

Herz Series

Nonlinear pulse compression



Ultrashort pulses

Pulse duration < 50 fs

High average power

Up to 1 kW at high repetition rate

High efficiency

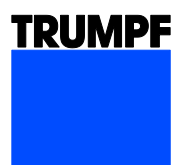
More than 95 % optical transmission



High flexibility

Variable pulse durations with Dira Series

Different input sources on request



Herz series

Nonlinear pulse compression for high average power, high pulse energy lasers.
More than 10 times higher intensity at once.



- Customized design
- Flexible input source
- High average power: up to 1 kW
- High pulse energy: up to 400 mJ on request
- Short pulse durations < 40 fs
- High optical efficiency: more than 95 %

01

Short pulse duration

Multipass cells are a broadening scheme based on self-phase modulation in different media, as noble gasses. In these setups the intensity threshold at each pass is kept below the ionization threshold and a high number of passes is achieved, in small footprint, via concentric geometry.

02

High energy, high average power

The Herz series is a nonlinear pulse compression scheme perfectly suited to shorten the pulse duration of the Dira series lasers to sub-50 fs while maintaining their high average power and high pulse energy. These systems rely on gas-filled multipass cells and chirped-mirrors temporal re-compression.

03

Flexibility and reliability

The broad variety, high reliability, robustness and excellent long-term performance of the Herz series and of the Dira systems allow for numerous solutions ranging from few to hundreds mJ pulse energy and from one to a few hundred kilohertz repetition rate, all at high average power. Customized solution for different input sources or up to 400 mJ are available on request.

04

High optical efficiency

Due to the usage of custom dielectric mirrors with a reflectivity above 99.9%, the high number of passes in the multipass cell do not lower the high average power of the input laser. The overall optical efficiency for the Herz series is above 95 % after temporal re-compression.

Technical data

Herz Series	Herz 10 ^[2]	Herz 50	Herz 200	Herz 400 ^[3]
Wavelength	970 – 1090 nm	980 – 1080 nm	980 – 1080 nm	990 – 1070 nm
Max. average power	1000 W	500 W	Up to 1 kW	Up to 400 W
Max. pulse energy	10 mJ	50 mJ	200 mJ	400 mJ
Min. pulse duration ^[1]	≤ 30 fs	≤ 40 fs	≤ 40 fs	≤ 50 fs
Repetition rate	1 - 100 kHz			
Beam quality (M ²)	≤ 1.5			

- [1] For 500 fs input pulses
[2] On request up to 50 mJ
[3] Available upon request