

TruPulse nano 20 to 600 W

Nanosecond-
pulsed fiber lasers
with GTwave and
PulseTune technology



**Greater
flexibility**

**Superior
quality**

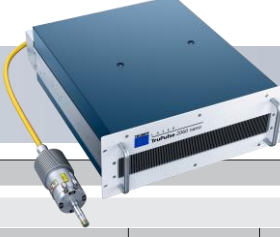
**Increased
productivity**

**Improved
profitability**

TruPulse nano 20 to 600 W Nanosecond-pulsed fiber lasers



TruPulse 2002 nano
20 W (Generation 2)



TruPulse 2060nano
600 W

Product selection parameters																								
Wavelength	nm	1060																						
Beam quality options		S type					Z type										L type		H type		M type			
Beam quality	M²	<1.3					<1.6										1.8		3		5			
Rated average power	W	20		30	50	100	20		30	50		70		100	130	200	300	600	20		40	70	200	
PulseTune functionality		HS	EP	HS		EP	RM	EP	RM		EP	RM	EP					HS	EP	HS		EP		
Beam delivery cable length	m	2					2/3		3					3/5			3		3.5	2/3	2	3/5		3/8
Beam delivery optic/connector		ILOC / ILLK		ILLK	ILOC / ILLK										ILOC+		IBeam+		IBeam+(HP)	ILOC / ILLK	ILLK	ILOC / ILLK		IBeam+
Pulse parameters																								
Max. peak power*	kW	> 7					> 10										>10	> 12		>20		> 50		
Max. pulse energy	mJ	>0.6	>0.8	>0.6		>1		>1.2	>1		>1.2	>1	>1.2	>1.3	>1.5			>2	>0.8	>1	>1.25		>5	
Pulse repetition frequency range	kHz	1–1000	1–4000	1–1000		1–4000	1–500	1–4000	1–500		1–4000	1–500	1–4000					1–1000				1–4000		
Pulse duration range	ns	10–240	3–2000	10–240	11–220	4–2000	26–250	3–2000	26–250		3–2000	28–260	3–2000	4–2000	3–2000	9–2000	10–1200	20–800	10–220	2–500	10–240	10–250	12–2000	
PulseTune waveforms		24	48	24		47	2	48	2		48	2	48		47	45	41	37	25	40	24		45	
CW mode		Yes					No		Yes	No		Yes	No	Yes		No		Yes	Yes					Yes
Modulation range in CW mode	kHz	1–100					N/A		1–100	N/A		1–100	N/A	1–100		N/A		1–100	1–100	1–100				1–100
Output power stability (peak-to-peak)*	%	< 5															< 8		< 5					
Cooling options																								
Air-cooled or water-cooled		Air													Water	Air	Air							
Environmental																								
Ambient temperature range	°C	0–45		0–42	5–40	0–45		0–40				5–40	10–45	10–40	15–37	15–40	0–45		0–40	10–40				
Relative humidity range		5–95% RH (non-condensing)																						

* Measured at rated average power, waveform 0, max. pulse energy and over full operating temperature range. Models with longer beam delivery cables may have lower peak power than stated.

Beam quality options

Series 1000 | S-type (single mode M2 <1.3): provides a very fine spot size (<20 micrometers) with high performance stability and great depth of focus. Ideal for applications requiring small structure sizes.

Series 2000 | Z-type (M2 <1.6): provides higher peak power and pulse energy with only a slight increase in spot size and good depth of focus.

Series 3000 | L-type (low mode M2 1.6 - 2.0): for general marking applications with somewhat larger spots and features. Markings can be detected with the naked eye.

Series 4000 | H-type (high mode M2 2.5 - 3.5): provides high pulse energies, peak power and even larger spots, ideal for wide lines, applications with filled fonts and a high area coverage.

Series 5000 | M-type – multimode (M2 4.0 - 6.0): highest pulse energies and longer pulse durations, perfect for welding and cleaning.

Feature combinations

At a glance			PulseTune functionality (in W)		
			RM	HS	EP
Beam quality	S type			20*, (30), 50*	20*, 100
	Z type		20*, (30), 50*, 70		20*, 50*, 70, 100, 130, 200, 300, 600
	L type			(20)	(20)
	H type			40*, 70	
	M type				200

PulseTune functionality

Gives users greater control of pulse conditions providing increased pulse energy, peak power and pulse repetition frequency.



RM Series (reduced mode)
■ Models benefit from 2 PulseTune waveforms
■ Up to 0.5 MHz pulse repetition frequency



HS Series (high specification)
■ Up to 25 PulseTune waveforms
■ Up to 1 MHz pulse repetition frequency



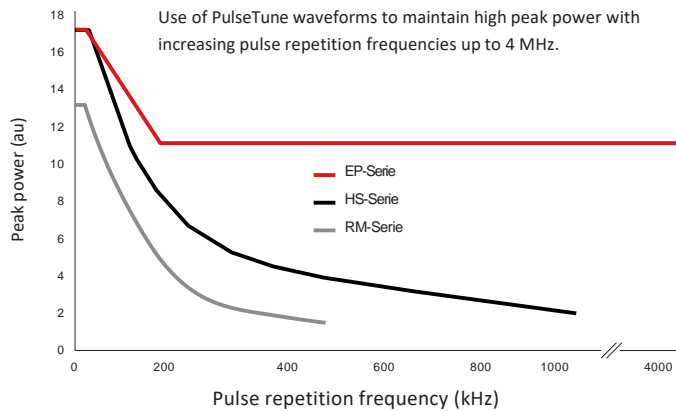
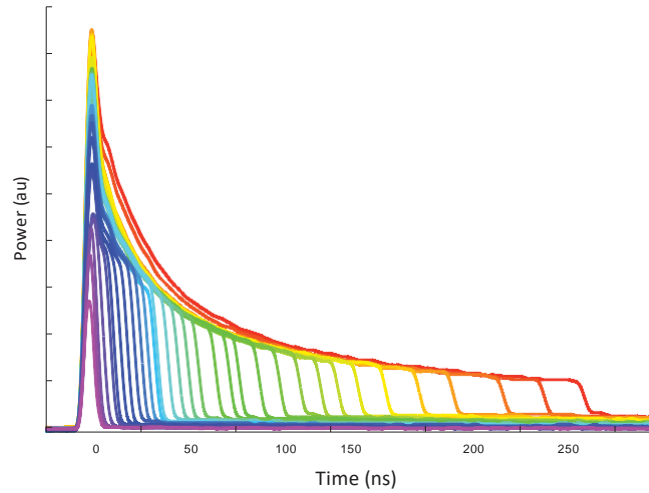
EP Series (extended performance)
■ Up to 48 optimised PulseTune waveforms
■ Up to 4 MHz pulse repetition frequency



*Generation 2
(XX) = will be discontinued in the future

PulseTune technology

Our PulseTune technology provides the ability to select waveforms, offering pulse durations from 3 to 2,000 ns. Each pulse waveform is designed for maximum peak power and pulse energy at an optimised pulse repetition frequency.



Key applications

Product range by beam quality

		S type	Z type	L type	H type	M type
Ablation		■	■	□	□	□
Cleaning			□	□	■	■
Drilling		■	■	□	□	□
Engraving, deep		□	■	□	■	■
Engraving, fine		■	■	□		
Marking anodised and painted materials		□	■	■	□	■
Marking, general		□	■	■	□	
Marking, metal		□	■	■	□	□
Marking, plastic (night and day)		■	□	■	□	
Micro-machining		■	□			
Precision cutting		■	■		□	□
Scribing		■	■	□		
Solar cell processing		■	■	□	□	
Thin film patterning		■	■	□	■	
Thin foil cutting		■	■	□	■	
Welding		□	■		■	■

■ = Optimal for □ = Good for



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Terms and conditions

All product information is believed to be accurate and subject to change without notice. A complete product specification will be issued on request and also at time of order acknowledgement. The user assumes all risks and liability whatsoever in connection with the use of the product and its application. These lasers are designed as products for incorporation or integration into other equipment.

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