to be the ideal candidate for the 7x24 non-stop production needs. The output power of 3W, 5W and 10W are available in the repetition range from 30 kHz to 150 kHz. The maximum pulse energy reaches 200 μJ. It is the perfect candidate for various application areas, including consumer electronics material surface engraving, on-fly marking, glass engraving, 3D printing and so on.

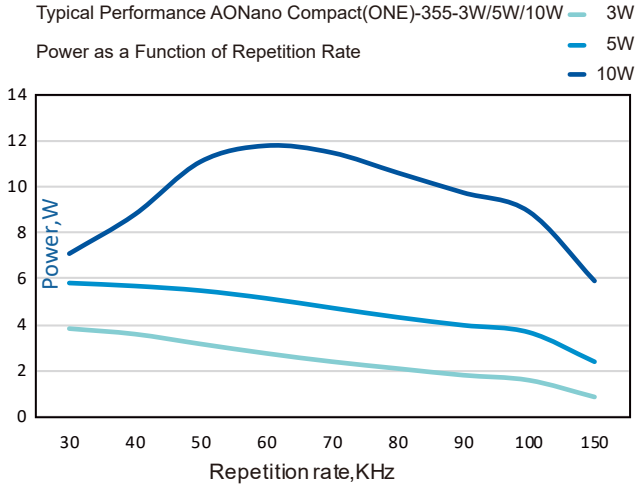
Package marking

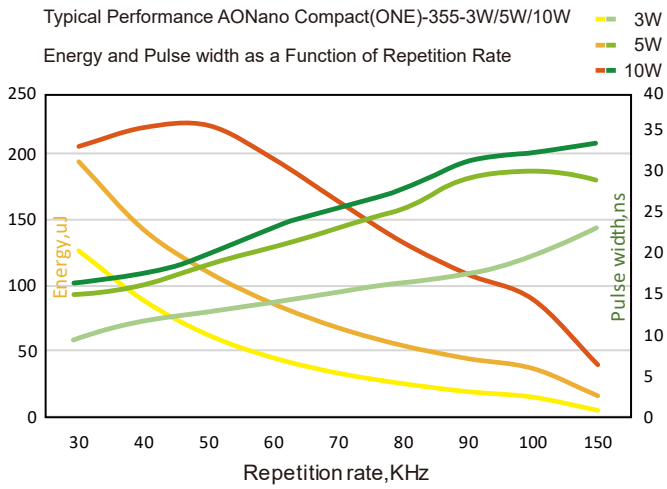
3C marking



FPC/PCB marking

3D printing

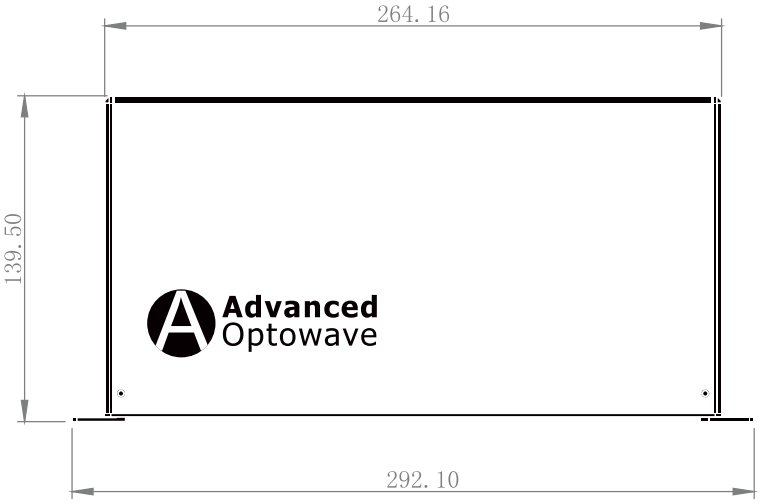


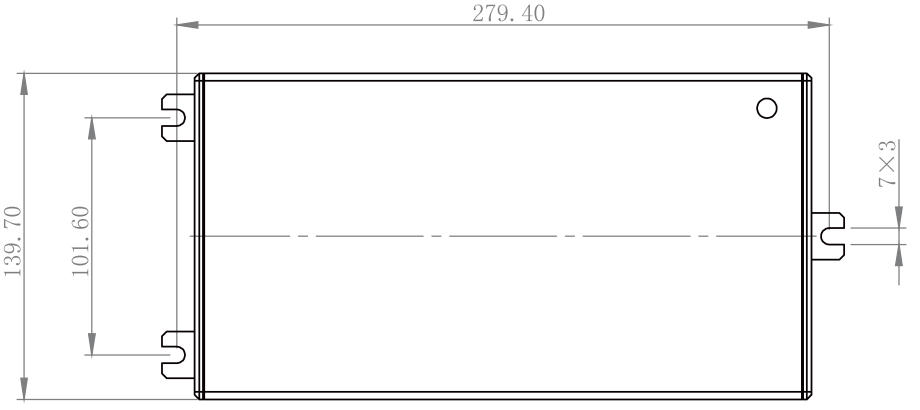



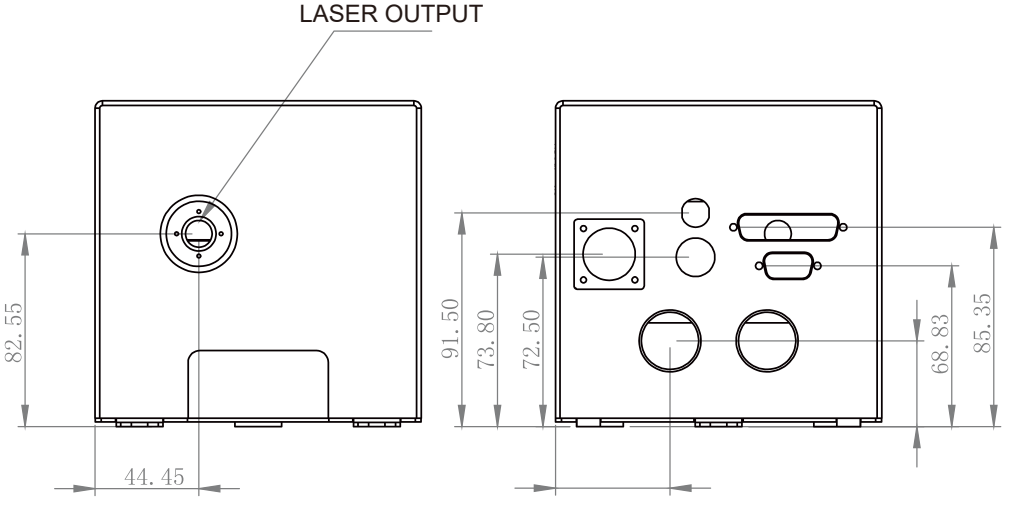

| | AONano Compact (ONE) 355 | | |
|---|---|---|---|
| **Specification** | **3W-30K** | **5W-30K** | **10W-50K** |
| Wavelength (nm) | 355 | | |
| Average Power (Watts) | >3W@30KHz | >5W@30KHz | >10W@50KHz |
| Energy (μJ) | >100 | >160 | >200 |
| Specified Repetition Rate(kHz) | 30 | 30 | 50 |
| Repetition Rate (kHz) | 30 ~ 150 | | |
| Pulse Width (ns) | <15 | | <13 |
| Beam Quality ($M^2$) | < 1.2 | | |
| Beam Roundness (%) | > 90 | | |
| Beam Diameter (mm) | ~0.45 | | 0.65 |
| Beam Divergence (mRad) | < 1.5 | | |
| Point Stability (μrad/°C) | < 20 | | |
| Polarization Ratio | 100:1 Linear, Horizontal | | |
| Pulse-to-Pulse Stability (% RMS) | < 3 | | |
| Average Power Stability(% over12 hours) | < 3 | | |
| Cold Start Warm-Up (mins.) | < 40 | | |
| Standby Warm-Up (mins.) | < 10 | | |
| Operational Temperature Range (°C) | 5-40℃ | | |
| 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 (VDC)/Rated Power(W) | 24/350 | | 24/450 |
| Communication | RS232 | | |
| Cooling | Water | | |
| Weight (kg) | 4.9 | | 6.5 |

# AONano Compact (ONE) SERIES (water cooling)

AONano Compact(ONE) -355 (water cooling) Laser Size



# *AONano Compact (i)* Series Air-cooled

## Industrial UV nanosecond laser

·Power auto-optimaization

·Crystal indexing

·Real-time power feedback

·Long-term power consistency


## ▶ Features & Benefits:

This is the intelligent version of our air-cooled AONano Compact-355 laser serials. With the intelligent features listed below, the long-term stability of the laser is significantly improved, and the service time/cost is greatly reduced.

**All-in-one format:** the optical cavity and electrical controller are integrated into a single box.

**Power monitoring:** the laser output power is monitored and consequently the real-time power reading is available in the laser GUI and RS232-command.

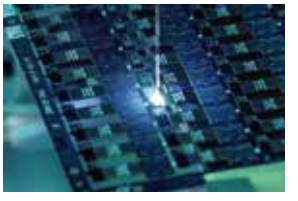
**Auto-optimization:** the laser output power can be auto-optimized with the feature of power monitoring. This means that the laser output power can be recovered by auto-optimization if it drops to a level below the pre-defined threshold. If the power cannot be recovered, the laser will report an alarm. This can significantly reduce the service time and cost.

**Crystal indexing:** there are multiple spots available for use on the THG crystal. The spot indexing can be controlled manually or automatically by a pre-defined sequence. There are five spots available on the THG crystal, which means the laser lifetime can be extended by five times.

The AONano Compact(i)-355 series laser is a perfect candidate for various laser micromachining applications. It is a great cost-effective combination of high reliability and high performance.

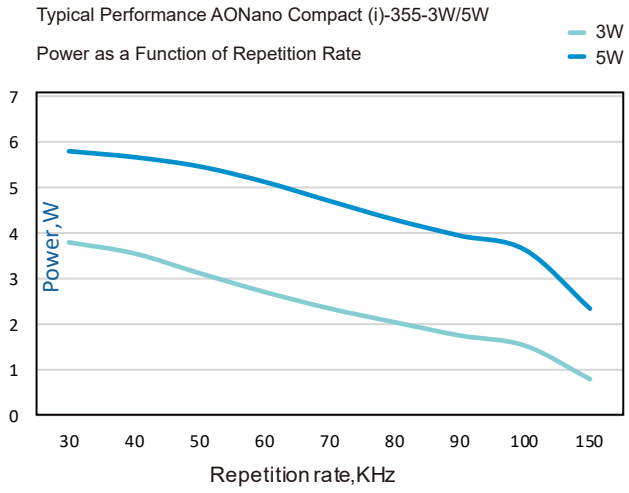
Package marking

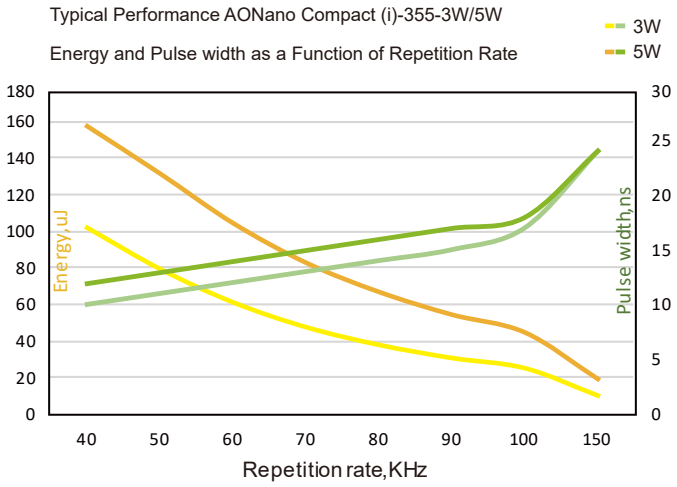
3C marking



FPC/PCB marking

3D printing

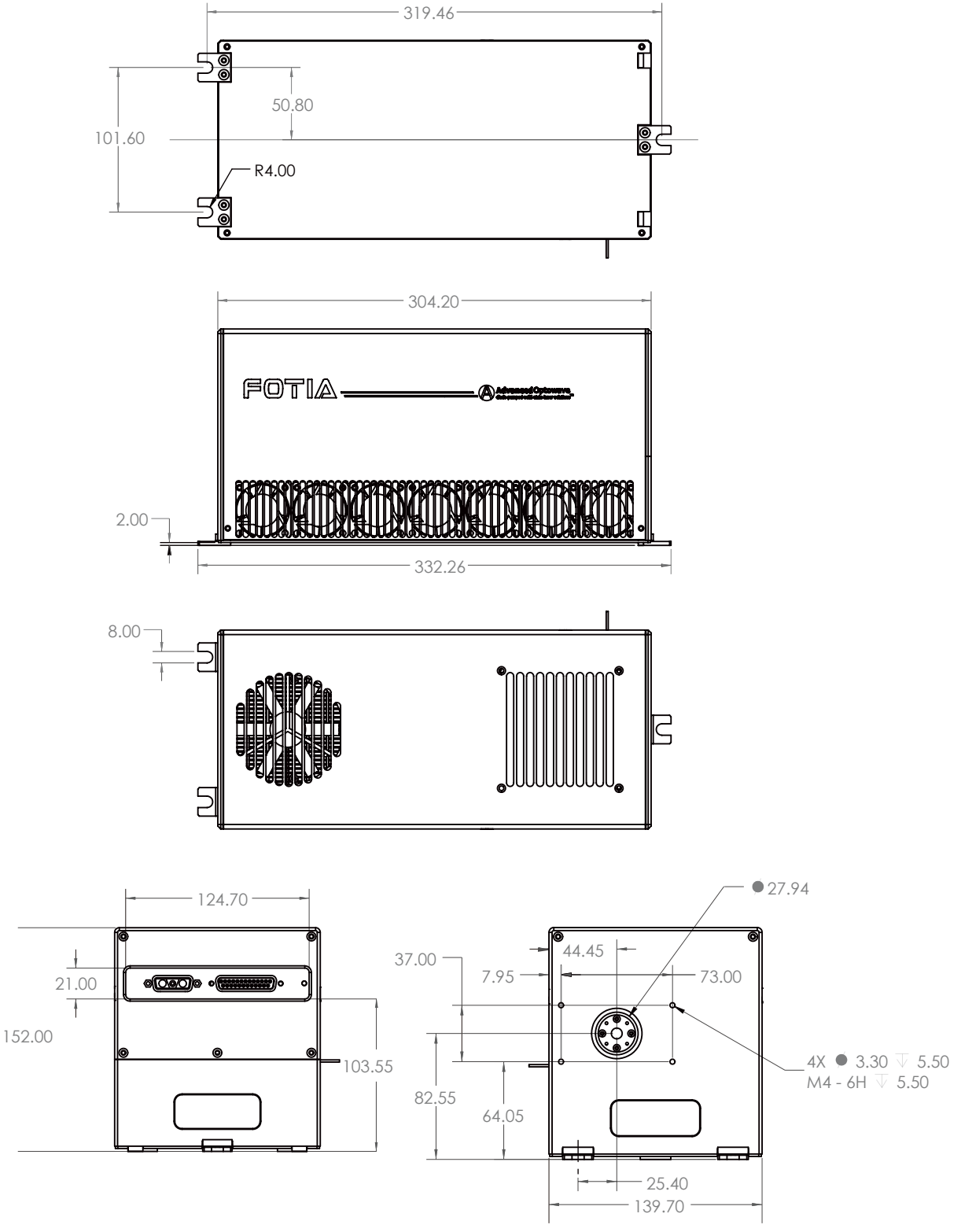



| AONano Compact (i) 355 | | |
|---|---|---|
| **Specification** | **3W-50K** | **5W-50K** |
| Wavelength (nm) | 355 | |
| Average Power (Watts) | >3W@50KHz | >5W@50KHz |
| Energy (μJ) | >60 | >100 |
| Specified Repetition Rate(kHz) | 50 | |
| Repetition Rate (kHz) | 30 ~ 150 | |
| Pulse Width (ns) | <15 | |
| Beam Quality ($M^2$) | < 1.2 | |
| Beam Roundness (%) | > 90 | |
| Beam Diameter (mm) | ~0.45 | |
| Beam Divergence (mRad) | < 1.5 | |
| Point Stability (μrad/°C) | < 20 | |
| Polarization Ratio | 100:1 Linear, Horizontal | |
| Pulse-to-Pulse Stability (% RMS) | < 3 | |
| Average Power Stability(% over12 hours) | < 3 | |
| Cold Start Warm-Up (mins.) | < 40 | |
| Standby Warm-Up (mins.) | < 10 | |
| Operational Temperature Range (°C) | 15-35°C | |
| 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 (VDC)/Rated Power(W) | 12/350 | |
| Communication | RS232 | |
| Cooling | Air | |
| Laser head (kg) | 5.24 | |
| controller (kg) | 3.9 | |

# AONano Compact(i) SERIES(air cooling)

AONano Compact (i) -355 (air cooling) Laser Size



# *AONano Compact (i)* Series Water-cooled

## Industrial UV nanosecond laser

·Power auto-optimaization

·Crystal indexing

·Real-time power feedback

·Long-term power consistency


## Features & Benefits:

This is the intelligent version of our water-cooled AONano Compact-355 laser serials. With the intelligent features listed below, the long-term stability of the laser is significantly improved, and the service time/cost is greatly reduced.

**All-in-one format:** the optical cavity and electrical controller are integrated into a single box.

**Power monitoring:** the laser output power is monitored and consequently the real-time power reading is available in the laser GUI and RS232-command.

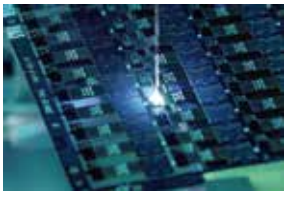
**Auto-optimization:** the laser output power can be auto-optimized with the feature of power monitoring. This means that the laser output power can be recovered by auto-optimization if it drops to a level below the pre-defined threshold. If the power cannot be recovered, the laser will report an alarm. This can significantly reduce the service time and cost.

**Crystal indexing:** there are multiple spots available for use on the THG crystal. The spot indexing can be controlled manually or automatically by a pre-defined sequence. There are five spots available on the THG crystal, which means the laser lifetime can be extended by five times.

The AONano Compact(i)-355 series laser is a perfect candidate for various laser micromachining applications. It is a great cost-effective combination of high reliability and high performance.

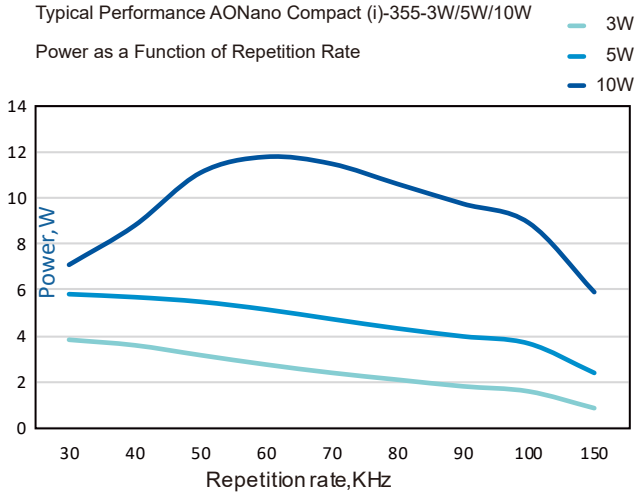
Package marking

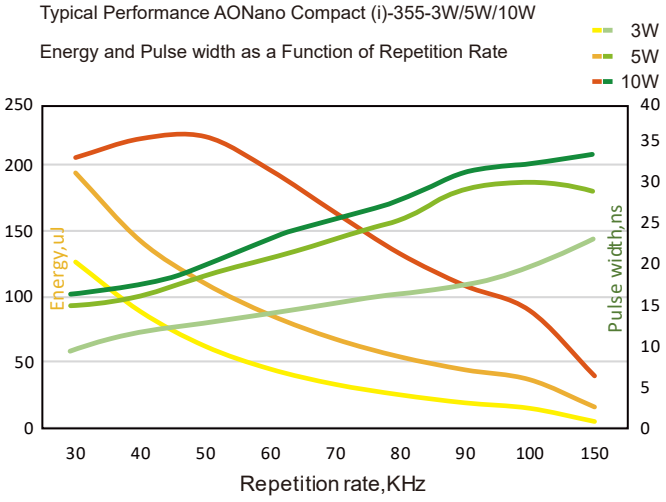
3C marking



FPC/PCB marking

3D printing

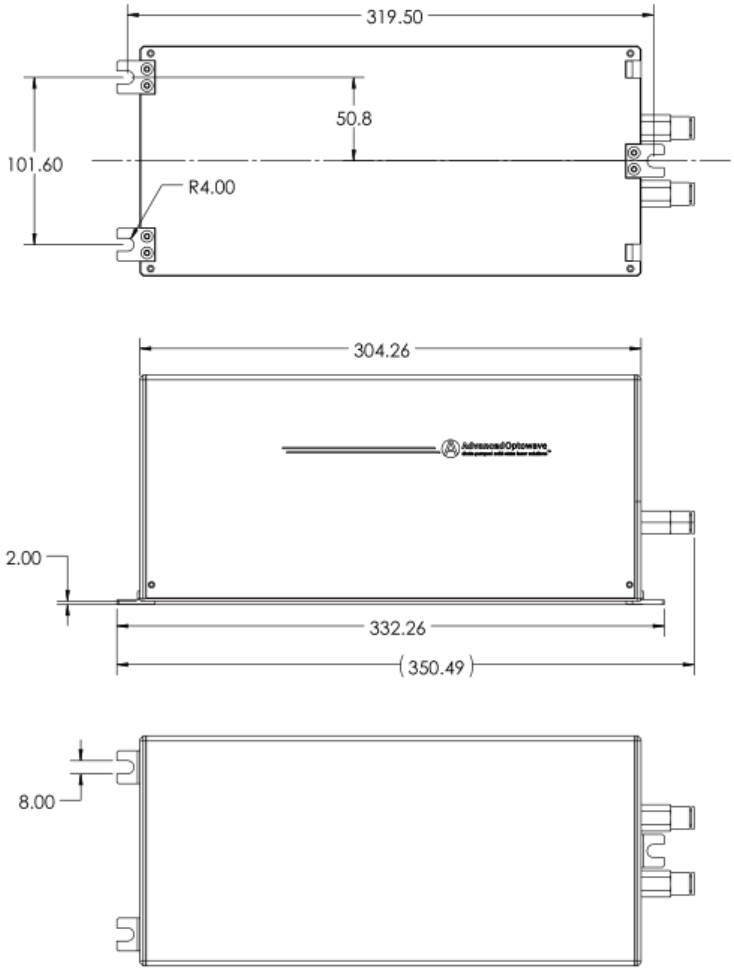


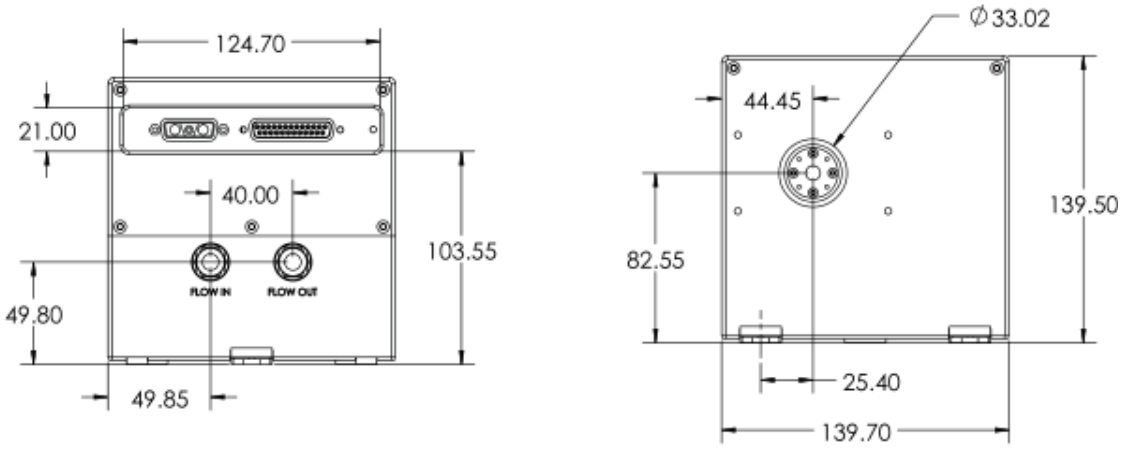




| | AONano Compact (i) 355 | | |
|---|---|---|---|
| **Specification** | **3W-50K** | **5W-50K** | **10W-50K** |
| Wavelength (nm) | 355 | | |
| Average Power (Watts) | >3W@50KHz | >5W@50KHz | >10W@50KHz |
| Energy (μJ) | >100 | >160 | >200 |
| Specified Repetition Rate(kHz) | 50 | | |
| Repetition Rate (kHz) | 30 ~ 150 | | |
| Pulse Width (ns) | <15 | | <13 |
| Beam Quality ($M^2$) | < 1.2 | | |
| Beam Roundness (%) | > 90 | | |
| Beam Diameter (mm) | ~0.45 | | 0.65 |
| Beam Divergence (mRad) | < 1.5 | | |
| Point Stability (μrad/°C) | < 20 | | |
| Polarization Ratio | 100:1 Linear, Horizontal | | |
| Pulse-to-Pulse Stability (% RMS) | < 3 | | |
| Average Power Stability(% over12 hours) | < 3 | | |
| Cold Start Warm-Up (mins.) | < 40 | | |
| Standby Warm-Up (mins.) | < 10 | | |
| Operational Temperature Range (°C) | 5-40°C | | |
| 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 (VDC)/Rated Power(W) | 12/350 | | |
| Communication | RS232 | | |
| Cooling | Water | | |
| Weight (kg) | 5.3 | | |

# AONano Compact (i) SERIES (water cooling)

AONano Compact(i) -355 (water cooling) Laser Size



# *AONano Precision* Series

## Industrial UV nanosecond laser

·All-in-one design

·Comprehensive power coverage

·Excellent beam quality ($M^2$＜1.2)

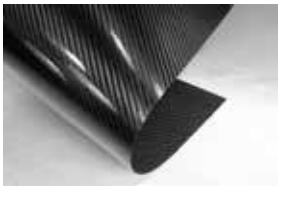
·Filxible control mode


## ▶ Features & Benefits:

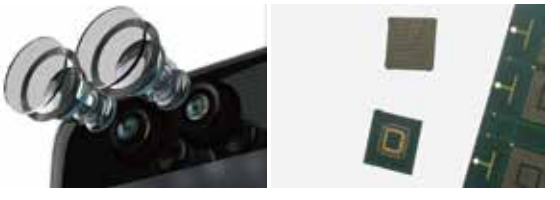
This is the high-power version of our AONano Compact-355 laser series. The all-in-one design makes the laser more compact and reduces the total weight. It saves space for installation on the customer side, lowers the integration cost and simplifies the installation process. The water-cooled design allows the laser to work reliably in various harsh and extreme environments and makes the laser to be the ideal candidate for the 7x24 non-stop production needs.

The output power of 15W, 20W, 25W and up to 40W are available for selection. With the world-leading harmonic generation techniques, it has the highest conversion efficiency. With excellent beam quality, wide repetition rate and flexible control method, it is the perfect candidate for various application areas, including precise micro-machining, on-fly marking, FPC/PCB cutting and so on.

FPC/PCB cutting&drilling

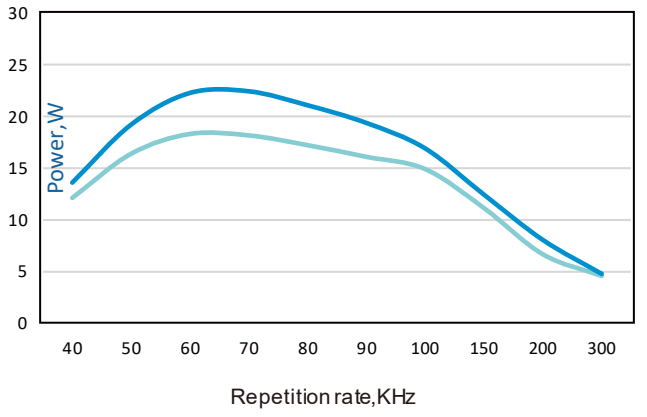


Carbon fiber cutting

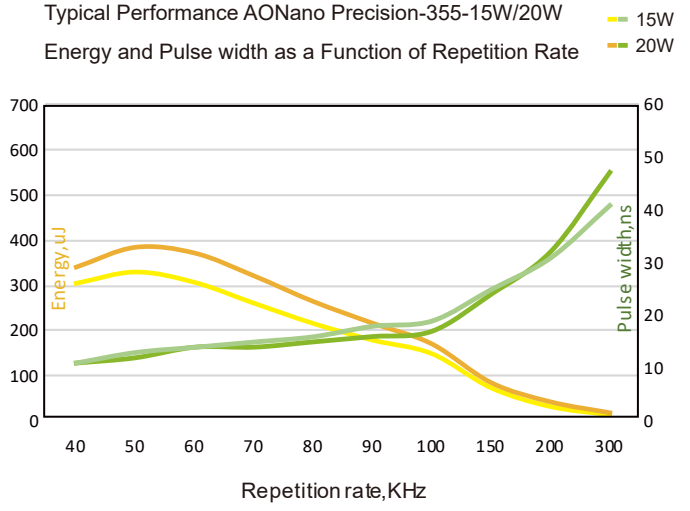


Mobilephone module/Fingerprint module cutting

Typical Performance AONano Precision-355-15W/20W
Power as a Function of Repetition Rate



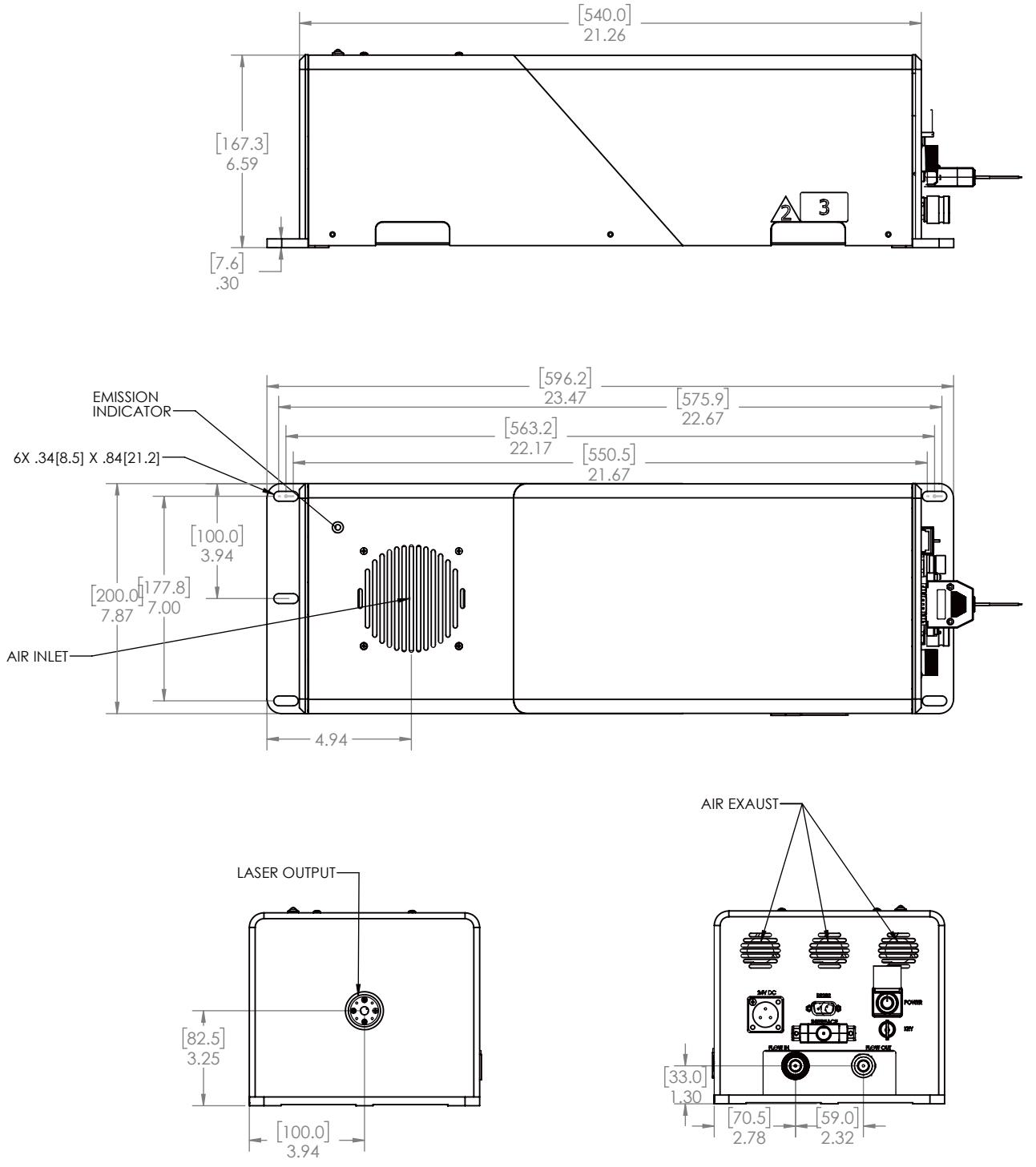

Typical Performance AONano Precision-355-15W/20W
Energy and Pulse width as a Function of Repetition Rate




| | AONano Precison 355 | |
|---|---|---|
| **Specification** | **15W - 50K** | **20W - 60K** |
| Wavelength (nm) | 355 | |
| Average Power (Watts) | >15W@50KHz | >20W@60KHz |
| Energy (μJ) | >300 | >400 |
| Specified Repetition Rate(kHz) | 50 | 60 |
| Repetition Rate (kHz) | 40~300 | |
| Pulse Width (ns) | <15 | |
| Beam Quality ($M^2$) | <1.2 | |
| Beam Roundness (%) | >90 | |
| Beam Diameter (mm) | ~0.55 | ~0.47 |
| Beam Divergence (mRad) | < 2 | |
| Point Stability (μrad/°C) | < 20 | |
| Polarization Ratio | 100:1 Linear,Horizontal | |
| Pulse-to-Pulse Stability (% RMS) | < 3 | |
| Average Power Stability(% over12 hours) | < 3 | |
| Cold Start Warm-Up (mins.) | < 40 | |
| Standby Warm-Up (mins.) | < 10 | |
| Operational Temperature Range (°C) | 5-40°C | |
| 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 (VDC)/Rated Power(W) | 24/450 | 24/600 |
| Communication | RS232 | |
| Cooling | Water | |
| Weight (kg) | 20 | |

# AONano Precision SERIES

AONano Precison -355 Laser Size



# *AONano Precision (i)* Series

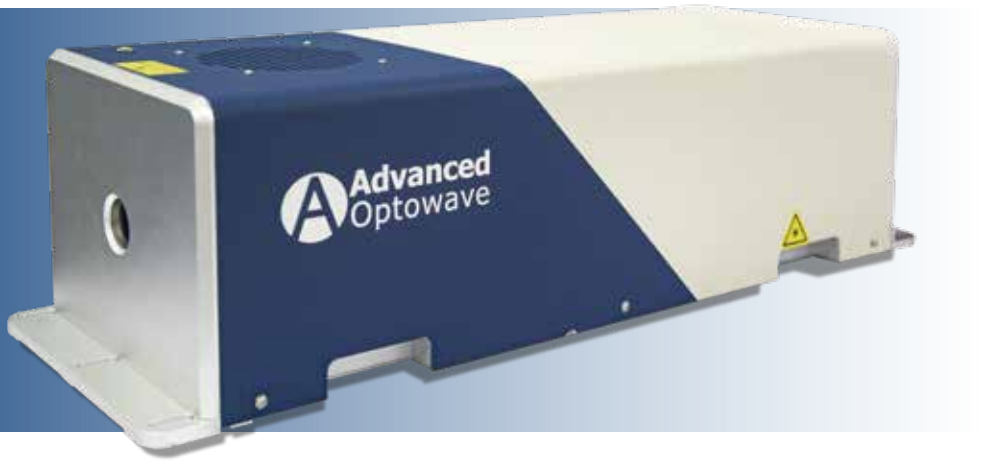
## Industrial UV nanosecond laser

·Power auto-optimization

·Crystal indexing

·Real-time power feedback

·Long-term power consistency




## ▶ Features & Benefits:

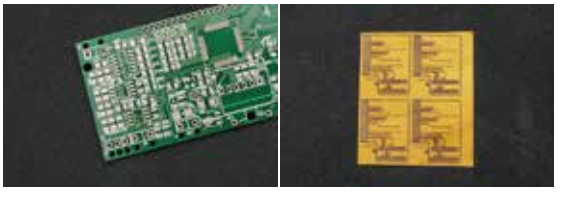
This is the intelligent version of our AONano Precision-355 laser serials. With the intelligent features listed below, the long-term stability of the laser is significantly improved, and the service time/cost is greatly reduced.

**All-in-one format:** the optical cavity and electrical controller are integrated into a single box.

**Power monitoring:** the laser output power is monitored and consequently the real-time power reading is available in the laser GUI and RS232-command.

**Auto-optimization:** the laser output power can be auto-optimized with the feature of power monitoring. This means that the laser output power can be recovered by auto-optimization if it drops to a level below the pre-defined threshold. If the power cannot be recovered, the laser will report an alarm. This can significantly reduce the service time and cost.

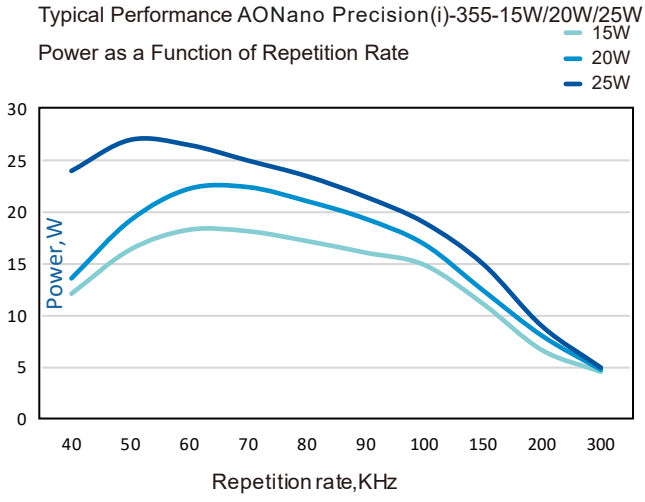
**Crystal indexing:** there are multiple spots available for use on the THG crystal. The spot indexing can be controlled manually or automatically by a pre-defined sequence. There are five spots available on the THG crystal, which means the laser lifetime can be extended by five times.
The AONano Precision (i)-355 series laser is a perfect candidate for various laser micromachining applications. It is a great cost-effective combination of high reliability and high performance.

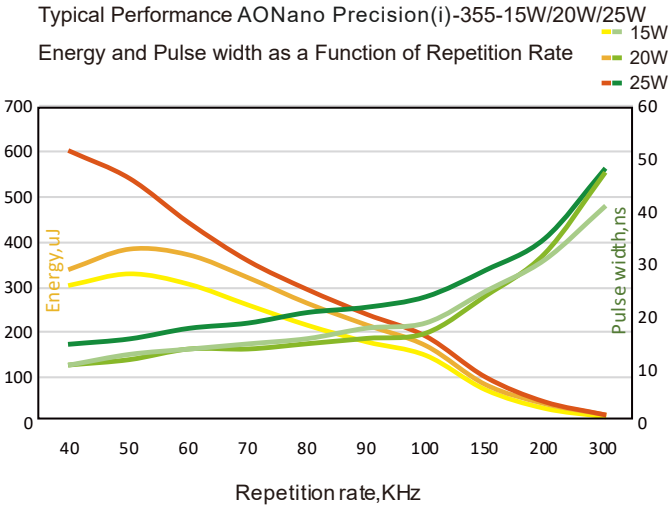


FPC/PCB cutting&drilling

Fly marking

PI cutting

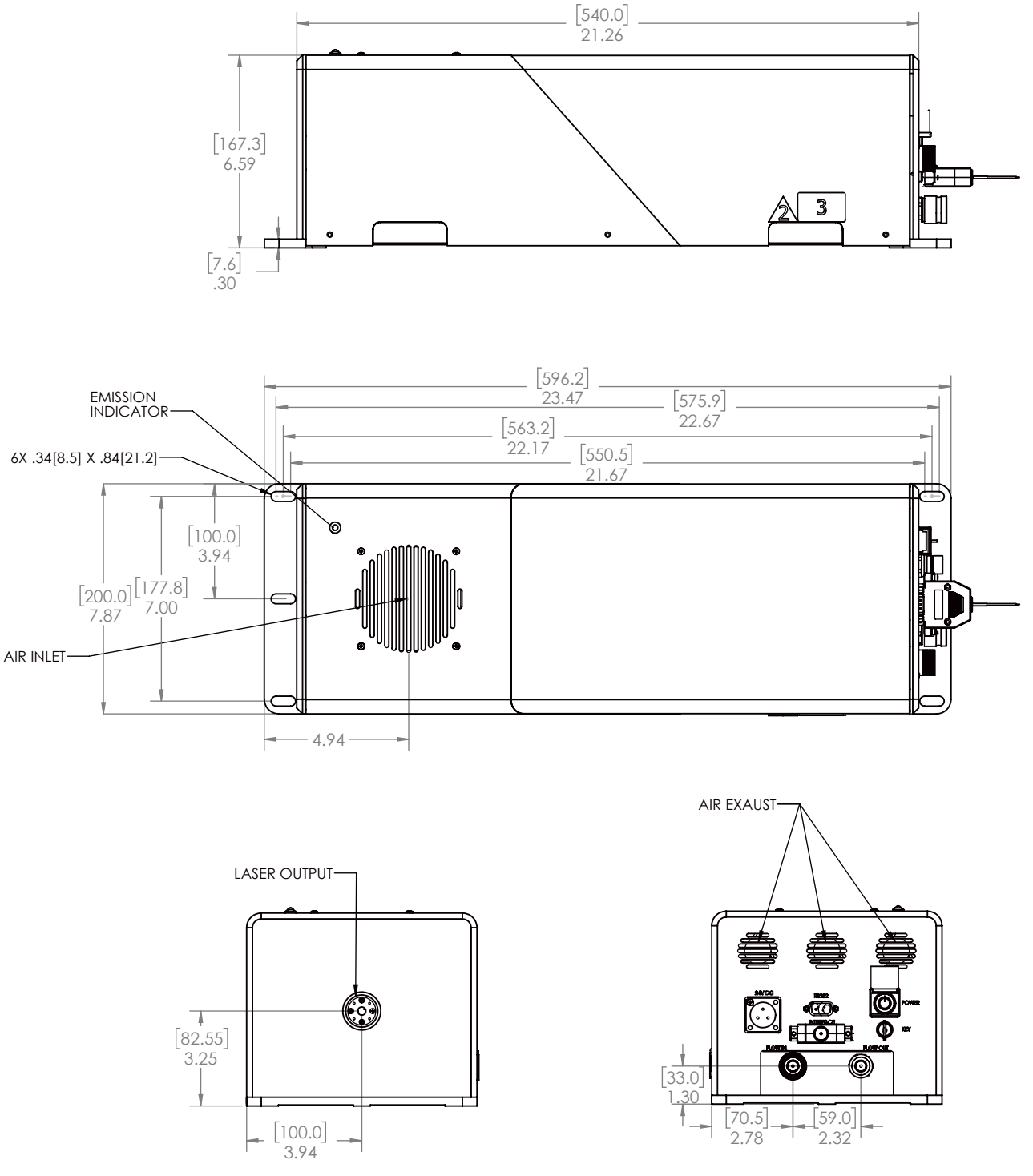



| Specification | AONano Precision(i) 355 | | |
|---|---|---|---|
| | 15W - 50K | 20W - 60K | 25W - 50K |
| Wavelength (nm) | | 355 | |
| Average Power (Watts) | >15W@50KHz | >20W@60KHz | >25W@50KHz |
| Energy (μJ) | >300 | >400 | >500 |
| Specified Repetition Rate(kHz) | 50 | 60 | 50 |
| Repetition Rate (kHz) | | 40~300 | |
| Pulse Width (ns) | <15 | <15 | <20 |
| Beam Quality ($M^2$) | | <1.2 | |
| Beam Roundness (%) | | >90 | |
| Beam Diameter (mm) | ~0.55 | ~0.47 | ~0.55 |
| Beam Divergence (mRad) | | < 2 | |
| Point Stability (μrad/°C) | | < 20 | |
| Polarization Ratio | | 100:1 Linear,Horizontal | |
| Pulse-to-Pulse Stability (% RMS) | | < 3 | |
| Average Power Stability(% over12 hours) | | < 3 | |
| Cold Start Warm-Up (mins.) | | < 40 | |
| Standby Warm-Up (mins.) | | < 10 | |
| Operational Temperature Range (°C) | | 5-40°C | |
| 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 (VDC)/Rated Power(W) | 24/450 | 24/600 | |
| Communication | | RS232 | |
| Cooling | | Water | |
| Weight (kg) | | 20 | |

# AONano Precision(i) SERIES

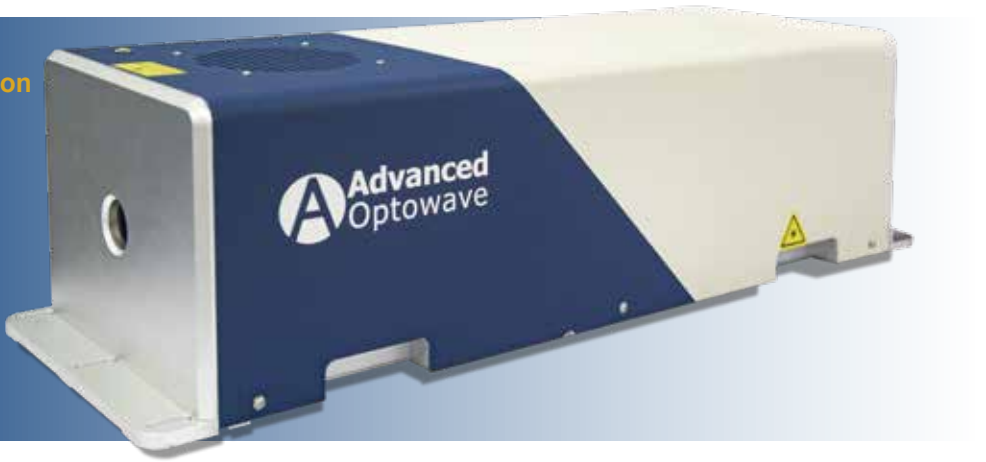
AONano Precision(i) Laser Size



# *AONano Precision* Series

## Industrial Deep UV nanosecond laser

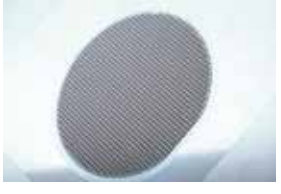
·Industry-leading harmonic generation
·Deep UV wavelength 266
·Cost-effective product
·Industrial DUV nanosecond laser
·Excellent beam quality
·Long term stability and realiability




## ▶ Features & Benefits:

This is a water-cooled deep UV nanosecond laser with output wavelength of 266 nm. With the industrial-leading harmonic generation technology and engineering design, it has high conversion efficiency, excellent long-term stability and long lifetime. The water-cooled design allows the laser to work reliably in various harsh and extreme environments and makes the laser to be the ideal candidate for the 7x24 non-stop production needs.

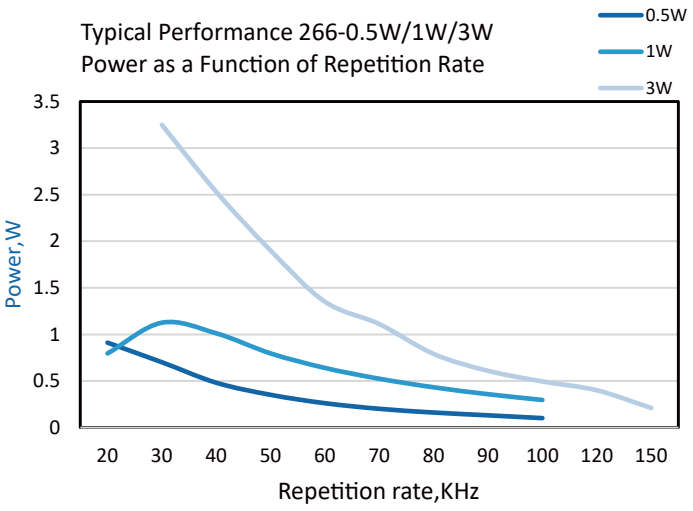
The output power of 0.5 W and 3 W are available for selection. With the wide range of repetition rate, excellent beam quality ($M^2$<1.2) and beam roundness (> 90%), it is the perfect candidate for various application areas, including peeling-off GaN from Sapphire, non-carbonized cold processing, glass grain lifting-off, chip inspection and so on.

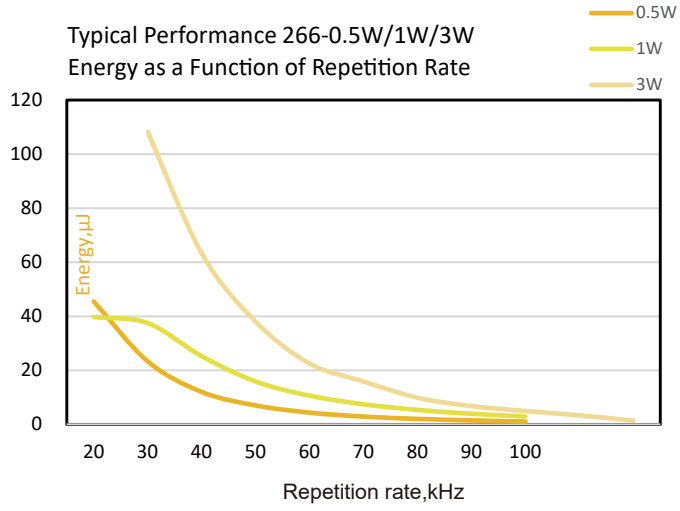


Wafer marking

Sapphire GaN lift off


Mini/micro led lift off

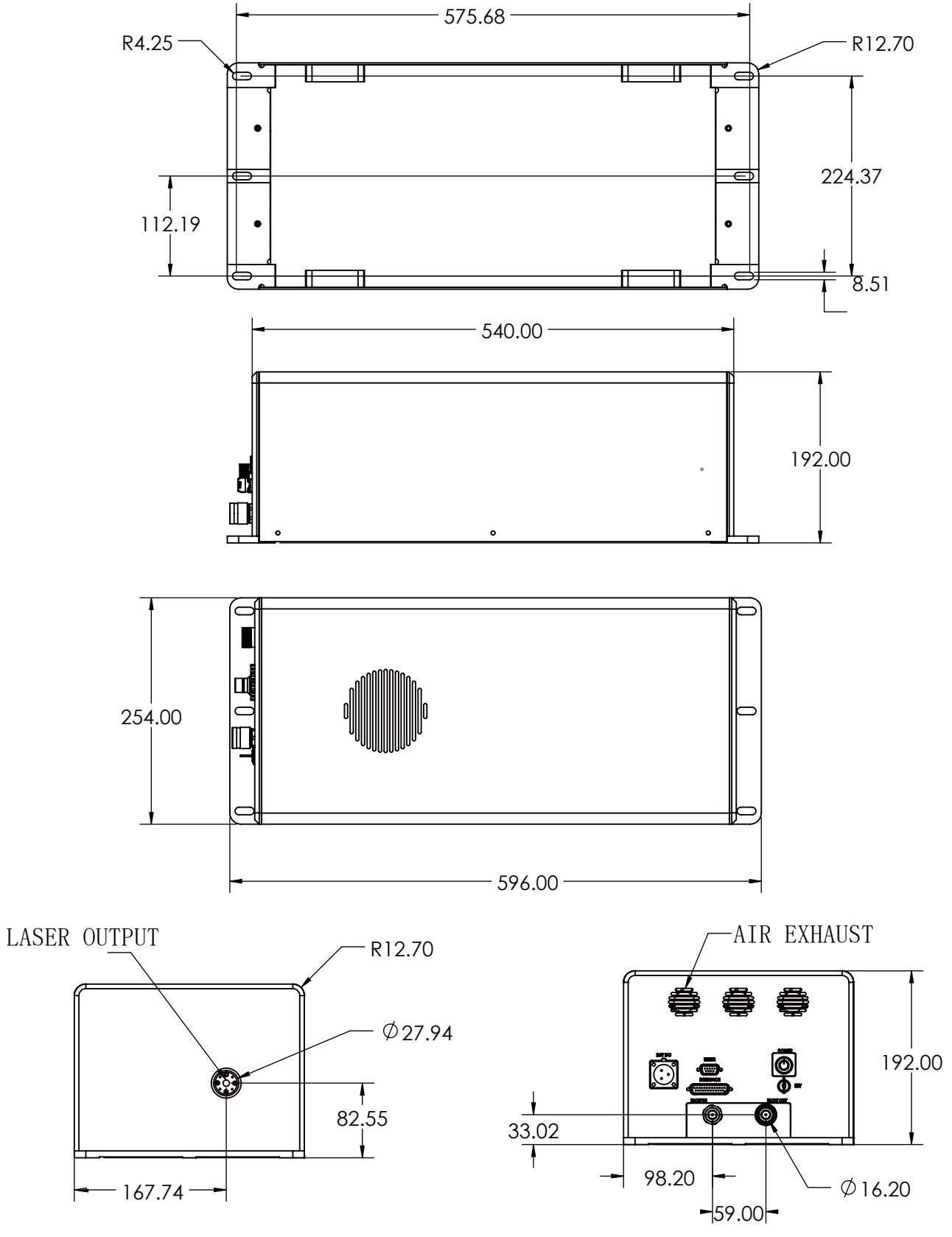



| AONano Precision 266nm | | | |
|---|---|---|---|
| **Specification** | **0.5W - 30K** | **1W - 30K** | **3W - 30K** |
| Wavelength (nm) | | 266 | |
| Average Power (Watts) | >0.5W | >1W | >3W |
| Energy (μJ) | >16 | >32 | >100 |
| Specified Repetition Rate(kHz) | 30 | 30 | 30 |
| Repetition Rate (kHz) | 20-150 | 30-150 | 30-150 |
| Pulse Width (ns) | | <15 | |
| Beam Quality ($M^2$) | | <1.2 | |
| Beam Roundness (%) | | >90 | |
| Beam Diameter (mm) | | ~1.9 | |
| Beam Divergence (mRad) | | <1 | |
| Point Stability (μrad/°C) | | < 20 | |
| Polarization Ratio | | 100:1 Linear,Horizontal | |
| Pulse-to-Pulse Stability (% RMS) | < 3 | < 2 | < 2 |
| Average Power Stability(% over12 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 (VDC)/Rated Power(W) | | 24 / 600 | |
| Communication | | RS232 | |
| Cooling | | Water | |
| Weight (kg) | | 55 | |

# AONano Precision SERIES

AONano Precision Laser Size



# *AOPico Montauk* Series

## Industrial IR picosecond laser

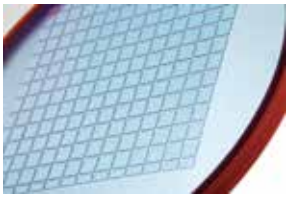
- ·High pulse energy up to 2mJ
- ·Burst mode
- ·Pulse-on-demand
- ·Glass processing
- ·Single pulse can be adjusted
- ·Multiple control modes
- ·Power range up to 90W
- ·Cutting thickness range is wide


## ▶ Features & Benefits:

The all-in-one design makes the laser more compact and reduces the total weight. It saves space for installation on the customer side, lowers the integration cost and simplifies the installation process. The water-cooled design allows the laser to work reliably in various harsh and extreme environments and makes the laser to be the ideal candidate for the 7x24 non-stop production needs.

The output power of 10W, 20W, 30W, 45W and up to 70W are available for selection. The pulse width is around 10 ps across the repetition rate range of 100k to 1000k. With pulse energy up to 2 mJ, burst mode and PoD function, it is the perfect candidate for transparent and brittle material cutting, including glass, sapphire, phone screen, and so on. It can achieve excellent cutting quality (almost no dust, no chipping, micro-cracks), high bending strength, and taper-free arbitrary shapes.

Sapphire cutting



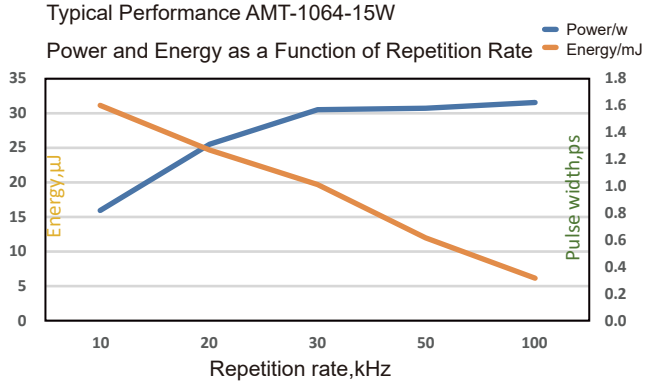
Glass cutting

Metal etching

Full-screen cutting

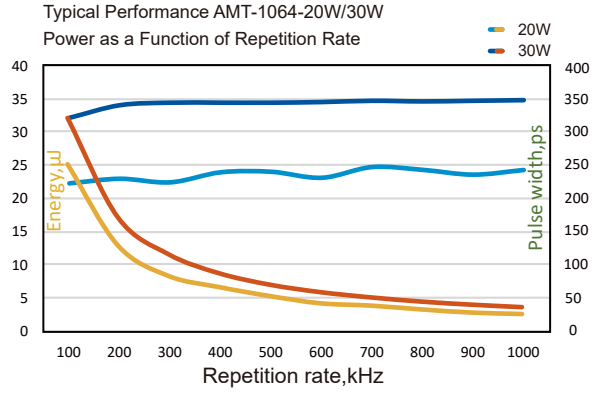
Typical Performance AMT-1064-15W

Power and Energy as a Function of Repetition Rate



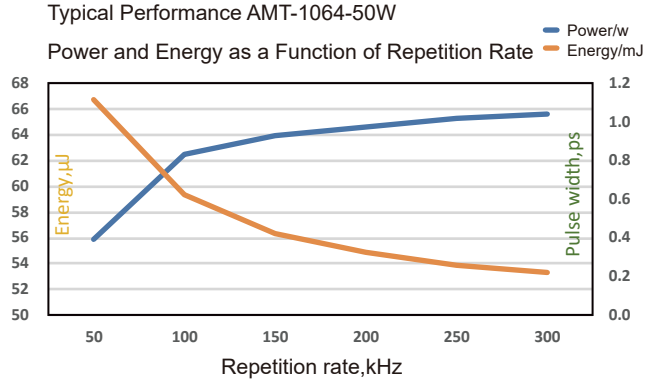

Typical Performance AMT-1064-20W/30W

Power as a Function of Repetition Rate



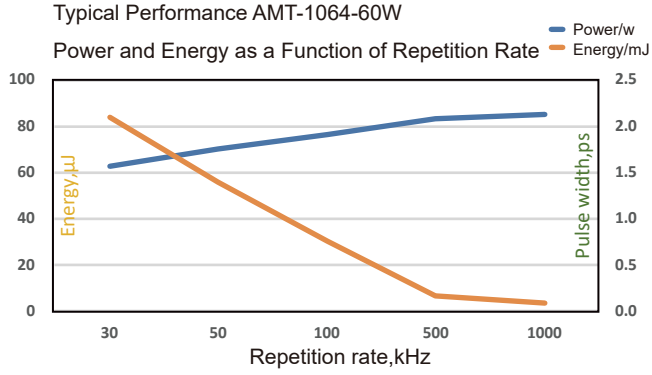

Typical Performance AMT-1064-50W

Power and Energy as a Function of Repetition Rate




Typical Performance AMT-1064-60W

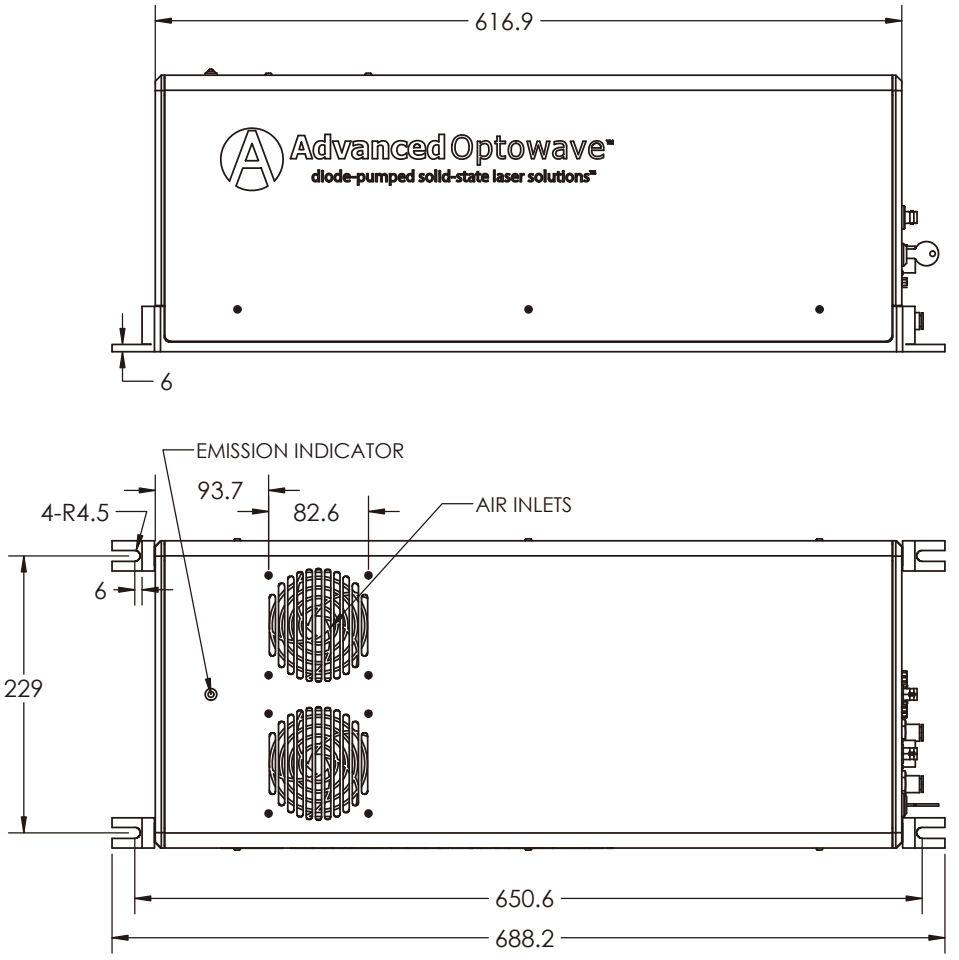
Power and Energy as a Function of Repetition Rate

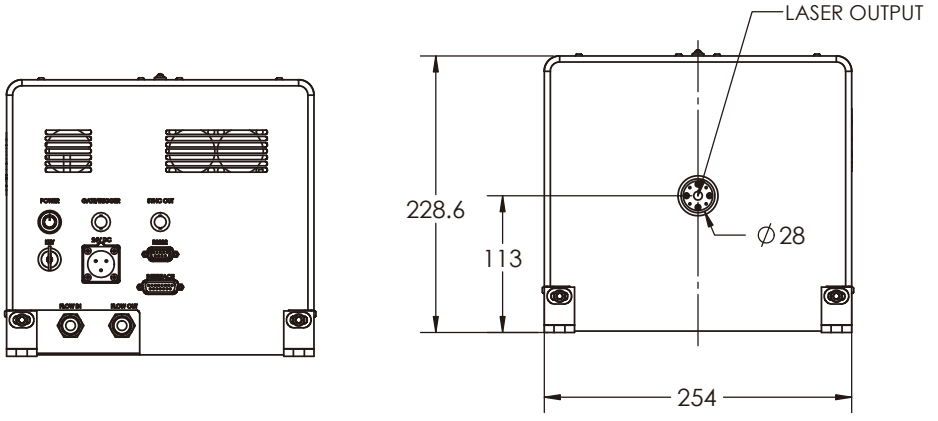



| Specification | AOPico Montauk 1064 | | | | |
|---|---|---|---|---|---|
| | 15W-10K | 20W-100K | 30W-100K | 50W-50K | 60W-30K |
| Wavelength (nm) | 1064 | | | | |
| Average Power (Watts) | >15 | > 20 | > 30 | >50 | >60 |
| Energy (μJ) | 1500@10KHz | 200@100KHz | 300@50KHz | 1000@50KHz | 2000@30KHz |
| Specified Repetition Rate(kHz) | 10 | 100 | 100 | 50 | 30 |
| Repetition Rate (kHz) | 10~100 | 100~1000 | 100~1000 | 50~300 | 30~1000 |
| Pulse Width (ps) | <12 | | | | |
| Beam Quality ($M^2$) | <1.5 | <1.2 | <1.3 | <1.3 | <1.5 |
| Beam Roundness (%) | >90 | | | | |
| Beam Diameter (mm) | <3 | | | | |
| Beam Divergence (mRad) | <2 | | | | |
| Point Stability (μrad/℃) | <20 | | | | |
| Polarization Ratio | 100:1 Linear, Horizontal | | | | |
| Pulse-to-Pulse Stability (% RMS) | <2 | | | | |
| Average Power Stability(% over12 hours) | <3 | | | | |
| Cold Start Warm-Up (mins.) | <40 | | | | |
| Standby Warm-Up (mins.) | <10 | | | | |
| Operational Temperature Range (℃) | 15-35°C | | | | |
| Operation Humidity Range (%) | 20 to 80,non-condensing | | | | |
| Storage Temperature Range (℃) | - 20 to 50 | | | | |
| Storage Humidity Range (%) | 20 to 80,non-condensing | | | | |
| Input Voltage (VDC)/Rated Power(W) | 24/600 | | | 24/1000 | |
| Communication | RS232 | | | | |
| Cooling | Water | | | | |

# AOPico Montauk SERIES

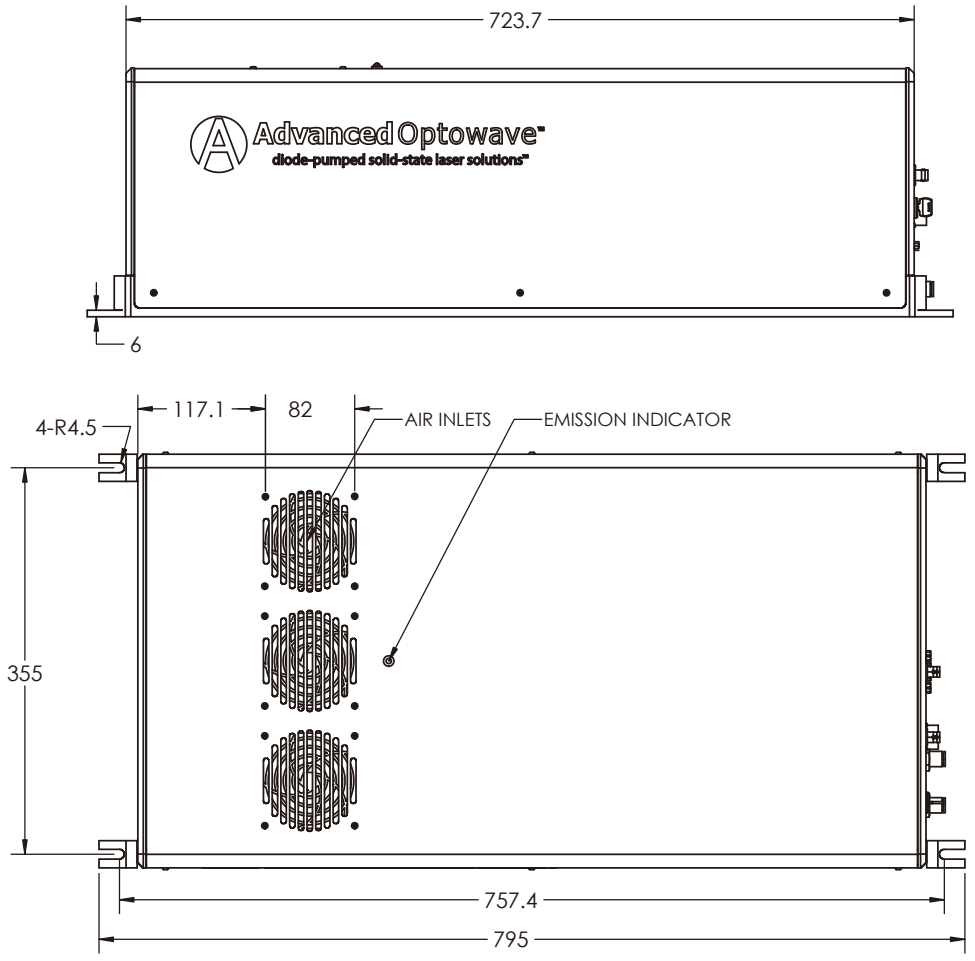
AOPico Montauk 1064 -15W、20W、30W Laser Size

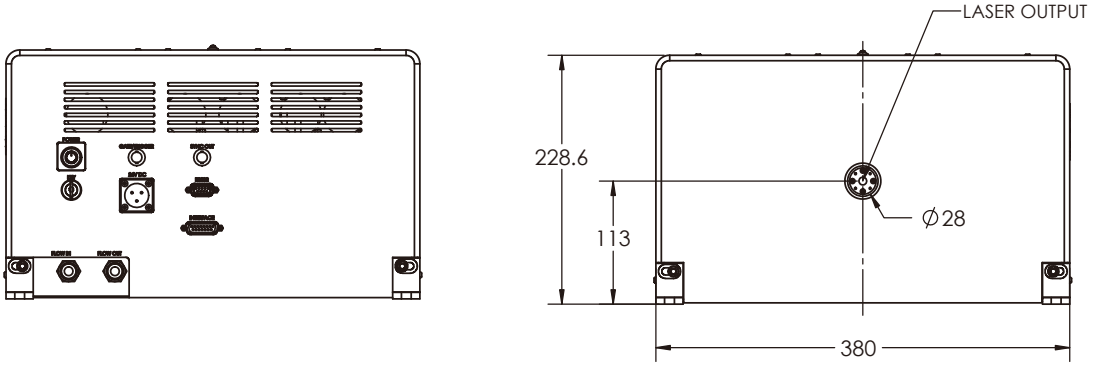



**AOPico Montauk-1064-15W/20W/30W**

AOPico Montauk 1064 -50W、60W、70W Laser Size




**AOPico Montauk-1064-50W/60W/70W**

# AOPico Montauk Series

## Industrial Green picosecond laser

·Maintaining superior performance
and reliable long-term power stability
·Pulse energy up to 40μJ
·Wild frequency, outputs ＞30W@500K
·Low cost integration


## ▶ Features & Benefits：

The all-in-one design makes the laser more compact and reduces the total weight. It saves space for installation on the customer side, lowers the integration cost and simplifies the installation process. The water-cooled design allows the laser to work reliably in various harsh and extreme environments and makes the laser to be the ideal candidate for the 7x24 non-stop production needs.

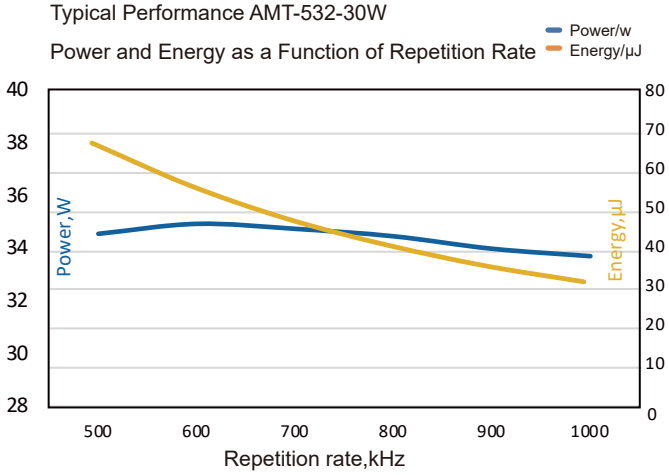
The output power of 5W, 20W, 30W, and up to 60W are available for selection. The pulse width is around 10 ps across the repetition rate range of 500k to 1500k. With pulse energy of 40 μJ, burst mode and PoD function, it is the perfect candidate for various application areas, including optical filter cutting, solar cell scribing, ITO scribing, and so on

PI cutting

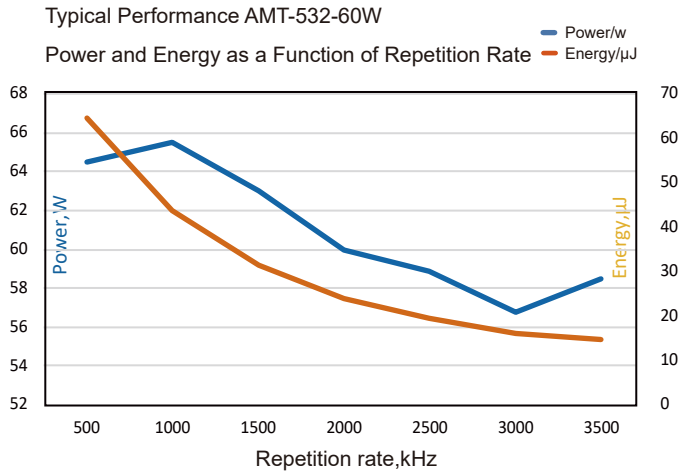
FPC cutting

Solar cell scribing

Typical Performance AMT-532-30W



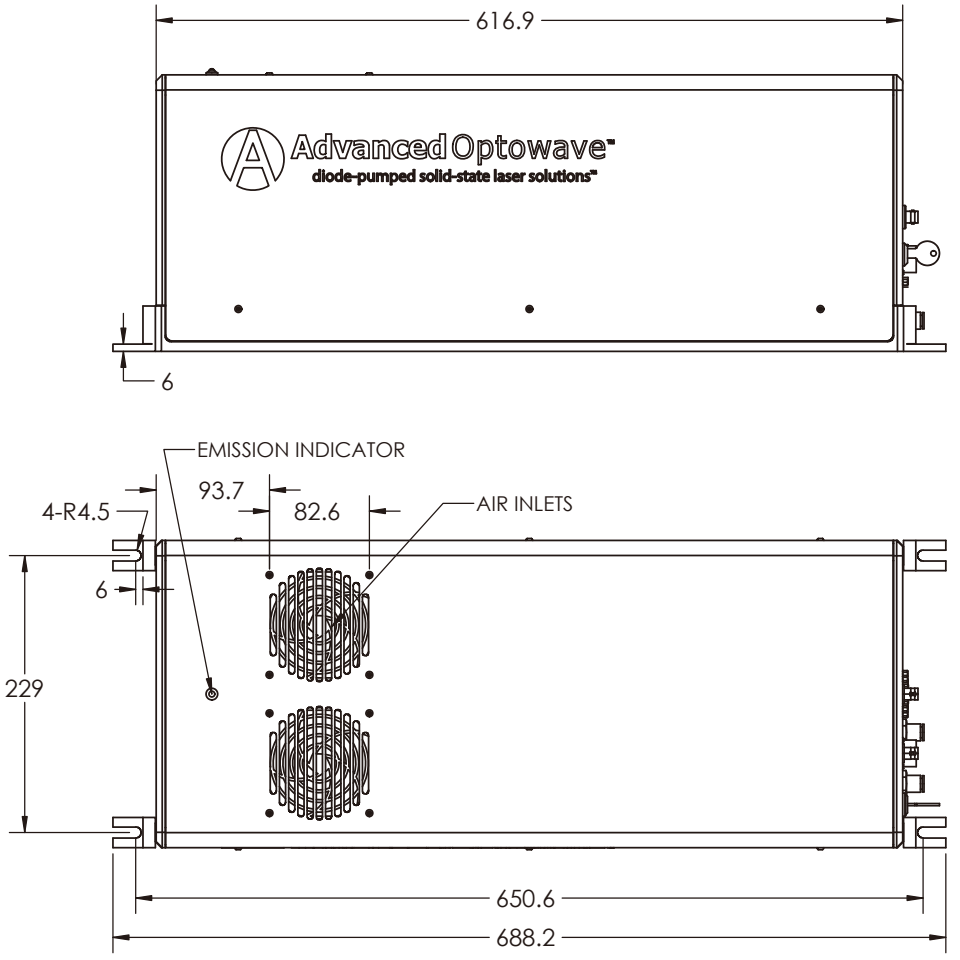

Typical Performance AMT-532-60W

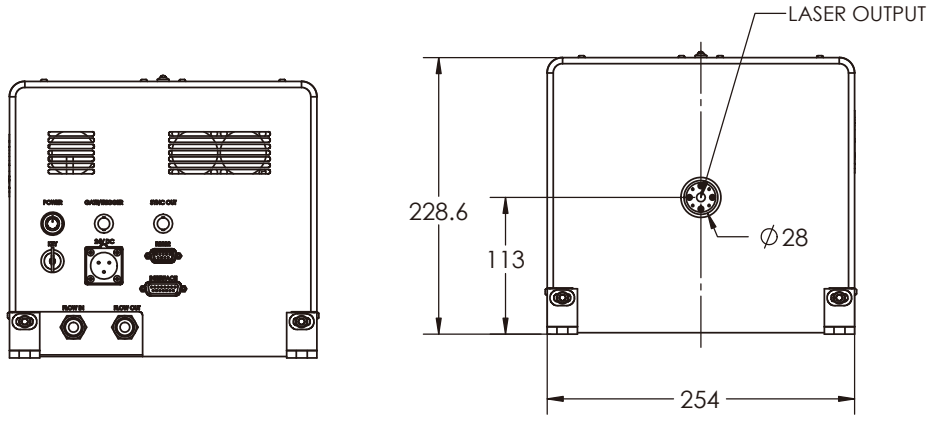



| AOPICO MONTAUK 532 | | |
|---|---|---|
| **Specification** | **30W-1000K** | **60W-1000K** |
| Wavelength (nm) | 532 | |
| Average Power (Watts) | > 30W | > 60W |
| Energy (μJ) | >30@1000KHz | >60@1000KHz |
| Specified Repetition Rate(kHz) | 1000 | |
| Repetition Rate (kHz) | 500 ~ 3000 | 500 ~ 4000 |
| Pulse Width (ps) | < 12 | |
| Beam Quality ($M^2$) | < 1.2 | |
| Beam Roundness (%) | > 90 | |
| Beam Diameter (mm) | < 3 | |
| Beam Divergence (mRad) | < 2 | |
| Point Stability (μrad/°C) | < 20 | |
| Polarization Ratio | 100:1 Linear, Vertical | |
| Pulse-to-Pulse Stability (% RMS) | < 2 | |
| Average Power Stability(% over12 hours) | < 3 | |
| Cold Start Warm-Up (mins.) | < 40 | |
| Standby Warm-Up (mins.) | < 10 | |
| Operational Temperature Range (°C) | 15-35℃ | |
| 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 (VDC)/Rated Power(W) | 24/600 | 24/1000 |
| Communication | RS232 | |
| Cooling | Water | |

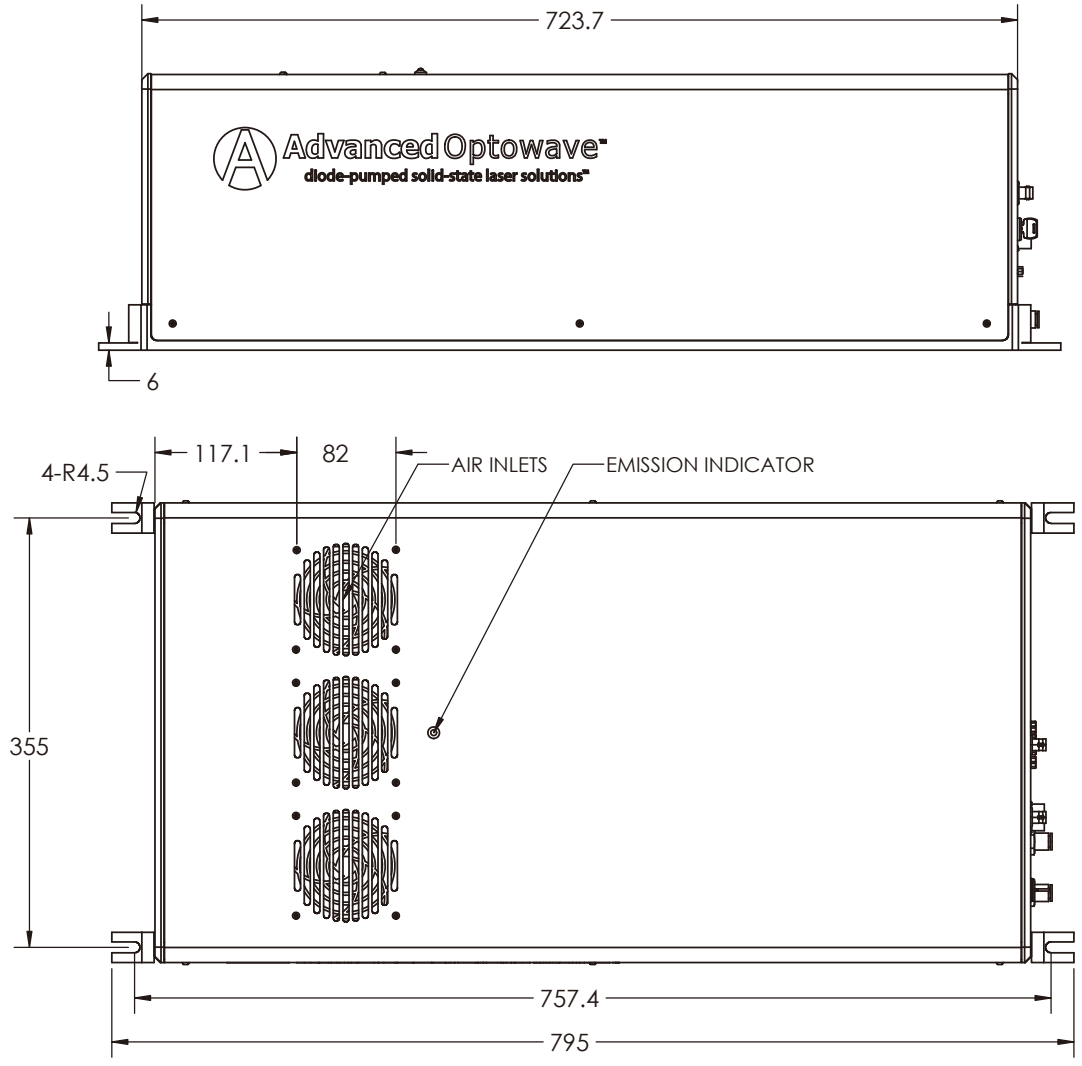
# AOPico Montauk SERIES

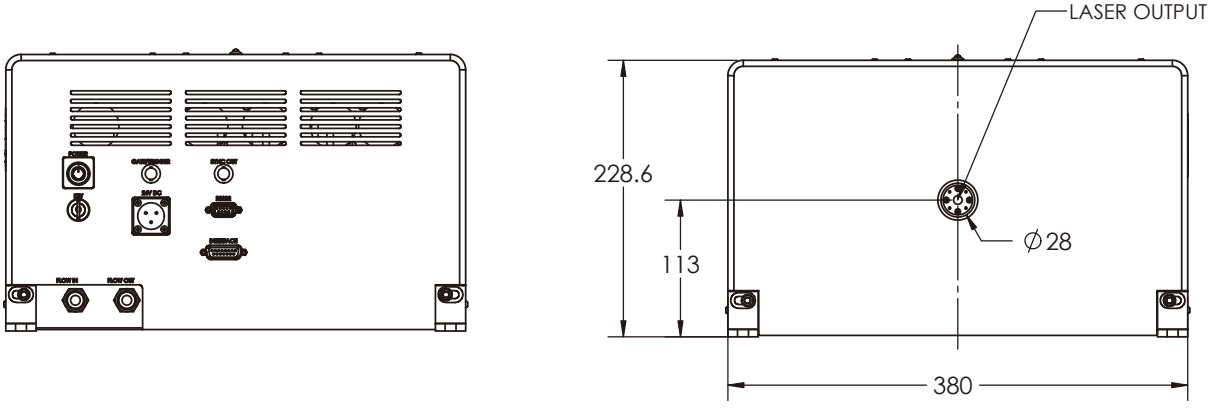
AOPico Montauk - 532 Laser Size




**AOPico Montauk-532-30W**




**AOPico Montauk-532-50W**

# AOPico Montauk Series

## Industrial UV picosecond laser

·All-in-one design
·Crystal indexing
·Burst mode
·Pulse-on-demand
·Throught a 5V TTL signal to achieve POD function


## Features & Benefits:

The all-in-one design makes the laser more compact and reduces the total weight. It saves space for installation on the customer side, lowers the integration cost and simplifies the installation process. The water-cooled design allows the laser to work reliably in various harsh and extreme environments and makes the laser to be the ideal candidate for the 7x24 non-stop production needs. The output power of 5W, 15W, and up to 30W are available for selection. The pulse width is around 10 ps across the repetition rate range of 100 k to 1600 k. With pulse energy of 50 μJ, burst mode and PoD function, it is the perfect candidate for various application areas, including PCB hole drilling, ink removal, and so on.

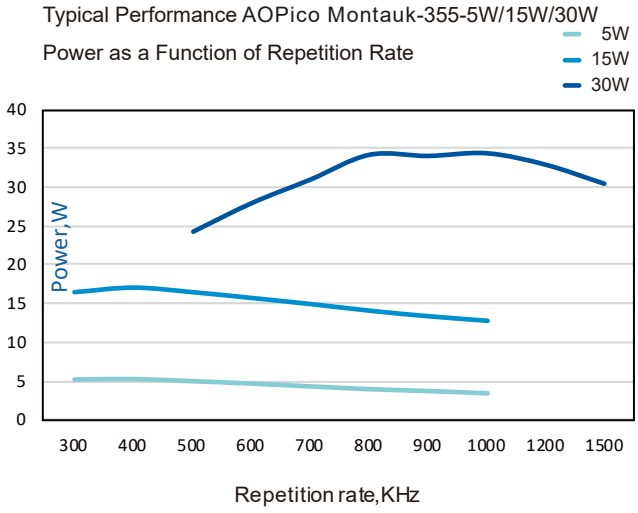
The excellent beam quality ($M^2$<1.2), beam roundness (>90%), and pulse stability make it a perfect choice for applications of OLED cutting and drilling, PI/FPC cutting, mobile phone antenna cutting, etc.

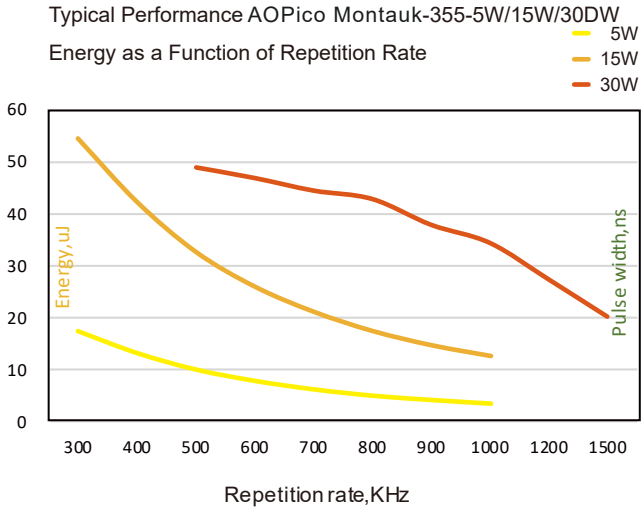

PI cutting


FPC cutting

OLED cutting


Polarizer cutting

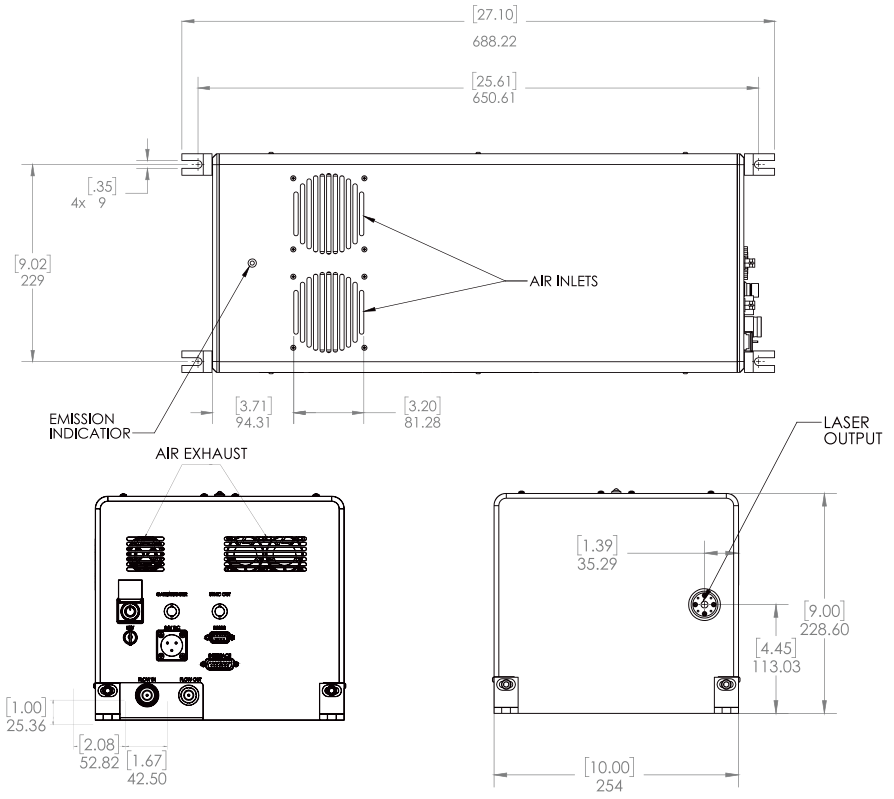


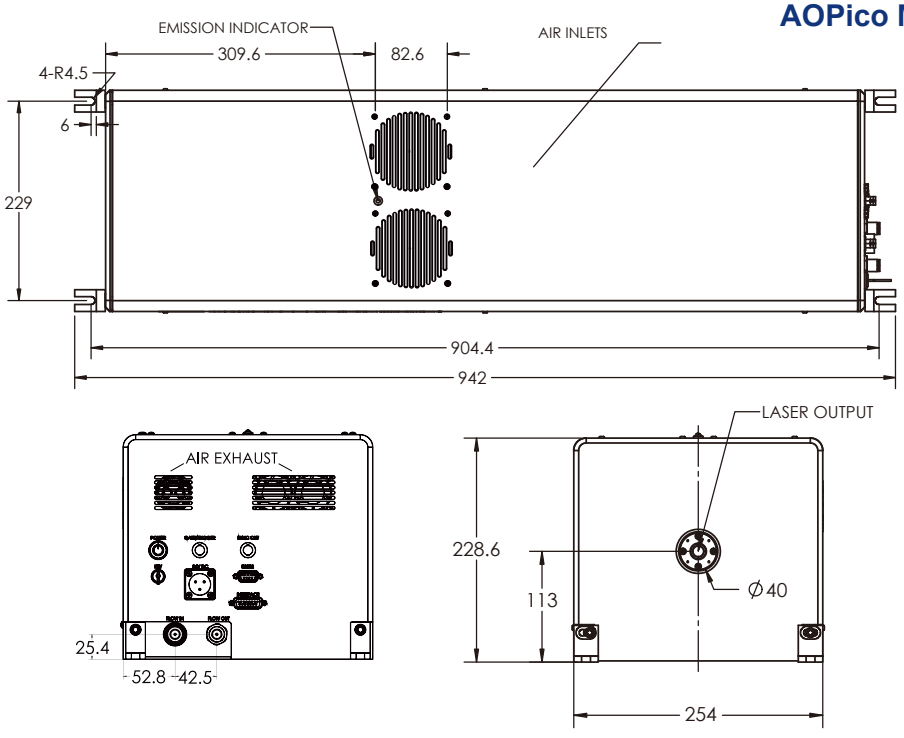

| | AOPico Montauk 355 | | |
|---|---|---|---|
| **Specification** | **5W-500K** | **15W-500K** | **30W-1000K** |
| Wavelength (nm) | 355 | | |
| Average Power (Watts) | >5W | >15W | >30W |
| Energy (μJ) | >10@500KHz | >30@500KHz | >30@1000KHz |
| Specified Repetition Rate(kHz) | 500 | 500 | 1000 |
| Repetition Rate (kHz) | 300-1000 | 300-1000 | 500-1600 |
| Pulse Width (ps) | <12 | | |
| Beam Quality ($M^2$) | <1.2 | | |
| Beam Roundness (%) | >90 | | |
| Beam Diameter (mm) | ~3.5 | | |
| Beam Divergence (mRad) | <0.5 | | |
| Point Stability (μrad/°C) | <20 | | |
| Polarization Ratio | 100:1 Linear, Horizontal | | |
| Pulse-to-Pulse Stability (% RMS) | <2 | | |
| Average Power Stability(% over12 hours) | <3 | | |
| Cold Start Warm-Up (mins.) | <40 | | |
| Standby Warm-Up (mins.) | <15 | | |
| Operational Temperature Range (°C) | 15-40°C | | |
| 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 (VDC)/Rated Power(W) | 24/600 | | 24/1000 |
| Communication | RS232 | | |
| Cooling | Water | | |

# AOPico Montauk SERIES

AOPico Montauk -355 Laser Size




**AOPico Montauk-355-5W**

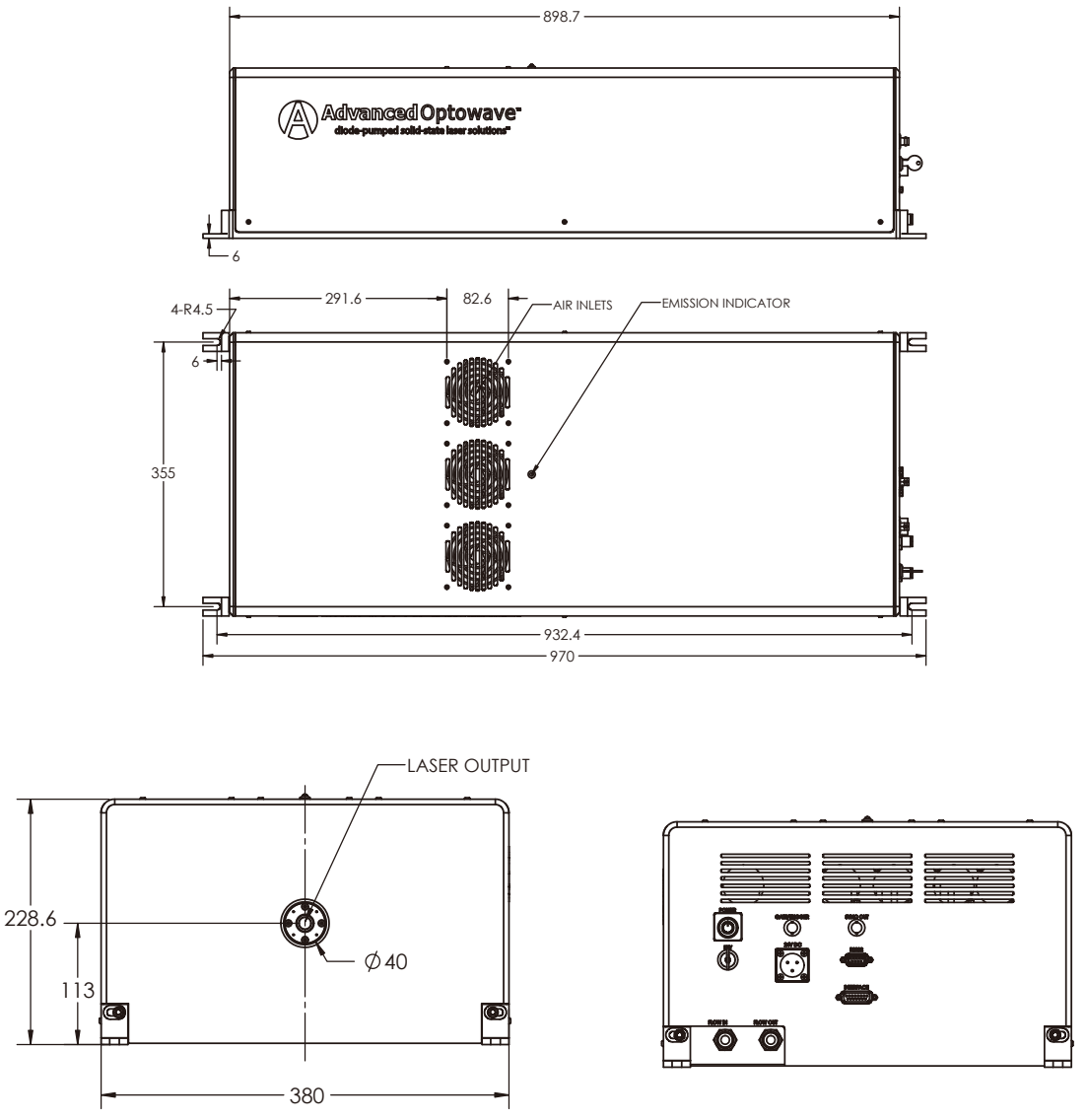



**AOPico Montauk-355-15W**



Advanced Optowave 英诺激光 INNO LASER

PRODUCT DATA SHEET
AOPico Montauk - 355




## AOPico Montauk-355-30W

# *AOPico Montauk* Series

## Industrial deep UV picosecond laser

·Industry-leading harmonic generation
·Applied in chip inspection etc
·Reliable power stability (＜3%)
·Industrial DUV picosecond laser
·Excellent beam quality
·Long term stability and reliability


## ▶ Features & Benefits：

This is a water-cooled deep UV picosecond laser with output wavelength of 266 nm. With the industrial-leading harmonic generation technology and engineering design, it has high conversion efficiency, excellent long-term stability and long lifetime. The water-cooled design allows the laser to work reliably in various harsh and extreme environments and makes the laser to be the ideal candidate for the 7x24 non-stop production needs.

The output power is 3W with repetition rate of 200 k and 70 MHz available for selection. With the wide range of repetition rate, excellent beam quality ($M^2$<1.2) and beam roundness (> 90%), it is the perfect candidate for various application areas, including peeling-off GaN from Sapphire, non-carbonized cold processing, glass grain lifting-off, chip inspection and so on.

Wafer marking

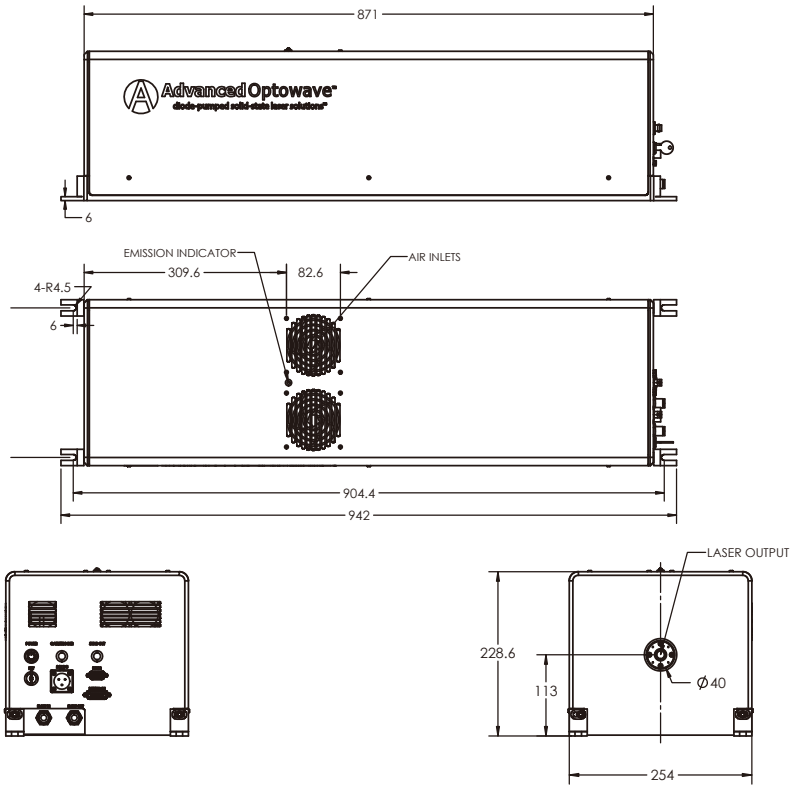
Sapphire Gan lift off


mini/micro led lift off

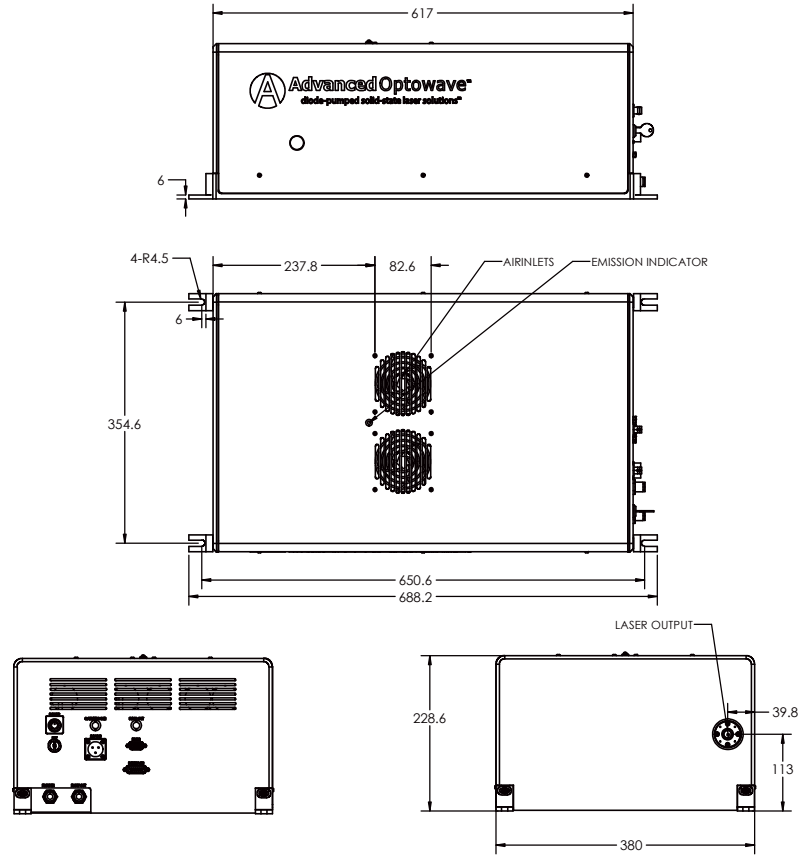
| AOPico Montauk 266 | | |
|---|---|---|
| **Specification** | **3W - 200K** | **3W - 70M** |
| Wavelength (nm) | 266 | 266 |
| Average Power (Watts) | >3W | >3W |
| Energy (µJ) | >15@200KHz | >0.043@70MHz |
| Specified Repetition Rate(kHz) | 200kHz | 70MHz |
| Repetition Rate (kHz) | 100-200 | 70MHz |
| Pulse Width (ps) | <12 | <50 |
| Beam Quality ($M^2$) | <1.5 | |
| Beam Roundness (%) | >90 | |
| Beam Diameter (mm) | ~2±20% | |
| Beam Divergence (mRad) | <1 | |
| Point Stability (µrad/°C) | < 20 | |
| Polarization Ratio | 100:1 Linear,Horizontal | |
| Pulse-to-Pulse Stability (% RMS) | < 3 | |
| Average Power Stability(% over12 hours) | < 5 | |
| Cold Start Warm-Up (mins.) | < 40 | |
| Standby Warm-Up (mins.) | < 10 | |
| Operational Temperature Range (°C) | 5-40°C | |
| 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 (VDC)/Rated Power(W) | 24 / 600 | |
| Communication | RS232 | |
| Cooling | Water | |
| Laser head (kg) | 55 | |

# AOPico Montauk SERIES

AOPico Montauk Laser Size




AOPico Montauk-266-3W-200K




AOPico Montauk-266-3W-70M

# *AOFemto Jericho* Series

## Industrial Green/IR femsecond laser

·Pulse width less than 800fs

·Unique ability to process materials

·The burst function, excellent beam quality


## ▶ Features & Benefits:

The all-in-one design makes the laser more compact and reduces the total weight. It saves space for installation on the customer side, lowers the integration cost and simplifies the installation process. The water-cooled design allows the laser to work reliably in various harsh and extreme environments and makes the laser to be the ideal candidate for the 7x24 non-stop production needs.

1030nm, power up to 10W, 20W model can be customized.

515nm, power up to 5W, 10W model can be customized.

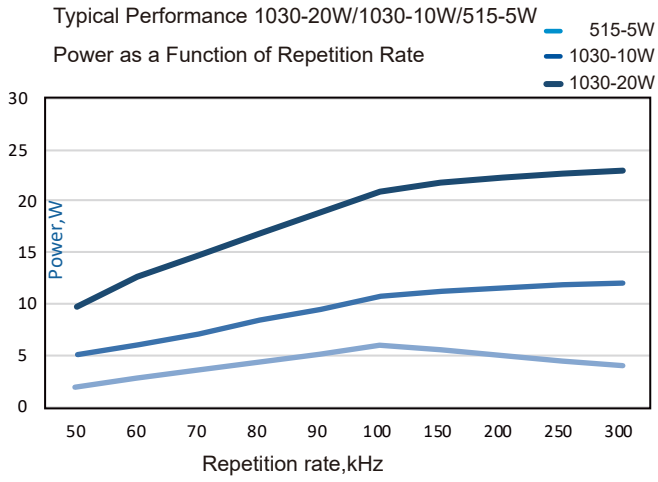
With the pulse width of < 700 fs, burst mode and PoD function, it is the perfect candidate for various application areas, including injector drilling, medical device manufacturing, polymer processing, semiconductor/photovoltaic processing, wafer scribing, high precision & speed micro-machining, brittle materials cutting and drilling, and so on.

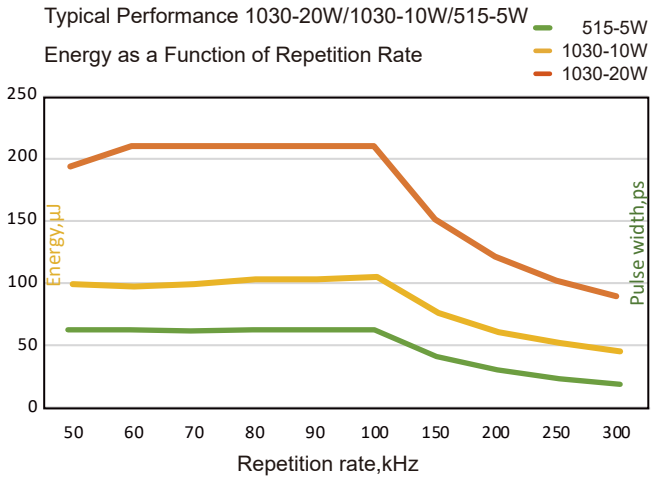
Medical device manufacturing

Brittle material cutting/drilling

High-accuracy/High-speac/
Micro-machining

Semiconductor/Solar processing/
Wafer scribing

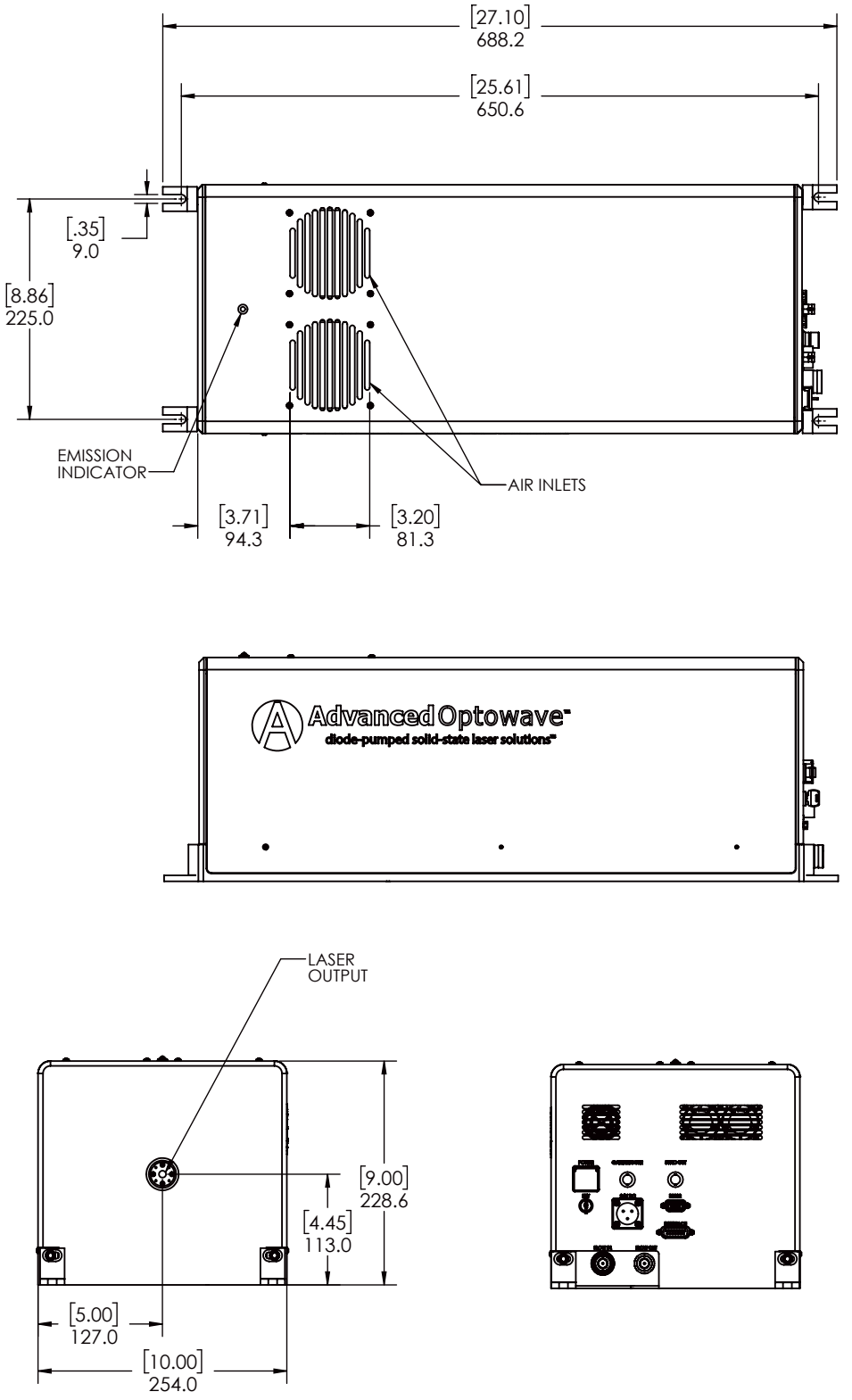



| | FEMTOSECOND | | |
|---|---|---|---|
| **Specification** | **515-5W** | **1030-10W** | **1030-20W** |
| Wavelength (nm) | 515 | 1030 | |
| Average Power (Watts) | > 5W@100KHz | >10W@100KHz | >20W@100KHz |
| Energy (μJ) | >50 | >100 | >100 |
| Specified Repetition Rate(kHz) | 100 | | |
| Repetition Rate (kHz) | 50-300 | | |
| Pulse Width (fs) | <800 | | |
| Beam Quality ($M^2$) | <1.3 | | <1.5 |
| Beam Roundness (%) | >90 | | |
| Beam Diameter (mm) | 1.3±0.2 | ~1.5±0.3 | |
| Beam Divergence (mRad) | < 1 | <1.3 | |
| Point Stability (μrad/°C) | < 50 | | |
| Polarization Ratio | 100:1 Linear,Horizontal | | |
| Pulse-to-Pulse Stability (% RMS) | < 2% RMS over 10hours | | |
| Average Power Stability(% over12 hours) | < 3 | | |
| Cold Start Warm-Up (mins.) | < 30 | | |
| Standby Warm-Up (mins.) | < 20 | | |
| 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 (VDC)/Rated Power(W) | 24 / 600 | | |
| Communication | RS232 | | |
| Cooling | Water | | |
| Laser head (kg) | 34 | | |

# AOFemto Jericho SERIES

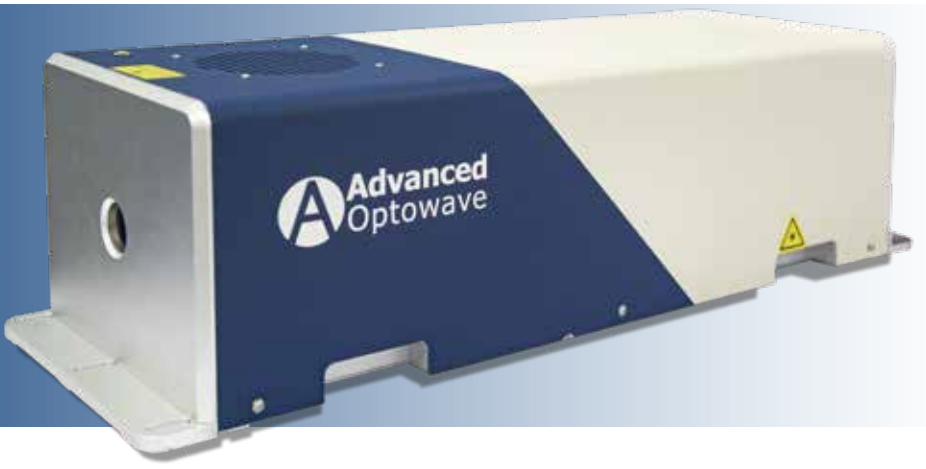
AOFemto Jericho Laser Size



# *AONano XP* Series

## Industrial Green nanosecond laser

- ·High frequency
- ·Narrow pulse width of ~2ns
- ·All-in-one design
- ·Perfect combination of performance and stability




## ▶ Features & Benefits:

The all-in-one design makes the laser more compact and reduces the total weight. It saves space for installation on the customer side, lowers the integration cost and simplifies the installation process. The water-cooled design allows the laser to work reliably in various harsh and extreme environments and makes the laser to be the ideal candidate for the 7x24 non-stop production needs.

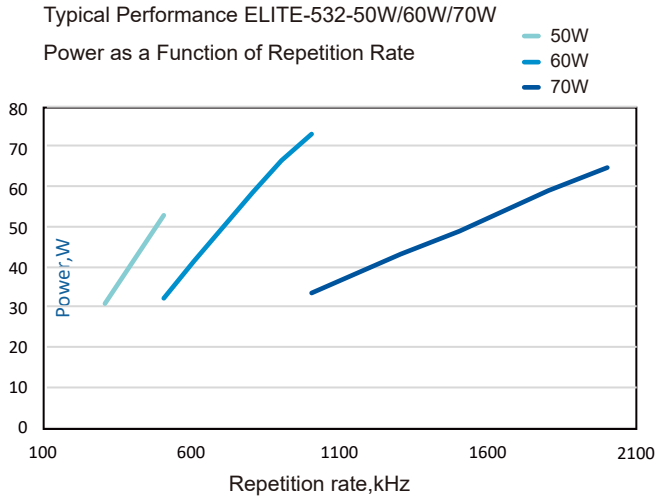
The output power of 30W, 40W, and up to 60W are available for selection. With the pulse width of ~ 2 ns, high repetition rate up to 2 MHz, it is the perfect candidate for various application areas, including solar cell processing, battery electrodes welding, glass drilling, and so on.

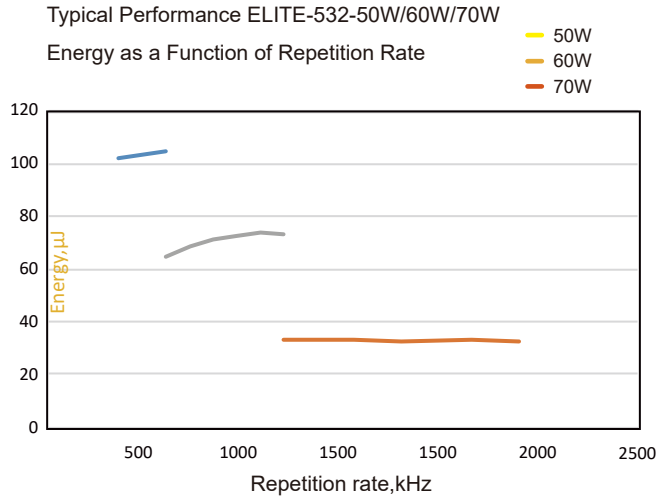
Battery electrode welding

Perc solar cell devilling

Glass drilling

ITO etching

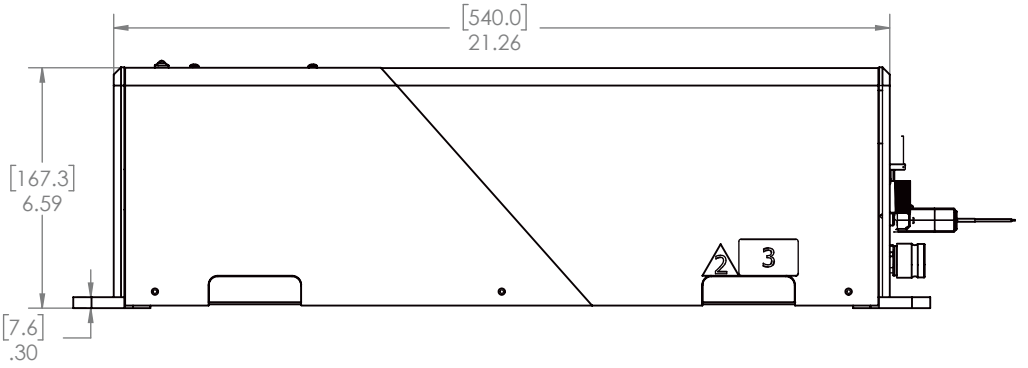


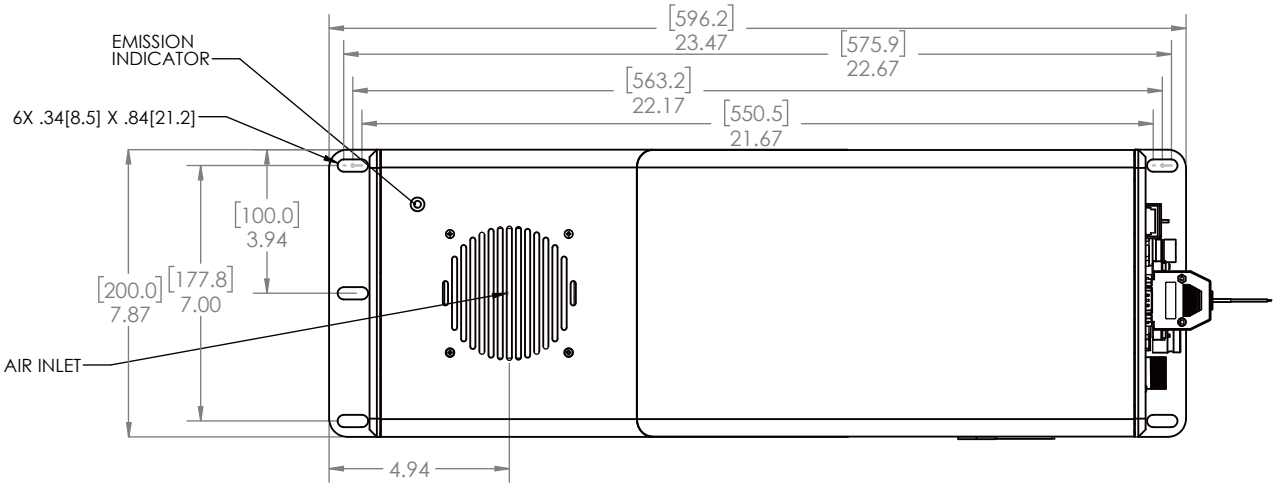



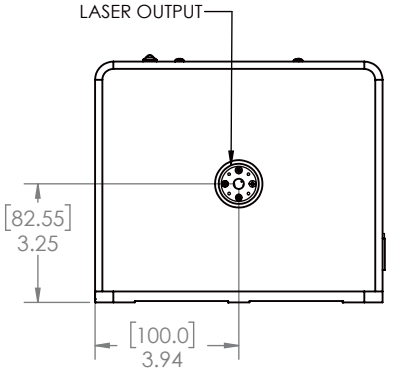

| AONano XP 532 | | | |
|---|---|---|---|
| **Specification** | **50W-500K** | **60W-2000K** | **70W-1000K** |
| Wavelength (nm) | 532 | | |
| Average Power (Watts) | >50W@500KHz | 60W@2000KHz | 70W@1000KHz |
| Energy (μJ) | >100 | >30 | >70 |
| Specified Repetition Rate(kHz) | 500 | 2000 | 1000 |
| Repetition Rate (kHz) | 100-500 | 100~2000 | 100~1000 |
| Pulse Width (ns) | 20~40 customizable | ~3 | |
| Beam Quality ($M^2$) | <1.2 | | |
| Beam Roundness (%) | >90 | | |
| Beam Diameter (mm) | ~2.5 | | |
| Beam Divergence (mRad) | < 1 | | |
| Point Stability (μrad/°C) | < 20 | | |
| Polarization Ratio | 100:1 Linear,Vertical | | |
| Pulse-to-Pulse Stability (% RMS) | < 3 | | |
| Average Power Stability(% over12 hours) | < 3 | | |
| Cold Start Warm-Up (mins.) | < 30 | | |
| 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 (VDC)/Rated Power(W) | 24/450 | | |
| Communication | RS232 | | |
| Cooling | Water | | |
| Laser head (kg) | 20 | | |

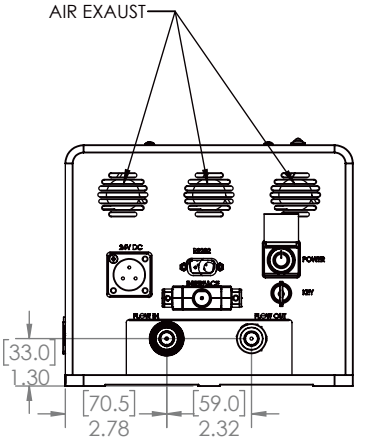
# AONano XP SERIES

AONano XP - 532 Laser Size



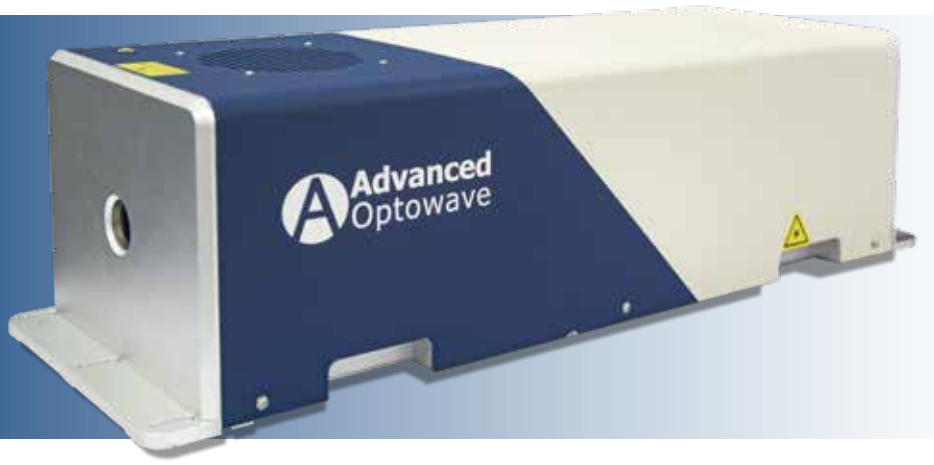



# *AONano XP* Series

## Industrial UV nanosecond laser

- ·Short pulse width of ~2ns
- ·High repetition rate up to 2MHz
- ·Excellent beam quality
- ·Achieve higher efficiency
- ·Adatable for some special application requirements




## ▶ Features & Benefits：

The all-in-one design makes the laser more compact and reduces the total weight. It saves space for installation on the customer side, lowers the integration cost and simplifies the installation process. The water-cooled design allows the laser to work reliably in various harsh and extreme environments and makes the laser to be the ideal candidate for the 7x24 non-stop production needs.

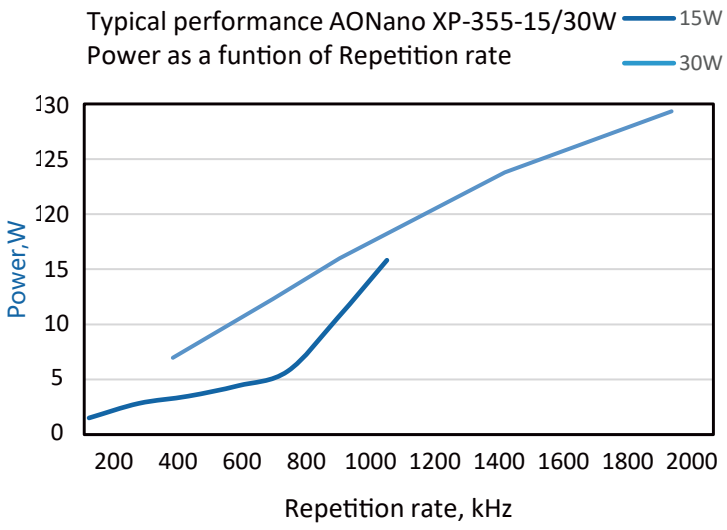
The output power of 5W, and up to 15W are available for selection. With the pulse width of ~ 2 ns, high repetition rate up to 2 MHz, it is the perfect candidate for various application areas, including on-fly marking, ink removal, and so on.

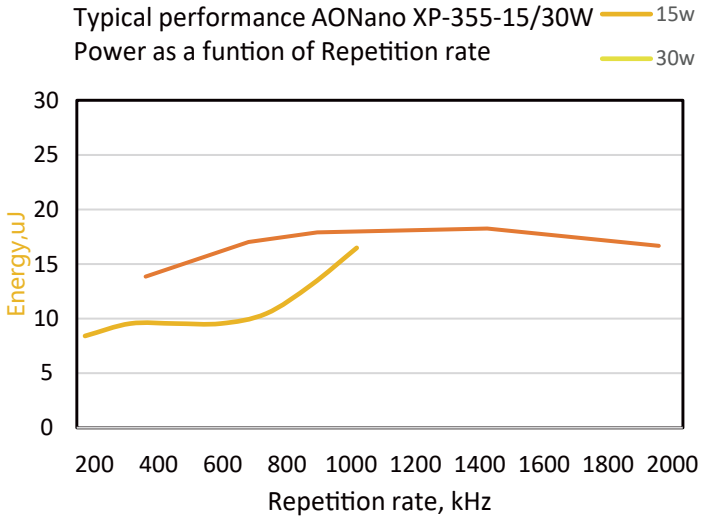
Battery electrode welding

Perc solar cell devilling

Glass drilling

ITO etching

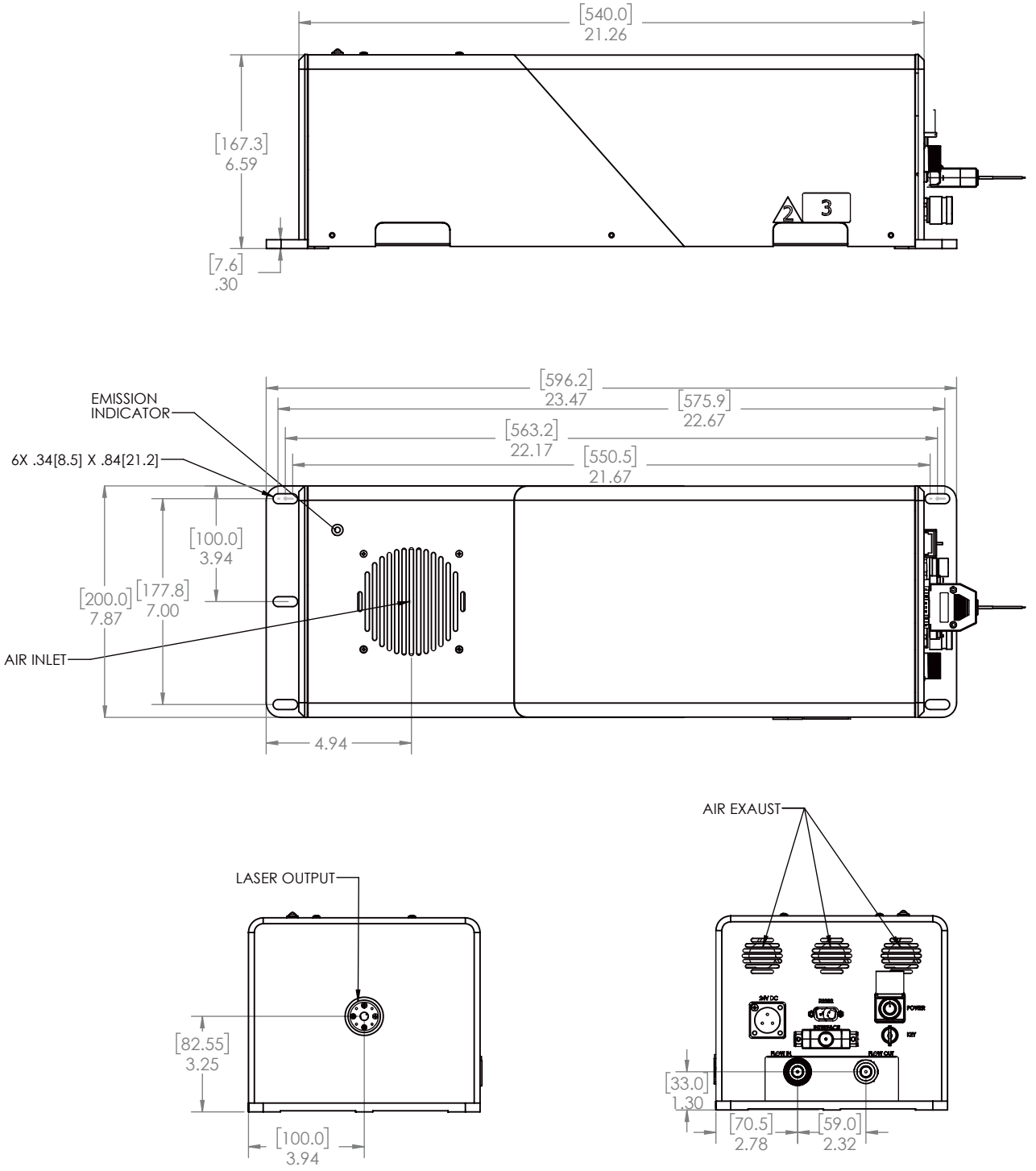



| | AONano XP 355 | |
|---|---|---|
| **Specifications** | **15W-1000K** | **30W-2000K** |
| Wavelength (nm) | 355 | |
| Avg. Power (Watts) | ＞15W @ 1000KHz | ＞305W @ 2000KHz |
| Pulse Energy (μJ) | ＞15 | ＞15 |
| Pulse Width (ns) | ＜3 | |
| Operating Rep. Rate Range (kHz) | 100~1000 | 100~2000 |
| Beam Quality ($M^2$) | <1.2 | |
| Beam Roundness (%) | >90 | |
| Beam Diameter (mm) | ~2.5 | |
| Beam Divergence (mRad) | < 1 | |
| Point Stability (μrad/°C) | < 20 | |
| Polarization Ratio | 100:1 Linear,Horizontal | |
| Pulse-to-Pulse Stability (% RMS) | < 3 | |
| Average Power Stability(% over12 hours) | < 3 | |
| Cold Start Warm-Up (mins.) | < 30 | |
| 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 (VDC)/Rated Power(W) | 24/450 | |
| Communication | RS232 | |
| Cooling | Water | |
| Laser head（kg） | 32 | |

# AONano XP SERIES

AONano XP - 355 Laser Size



Wherever you are, the instant service will be provided for you.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