

Dira Series
Ultrafast
thin-disk lasers

High average power
Up to 1.5 kW

High pulse energy
Up to 1 J

High repetition rate
Up to 200 kHz



High beam quality
 $M^2 < 1.5$

Superior stability
Typically $< 0.5\%$ rms



High flexibility

Variable pulse durations combined with Herz Series
Variable repetition rates and pulse energies

Dira series

Femtosecond to picosecond amplifiers using the unrivaled industrial TRUMPF thin-disk technology. The series impresses above all in situations which require both high pulse energy and high average power.



Dira hunting for lightnings in the Swiss Alps (picture TRUMPF/Martin Stollberg).

- Industrial technology
- Robust design
- Superior stability
- Fast spare part availability
- Remote support for immediate service
- Logging of diagnostic data

01

High energy, high average power

Our customers' favourite, Dira 200-1 is available now in its third generation. This proven 200 W model delivers 200 mJ at 1 kHz with a pulse duration down to 500 fs. Based on its success, we developed the 500 W and 1000 W versions running between 5 and 100 kHz.

02

High beam quality

As a result of the thin-disk geometry, Dira achieves nearly diffraction-limited beam quality that extends above the kilowatt level at repetition rates ranging from 1 kHz to 200 kHz.

03

Superior stability

With its particularly robust design concept, you can expect 100% constant power. The incorporated electronics and onboard software ensures optimal day-to-day operation.

Technical data

Dira Series	Dira 200-100	Dira 200-1	Dira 500-10	Dira 1000-5	Dira 1000-1
Wavelength	1030 nm				
Max. average power	200 W	200 W	500 W	1000 W	500 W
Max. pulse energy	2 mJ	200 mJ	50 mJ	200 mJ	500 mJ / 1 J ^[1]
Min. pulse duration	≤ 1000 fs	≤ 600 fs	≤ 600 fs	≤ 600 fs	≤ 600 fs
Repetition rate	50-400 kHz	1-100 kHz	10-100 kHz	5-100 kHz	1 kHz
Beam quality (M ²)	≤ 1.4	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5

[1] Available upon request

04

High flexibility

The Dira's flexible design enables customization of systems according to user requirements in terms of energy and repetition rate. Combined with our nonlinear compression add-on Herz, the series can deliver even sub-50 fs pulse duration while maintaining the high average power, pulse energy and beam quality.

05

Customer orientated

Customer satisfaction is paramount.

We support and accompany our customers beyond the successful commissioning of their laser, from the initial design stage and throughout the entire life cycle.

Dira lasers exploit a pertinent data collection system for the monitoring and visualization of the real-time laser performance. Implemented to remote service, it allows fast diagnosis and resolution in most situations. For cases involving worn-out components, TRUMPF "plug & play" spare parts guarantee a swift exchange.