

TruPulse nano 20 to 300 W

Nanosecond-
pulsed fiber lasers
with GTwave and
PulseTune technology



**Greater
flexibility**

**Superior
quality**

**Increased
productivity**

**Improved
profitability**

TruPulse nano 20 to 300 W Nanosecond-pulsed fiber lasers

Product selection parameters

Wavelength	nm							
Beam quality options		S type						
Beam quality	M ²	< 1.3						
Rated average power	W	20	30	50	100	20	30	
PulseTune functionality		HS	EP	HS	EP	RM	EP	RM
Beam delivery cable length	m	2				2/3		
Beam delivery optic/connector		ILOC / ILLK	ILLK	ILOC / ILLK				
Pulse parameters								
Max. peak power*	kW	> 7						
Max. pulse energy	mJ	> 0.6	> 0.8	> 0.6	> 1	> 1.2	> 1	
Pulse repetition frequency range	kHz	1–1000	1–4000	1–1000	1–4000	1–500	1–4000	1–500
Pulse duration range	ns	10–240	3–2000	10–240	11–220	4–2000	26–250	3–2000
PulseTune waveforms		24	48	24	47	2	48	2
CW mode		Yes			No		Yes	No
Modulation range in CW mode	kHz	1–100			N/A		1–100	N/A
Output power stability (peak-to-peak)*	%	< 5						
Cooling options								
Air-cooled or water-cooled		Air						
Environmental								
Ambient temperature range	°C	0–45		0–42	5–40	0–45		
Relative humidity range								

* 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.

Beam quality options

S type – single mode (M² < 1.3)

Generating very fine spot size < 20 μm with high power stability and large depth of focus. Ideally suited to applications requiring small feature sizes.

Z type – general purpose (M² < 1.6)

Offering higher peak power and pulse energy with only minor increase in spot size and good depth of focus.

L type – low mode (M² 1.6–2.0)

General marking applications giving slightly larger spots and features that are more appropriate to making marks visible to the naked eye.

H type – high mode (M² 2.5–3.5)

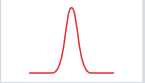

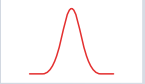
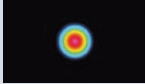
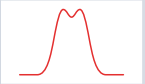

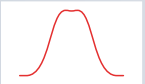

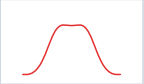
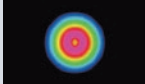
Offering higher pulse energies, peak powers and even larger spots ideal for wide lines, filled font type applications and large area coverage.

M type – multimode (M² 4.0–6.0)

Highest pulse energies and longer pulse durations ideal for welding and cleaning.

Feature combinations

At a glance

Beam quality	S type		
	Z type		
	L type		
	H type		
	M type		



TruPulse 3002 nano
20 W



TruPulse 2020 nano
200 W

1060											
Z type						L type		H type		M type	
<1.6						1.8		3		5	
50		70		100	130	200	300		20		200
EP	RM	EP				HS	EP	HS		EP	
3		3/5		3			2/3	2	3/5		3/8
			ILOC+	IBeam			ILOC / ILLK	ILLK	ILOC / ILLK		IBeam
> 10						> 12		> 20		> 50	
> 1.2	> 1	>1.2	> 1.3	> 1.5			> 0.8	> 1	> 1.25		> 5
1-4000	1-500	1-4000				1-1000				1-4000	
3-2000	28-260	3-2000	4-2000	3-2000	9-2000	10-1200	10-220	2-500	10-240	10-250	12-2000
48	2	48	47	45	41	25	40	24		45	
Yes	No	Yes	No		Yes	Yes				No	
1-100	N/A	1-100	N/A		1-100	1-100				N/A	
						< 8	< 5				
						Water	Air				
0-40			5-40	10-45	10-40	15-37	0-45		0-40	10-40	
5-95% RH (non-codensing)											

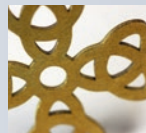
Peak power than stated.

PulseTune functionality

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

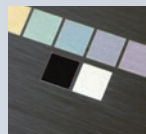
RM Series (reduced mode)

- 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

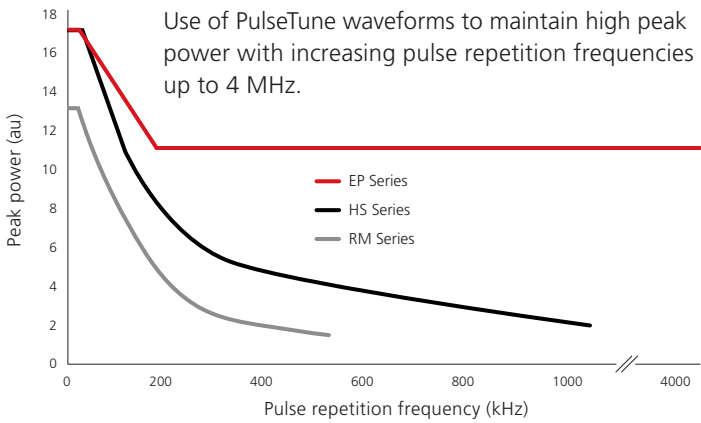
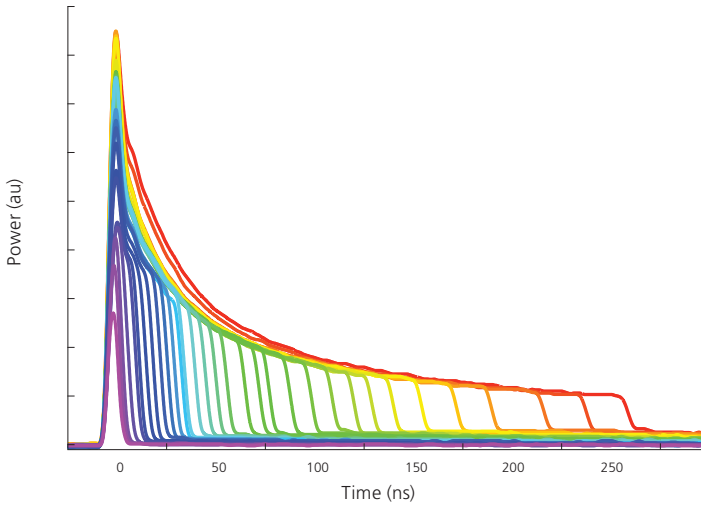


PulseTune functionality (in W)

RM	HS	EP
	20, 30, 50	20, 100
20, 30, 50, 70		20, 50, 70, 100, 130, 200, 300
	20	20
	40, 70	
		200

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.



Visit our newly configured page TruPulse nano:
www.trumpf.com/s/trupulse-nano



INVISIBLE LASER RADIATION
 AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION
CLASS 4 LASER DEVICE
 Wavelength 1200 - 1250 nm
 Pulsed output
 Max average power < 300W
 Max pulse energy < 5.5mJ
 Repetition freq. 1-4000kHz
 Pulse duration 1ns - 2.5µs
 CW Output power < 300W
 IEC EN 60825-1:2014

Component for incorporation
 This device is intended as a component for incorporation into a laser product, and as such requires additional features for Laser Safety and to comply with IEC EN 60825-1 and 21CFR1040.10

VISIBLE LASER RADIATION
 AVOID DIRECT EYE EXPOSURE
CLASS 2R LASER DEVICE (ALIGNMENT PURPOSES ONLY)
 Wavelength 630-670nm
 OUTPUT = 5mW CW
 IEC EN 60825-1:2014


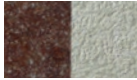
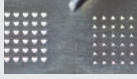

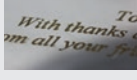



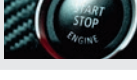




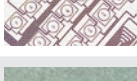


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Terms and conditions

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.

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

