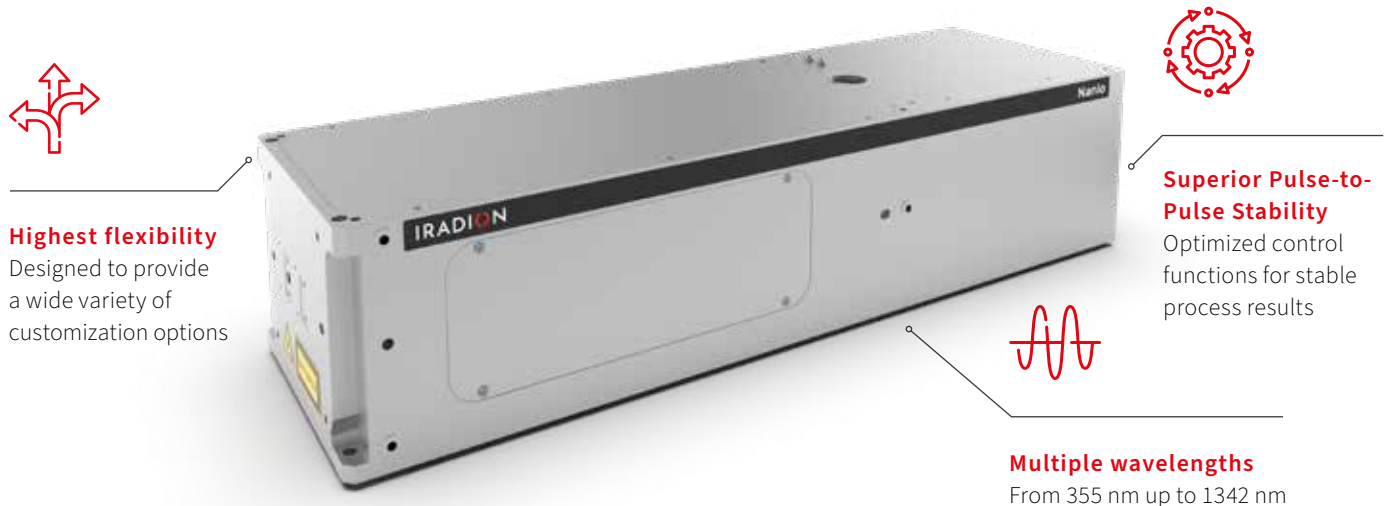


# NANIO | NANOSECOND LASERS

## Customized Solutions for Perfect Results



**Highest flexibility**  
Designed to provide a wide variety of customization options



**Superior Pulse-to-Pulse Stability**  
Optimized control functions for stable process results



**Multiple wavelengths**  
From 355 nm up to 1342 nm

### Highest Flexibility

#### Multiple Wavelengths and Customization Options

The Nanio series of nanosecond DPSS lasers is a highly reliable and field-proven tool for industrial laser processing systems, even in 24/7 operation. This series is specifically designed for easy customization and is available in a variety of wavelengths.

Find out how you can take your laser machines to the next level with our nanosecond Q-switched lasers.

### Benefits

#### Minimize Downtime

The Nanio Q-switched nanosecond lasers are designed for reliability and flexibility. The Nanio series offers customizable laser parameters that enable the highest speed and quality for your laser process.

The modular design ensures easy maintenance and minimizes downtime. Accelerate your production with the high performance of Nanio Q-switched nanosecond lasers.

### Applications

#### Flexible Lasers for a Wide Range of Applications

- ID Card Marking
- Wafer marking
- Plastic marking
- Glass cutting and drilling
- Wafer dicing

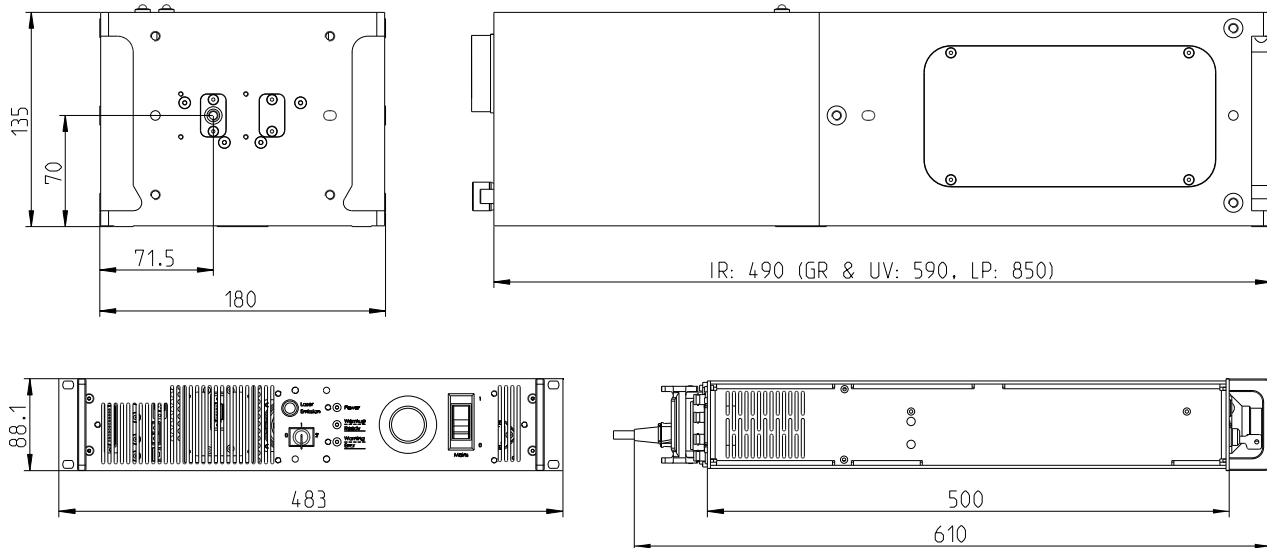
### Advantages

#### Designed for Demanding Industrial Applications

The Nanio Q-switched nanosecond laser is designed for applications that benefit from excellent beam quality with optimized pulse width and high pulse intensity over a wide range of operating conditions. Its features:

- Customizable laser parameters
- High peak power and short pulse width
- Field proven long life pump diode modules

## Technical Drawings



## Customizations & Options

### Highest flexibility with Customizable Nanosecond DPSS lasers

The Nanio Q-switched nanosecond Laser can be tailored regarding optical performance, electrical interfacing, as well as hard- and software control.

A variety of additional options are selectable.

- Pulse picker AOM
- Control and operation modes
- Laser interfacing and software control
- Failsafe safety shutter and electronics
- Umbilical length 1 to 20 m
- Beam expander box
- Motorized attenuator

## Specifications

Nanio	355		
<b>Model</b>	355-8-V-60	355-6-V-80	355-3-V-150
<b>Laser Medium</b>	Nd:YVO <sub>4</sub>	Nd:YVO <sub>4</sub>	Nd:YVO <sub>4</sub>
<b>Wavelength</b>	355 nm	355 nm	355 nm
<b>Nominal Power</b>	8 W @ 60 kHz	6 W @ 80 kHz	3 W @ 150 kHz
<b>Repetition Rate</b>	Single Shot to 300 kHz	Single Shot to 300 kHz	Single Shot to 300 kHz
<b>Pulse Width</b>	<25 ns @ 60 kHz	<35 ns @ 80 kHz	<35 ns @ 150 kHz
<b>Pulse Energy</b>	133 µJ @ 60 kHz	75 µJ @ 80 kHz	20 µJ @ 150 kHz
<b>Peak Power</b>	>5.3 kW @ 60 kHz	>2.1 kW @ 80 kHz	>0.57 kW @ 150 kHz
<b>Pulse-to-Pulse Stability</b>	<2% @ 60 kHz	<2% @ 80 kHz	<2% @ 150 kHz
<b>Power Stability (rms, 8h)</b>	<2%	<2%	<2%
<b>Spatial Mode</b>	M <sup>2</sup> <1.4, TEM <sub>00</sub>	M <sup>2</sup> <1.3, TEM <sub>00</sub>	M <sup>2</sup> <1.3, TEM <sub>00</sub>
<b>Nominal Beam Diameter (at waist)</b>	0.24 mm	0.24 mm	0.24 mm
<b>Nominal Waist Location (from output)</b>	-333 mm	-333 mm	-333 mm
<b>Beam Divergence (full angle)</b>	2.6 mrad	2.4 mrad	2.4 mrad
<b>Nominal Beam Diameter (at output)</b>	0.9 mm	0.85 mm	0.85 mm
<b>Polarization</b>	Vertical, >100:1	Vertical, >100:1	Vertical, >100:1
<b>Circularity</b>	>90%	>90%	>90%
<b>Warm-up Time</b>	<15 min	<15 min	<15 min
<b>Operating Voltage</b>	115-230 VAC ± 10%, 50-60 Hz	115-230 VAC ± 10%, 50-60 Hz	115-230 VAC ± 10%, 50-60 Hz
<b>Laser Power Consumption</b>	<500 W	<500 W	<500 W
<b>Cooling</b>	Water-to-Water or Water-to-Air	Water-to-Water or Water-to-Air	Water-to-Water or Water-to-Air
<b>Ambient Temperature</b>	15-40 °C, non-condensing	15-40 °C, non-condensing	15-40 °C, non-condensing
<b>External Control</b>	RS232, USB, TTL and Analog Q-Switch Control	RS232, USB, TTL and Analog Q-Switch Control	RS232, USB, TTL and Analog Q-Switch Control
<b>Dimensions Laser Head (L x W x H)</b>	590 x 180 x 135 mm	590 x 180 x 135 mm	590 x 180 x 135 mm
<b>Dimensions Power Supply (L x W x H)</b>	500 x 447 x 88.1 mm, 19" system, 2 RU high	500 x 447 x 88.1 mm, 19" system, 2 RU high	500 x 447 x 88.1 mm, 19" system, 2 RU high
<b>Weight Laser Head</b>	19 kg	19 kg	19 kg
<b>Weight Power Supply</b>	12 kg	12 kg	12 kg

## Specifications

Nanio	355	
<b>Model</b>	355-3-V	355-1-V-400
<b>Laser Medium</b>	Nd:YVO <sub>4</sub>	Nd:YVO <sub>4</sub>
<b>Wavelength</b>	355 nm	355 nm
<b>Nominal Power</b>	3 W @ 40 kHz	1 W @ 400 kHz
<b>Repetition Rate</b>	Single Shot to 300 kHz	Single Shot to 500 kHz
<b>Pulse Width</b>	<35 ns @ 40 kHz	<60 ns @ 400 kHz
<b>Pulse Energy</b>	75 µJ @ 40 kHz	2.5 µJ @ 400 kHz
<b>Peak Power</b>	>2.1 kW @ 40 kHz	>0.04 kW @ 400 kHz
<b>Pulse-to-Pulse Stability</b>	<2% @ 40 kHz	<4% @ 400 kHz
<b>Power Stability (rms, 8h)</b>	<2%	<2%
<b>Spatial Mode</b>	M <sup>2</sup> <1.3, TEM <sub>00</sub>	M <sup>2</sup> <1.4, TEM <sub>00</sub>
<b>Nominal Beam Diameter (at waist)</b>	0.35 mm	0.16 mm
<b>Nominal Waist Location (from output)</b>	-333 mm	-280 mm
<b>Beam Divergence (full angle)</b>	1.8 mrad	3.9 mrad
<b>Nominal Beam Diameter (at output)</b>	0.66 mm	1.2 mm
<b>Polarization</b>	Vertical, >100:1	Vertical, >100:1
<b>Circularity</b>	>90%	>85%
<b>Warm-up Time</b>	<15 min	<15 min
<b>Operating Voltage</b>	115-230 VAC ± 10%, 50-60 Hz	115-230 VAC ± 10%, 50-60 Hz
<b>Laser Power Consumption</b>	<500 W	<500 W
<b>Cooling</b>	Water-to-Water or Water-to-Air	Water-to-Water or Water-to-Air
<b>Ambient Temperature</b>	15-40 °C, non-condensing	15-40 °C, non-condensing
<b>External Control</b>	RS232, USB, TTL and Analog Q-Switch Control	RS232, USB, TTL and Analog Q-Switch Control
<b>Dimensions Laser Head (L x W x H)</b>	590 x 180 x 135 mm	490 x 180 x 135 mm
<b>Dimensions Power Supply (L x W x H)</b>	500 x 447 x 88.1 mm, 19" system, 2 RU high	500 x 447 x 88.1 mm, 19" system, 2 RU high
<b>Weight Laser Head</b>	19 kg	17 kg
<b>Weight Power Supply</b>	12 kg	12 kg

## Specifications

Nanio	532		
<b>Model</b>	532-20-V	532-20-V-100	532-10-V
<b>Laser Medium</b>	Nd:YVO <sub>4</sub>	Nd:YVO <sub>4</sub>	Nd:YVO <sub>4</sub>
<b>Wavelength</b>	532 nm	532 nm	532 nm
<b>Nominal Power</b>	20 W @ 40 kHz	20 W @ 100 kHz	10 W @ 40 kHz
<b>Repetition Rate</b>	Single Shot to 500 kHz	Single Shot to 500 kHz	Single Shot to 300 kHz
<b>Pulse Width</b>	<20 ns @ 40 kHz	<40 ns @ 100 kHz	<30 ns @ 40 kHz
<b>Pulse Energy</b>	500 μJ @ 40 kHz	200 μJ @ 100 kHz	250 μJ @ 40 kHz
<b>Peak Power</b>	>25 kW @ 40 kHz	>5 kW @ 100 kHz	>8.3 kW @ 40 kHz
<b>Pulse-to-Pulse Stability</b>	<1% @ 40 kHz	<1% @ 100 kHz	<1% @ 40 kHz
<b>Power Stability (rms, 8h)</b>	<2%	<2%	<2%
<b>Spatial Mode</b>	M <sup>2</sup> <1.3, TEM <sub>00</sub>	M <sup>2</sup> <1.4, TEM <sub>00</sub>	M <sup>2</sup> <1.2, TEM <sub>00</sub>
<b>Nominal Beam Diameter (at waist)</b>	0.4 mm	0.4 mm	0.5 mm
<b>Nominal Waist Location (from output)</b>	-324 mm	-292 mm	-324 mm
<b>Beam Divergence (full angle)</b>	2.2 mrad	2.3 mrad	1.6 mrad
<b>Nominal Beam Diameter (at output)</b>	0.8 mm	0.8 mm	0.7 mm
<b>Polarization</b>	Horizontal, >100:1	Horizontal, >100:1	Horizontal, >100:1
<b>Circularity</b>	>90%	>85%	>90%
<b>Warm-up Time</b>	<15 min	<15 min	<15 min
<b>Operating Voltage</b>	115-230 VAC ± 10%, 50-60 Hz	115-230 VAC ± 10%, 50-60 Hz	115-230 VAC ± 10%, 50-60 Hz
<b>Laser Power Consumption</b>	<500 W	<500 W	<500 W
<b>Cooling</b>	Water-to-Water or Water-to-Air	Water-to-Water or Water-to-Air	Water-to-Water or Water-to-Air
<b>Ambient Temperature</b>	15-40 °C, non-condensing	15-40 °C, non-condensing	15-40 °C, non-condensing
<b>External Control</b>	RS232, USB, TTL and Analog Q-Switch Control	RS232, USB, TTL and Analog Q-Switch Control	RS232, USB, TTL and Analog Q-Switch Control
<b>Dimensions Laser Head (L x W x H)</b>	590 x 180 x 135 mm	590 x 180 x 135 mm	590 x 180 x 135 mm
<b>Dimensions Power Supply (L x W x H)</b>	500 x 447 x 88.1 mm, 19" system, 2 RU high	500 x 447 x 88.1 mm, 19" system, 2 RU high	500 x 447 x 88.1 mm, 19" system, 2 RU high
<b>Weight Laser Head</b>	19 kg	19 kg	19 kg
<b>Weight Power Supply</b>	12 kg	12 kg	12 kg

## Specifications

Nanio	532		
<b>Model</b>	532-10-V-20	532-10-V-SP	532-18-Y
<b>Laser Medium</b>	Nd:YVO <sub>4</sub>	Nd:YVO <sub>4</sub>	Nd:YAG
<b>Wavelength</b>	532 nm	532 nm	532 nm
<b>Nominal Power</b>	10 W @ 20 kHz	10 W @ 40 kHz	18 W @ 10 kHz
<b>Repetition Rate</b>	Single Shot to 300 kHz	Single Shot to 300 kHz	Single Shot to 100 kHz
<b>Pulse Width</b>	< 10 ns @ 20 kHz	< 20 ns @ 40 kHz	< 40 ns @ 10 kHz
<b>Pulse Energy</b>	500 µJ @ 20 kHz	250 µJ @ 40 kHz	1800 µJ @ 10 kHz
<b>Peak Power</b>	> 50 kW @ 20 kHz	> 12.5 kW @ 40 kHz	> 45 kW @ 10 kHz
<b>Pulse-to-Pulse Stability</b>	< 1% @ 20 kHz	< 1% @ 40 kHz	< 1.5% @ 10 kHz
<b>Power Stability (rms, 8h)</b>	< 2%	< 2%	< 2%
<b>Spatial Mode</b>	M <sup>2</sup> < 1.2, TEM <sub>00</sub>	M <sup>2</sup> < 1.2, TEM <sub>00</sub>	M <sup>2</sup> < 1.3, TEM <sub>00</sub>
<b>Nominal Beam Diameter (at waist)</b>	0.3 mm	0.2 mm	0.5 mm
<b>Nominal Waist Location (from output)</b>	-324 mm	-320 mm	-324 mm
<b>Beam Divergence (full angle)</b>	2.7 mrad	4.4 mrad	1.7 mrad
<b>Nominal Beam Diameter (at output)</b>	0.9 mm	1.4 mm	0.8 mm
<b>Polarization</b>	Horizontal, > 100:1	Horizontal, > 100:1	Horizontal, > 100:1
<b>Circularity</b>	> 90%	> 90%	> 85%
<b>Warm-up Time</b>	< 15 min	< 15 min	< 15 min
<b>Operating Voltage</b>	115-230 VAC ± 10%, 50-60 Hz	115-230 VAC ± 10%, 50-60 Hz	115-230 VAC ± 10%, 50-60 Hz
<b>Laser Power Consumption</b>	< 500 W	< 500 W	< 500 W
<b>Cooling</b>	Water-to-Water or Water-to-Air	Water-to-Water or Water-to-Air	Water-to-Water or Water-to-Air
<b>Ambient Temperature</b>	15-40 °C, non-condensing	15-40 °C, non-condensing	15-40 °C, non-condensing
<b>External Control</b>	RS232, USB, TTL and Analog Q-Switch Control	RS232, USB, TTL and Analog Q-Switch Control	RS232, USB, TTL and Analog Q-Switch Control
<b>Dimensions Laser Head (L x W x H)</b>	590 x 180 x 135 mm	490 x 180 x 135 mm	590 x 180 x 135 mm
<b>Dimensions Power Supply (L x W x H)</b>	500 x 447 x 88.1 mm, 19" system, 2 RU high	500 x 447 x 88.1 mm, 19" system, 2 RU high	500 x 447 x 88.1 mm, 19" system, 2 RU high
<b>Weight Laser Head</b>	19 kg	17 kg	19 kg
<b>Weight Power Supply</b>	12 kg	12 kg	12 kg

## Specifications

<b>Nanio</b>	<b>1064</b>		
<b>Model</b>	1064-25-V	1064-20-V-20	1064-16-V
<b>Laser Medium</b>	Nd:YVO <sub>4</sub>	Nd:YVO <sub>4</sub>	Nd:YVO <sub>4</sub>
<b>Wavelength</b>	1064 nm	1064 nm	1064 nm
<b>Nominal Power</b>	23 W @ 50 kHz	20 W @ 20 kHz	14 W @ 50 kHz
<b>Repetition Rate</b>	Single Shot to 300 kHz	Single Shot to 60 kHz	Single Shot to 300 kHz
<b>Pulse Width</b>	<40 ns @ 50 kHz	<10 ns @ 20 kHz	<45 ns @ 50 kHz
<b>Pulse Energy</b>	460 μJ @ 50 kHz	1000 μJ @ 20 kHz	280 μJ @ 50 kHz
<b>Peak Power</b>	>11.5 kW @ 50 kHz	>100 kW @ 20 kHz	>6.2 kW @ 50 kHz
<b>Pulse-to-Pulse Stability</b>	<0.5% @ 50 kHz	<1% @ 20 kHz	<0.5% @ 50 kHz
<b>Power Stability (rms, 8h)</b>	<1%	<1%	<1%
<b>Spatial Mode</b>	M <sup>2</sup> <1.2, TEM <sub>00</sub>	M <sup>2</sup> <1.2, TEM <sub>00</sub>	M <sup>2</sup> <1.2, TEM <sub>00</sub>
<b>Nominal Beam Diameter (at waist)</b>	0.7 mm	0.6 mm	0.7 mm
<b>Nominal Waist Location (from output)</b>	-49 mm	-89 mm	-49 mm
<b>Beam Divergence (full angle)</b>	2.3 mrad	2.7 mrad	2.3 mrad
<b>Nominal Beam Diameter (at output)</b>	0.7 mm	0.7 mm	0.7 mm
<b>Polarization</b>	Vertical, >100:1	Vertical, >100:1	Vertical, >100:1
<b>Circularity</b>	>90%	>90%	>90%
<b>Warm-up Time</b>	<15 min	<15 min	<15 min
<b>Operating Voltage</b>	115-230 VAC ± 10%, 50-60 Hz	115-230 VAC ± 10%, 50-60 Hz	115-230 VAC ± 10%, 50-60 Hz
<b>Laser Power Consumption</b>	<500 W	<500 W	<500 W
<b>Cooling</b>	Water-to-Water or Water-to-Air	Water-to-Water or Water-to-Air	Water-to-Water or Water-to-Air
<b>Ambient Temperature</b>	15-40 °C, non-condensing	15-40 °C, non-condensing	15-40 °C, non-condensing
<b>External Control</b>	RS232, USB, TTL and Analog Q-Switch Control	RS232, USB, TTL and Analog Q-Switch Control	RS232, USB, TTL and Analog Q-Switch Control
<b>Dimensions Laser Head (L x W x H)</b>	490 x 180 x 135 mm	490 x 180 x 135 mm	490 x 180 x 135 mm
<b>Dimensions Power Supply (L x W x H)</b>	500 x 447 x 88.1 mm, 19" system, 2 RU high	500 x 447 x 88.1 mm, 19" system, 2 RU high	500 x 447 x 88.1 mm, 19" system, 2 RU high
<b>Weight Laser Head</b>	17 kg	17 kg	17 kg
<b>Weight Power Supply</b>	12 kg	12 kg	12 kg

## Specifications

Nanio	1064			1342
<b>Model</b>	1064-16-V-LP	1064-20-Y	1064-12-Y-LP	1342-8-V
<b>Laser Medium</b>	Nd:YVO <sub>4</sub>	Nd:YAG	Nd:YAG	Nd:YVO <sub>4</sub>
<b>Wavelength</b>	1064 nm	1064 nm	1064 nm	1342 nm
<b>Nominal Power</b>	15 W @ 50 kHz	18 W @ 10 kHz	12 W @ 10 kHz	8 W @ 20 kHz
<b>Repetition Rate</b>	Single Shot to 150 kHz	Single Shot to 50 kHz	1 to 20 kHz	Single Shot to 50 kHz
<b>Pulse Width</b>	<100 ns @ 50 kHz	<40 ns @ 10 kHz	<100 ns	<80 ns @ 20 kHz
<b>Pulse Energy</b>	300 µJ @ 50 kHz	1800 µJ @ 10 kHz	1.2 mJ @ 10 kHz	400 µJ @ 20 kHz
<b>Peak Power</b>	>3 kW @ 50 kHz	>45 kW @ 10 kHz	>12 kW @ 10 kHz	>5 kW @ 20 kHz
<b>Pulse-to-Pulse Stability</b>	<1% @ 50 kHz	<1% @ 10 kHz	<1.5% @ 10 kHz	<2% @ 20 kHz
<b>Power Stability (rms, 8h)</b>	<1%	<1%	<2%	<1%
<b>Spatial Mode</b>	M <sup>2</sup> <1.2, TEM <sub>00</sub>	M <sup>2</sup> <1.2, TEM <sub>00</sub>	M <sup>2</sup> <1.2, TEM <sub>00</sub>	M <sup>2</sup> <1.2, TEM <sub>00</sub>
<b>Nominal Beam Diameter (at waist)</b>	1.2 mm	0.6 mm	0.6 mm	0.7 mm
<b>Nominal Waist Location (from output)</b>	-273 mm	-57 mm	410 mm	-49 mm
<b>Beam Divergence (full angle)</b>	1.3 mrad	2.7 mrad	2.55 mrad	2.3 mrad
<b>Nominal Beam Diameter (at output)</b>	1.3 mm	0.6 mm	1.2 mm	0.7 mm
<b>Polarization</b>	Vertical, >100:1	Vertical, >100:1	Vertical, >100:1	Vertical, >100:1
<b>Circularity</b>	>90%	>90%	>90%	>90%
<b>Warm-up Time</b>	<15 min	<15 min	<15 min	<15 min
<b>Operating Voltage</b>	115-230 VAC ± 10%, 50-60 Hz	115-230 VAC ± 10%, 50-60 Hz	115-230 VAC ± 10%, 50-60 Hz	115-230 VAC ± 10%, 50-60 Hz
<b>Laser Power Consumption</b>	<500 W	<500 W	<500 W	<500 W
<b>Cooling</b>	Water-to-Water or Water-to-Air	Water-to-Water or Water-to-Air	Water	Water-to-Water or Water-to-Air
<b>Ambient Temperature</b>	15-40 °C, non-condensing	15-40 °C, non-condensing	15-40 °C, non-condensing	15-40 °C, non-condensing
<b>External Control</b>	RS232, USB, TTL and Analog Q-Switch Control	RS232, USB, TTL and Analog Q-Switch Control	RS232, USB, TTL and Analog Q-Switch Control	RS232, USB, TTL and Analog Q-Switch Control
<b>Dimensions Laser Head (L x W x H)</b>	850 x 180 x 135 mm	490 x 180 x 135 mm	850 x 180 x 135 mm	490 x 180 x 135 mm
<b>Dimensions Power Supply (L x W x H)</b>	500 x 447 x 88.1 mm, 19" system, 2 RU high	500 x 447 x 88.1 mm, 19" system, 2 RU high	500 x 447 x 88.1 mm, 19" system, 2 RU high	500 x 447 x 88.1 mm, 19" system, 2 RU high
<b>Weight Laser Head</b>	22 kg	17 kg	22 kg	17 kg
<b>Weight Power Supply</b>	12 kg	12 kg	12 kg	12 kg

Iradion follows a policy of continuous product improvement. All specifications are subject to change without notice. Rev. 2.2, 06/2023.  
Iradion Laser GmbH is DIN EN ISO 9001 certified.

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**ENDURING EXCELLENCE, PULSE BY PULSE.**

