Sharing Excellence in Laser Applications

Be a part of it.
The Application Laboratory is a part of the JENOPTIK Laser GmbH - one of the worldwide leading companies, developing laser sources. Our experienced engineers, working in the optimally equipped lab, perform principal application tests in order to demonstrate the feasibility of customer applications.

The laboratory utilizes Jenoptik lasers to assist our partners in selecting the optimum laser for their specific application. On the other side developing of the laser applications and their processes doesn’t count to our goals.

We also run individually adjusted tests, going beyond the standard certifications. The laser sources in our lab are production quality laser products.

The support of our customers is our major motivation to run the laser application laboratory. We aim to continuously improve our laser products with the focus on you and your process needs.

We would like to invite you to get an impression of our expertise, our Application Laboratory and services on the following pages.

Klaus Stolberg
Head of Laser Application Laboratory
Newest instruments on your duty

Our equipment

Available solid-state and fiber laser sources:
- IR fs (4 W single-mode), IR ns (up to 40 W multi-mode and 70 W single-mode), IR µs (up to 70 W single-mode), IR cw (up to 1 kW single-mode)
- 515 nm fs (1.5 W single-mode), 515 nm ns (80 W multi-mode), 532 nm cw (8 W multi-mode)
- Other lasers of Jenoptik portfolio on request

Positioning equipment:
- Galvo scanner (35 m/s, precision ~10 µm)
- XY-stage (200 mm/s, precision ~1 µm)

Equipment for output power, pulse length, wavelength and beam profile analysis

Available focusing lenses for:
- Galvo scanner IR: working field 30 x 30 mm² up to 290 x 290 mm²
- Galvo scanner 515 nm: 30 x 30 mm² up to 160 x 160 mm²
- Cutting head IR and 515 nm f’ = 125, 80, 50 mm
- Mitutoyo NIR objective: 10x / 0.26 f’ = 200 mm

Variable beam expander: 1x...10x

Equipment for the laser synchronization and positioning

Optical microscope for sample analysis (max. 100x)

Digital camera and image analysis software
Results we deliver
More than you expect

Initial test on your samples will demonstrate the feasibility of the laser application. Our goal is to generate the information to assist you in determining the possible quality and productivity improvements.

Furthermore we provide:
- Extended feasibility studies with multiple laser sources to find the best application solutions
- Cooperation with other business units of Jenoptik, institutes and partners in order to use specialized equipment and know-how
- Evaluation of the test results with an optical microscope
- Manufacturing of customized assemblies, holders, etc. for laser setup
- Documentation of significant process information together with generated images in a short note or a highly detailed report
- Traceability of application parameters and setup in a database for further utilization
- Full access to the well equipped application lab with or without assistance of experienced laser engineers for your own studies or non disclosed testing
Imagine a request for drilling an array of holes into stainless steel foil:

For this we need an application instruction (please use our template on the website) and some samples. It is a good idea, if you provide us with more than one sample to give us an opportunity to optimize the parameters prior generating the premium sample.

This first test is free of charge and gives you an impression of application feasibility with the selected laser source.

Of course, it may be possible to get even better results by using additional equipment or by the optimization of specific parameters. This usually requires more efforts and will be charged. We can also offer extended feasibility studies with different laser sources from Jenoptik and additional process optimization for a fee.

Finally, you will receive the samples and a report, containing process parameters along with information about quality and productivity to aid you in the decision making process.
Spot pattern of a pulsed laser source at sample surface

Laser spot distance, which can be reached at various scanning speeds and pulse repetition rates.
Notes: micromachining photovoltaics display industry plastics marking semiconductor power stent cutting diode printing industry cutting welding drilling 532 nm 1030 nm 330 fs 2 µs cw M² < 1.2 300 kHz JenLas® D2.fs JenLas® disk IR70E JenLas® disk IR70 JenLas® fiber ns JenLas® fiber cw 4 mm welding < 10 µm scribes 20,000 holes/sec glass ablation 3.4 mm³/min ceramic cutting 300 mm/s thin film ablation 200,000 shots/s melt free ablation high M² < 1.2 300 kHz single-mode independent parameter choice ultra short pulse 1000 W output power SHG Gaussian beam shape 20,000 holes/sec peak power 60 GW