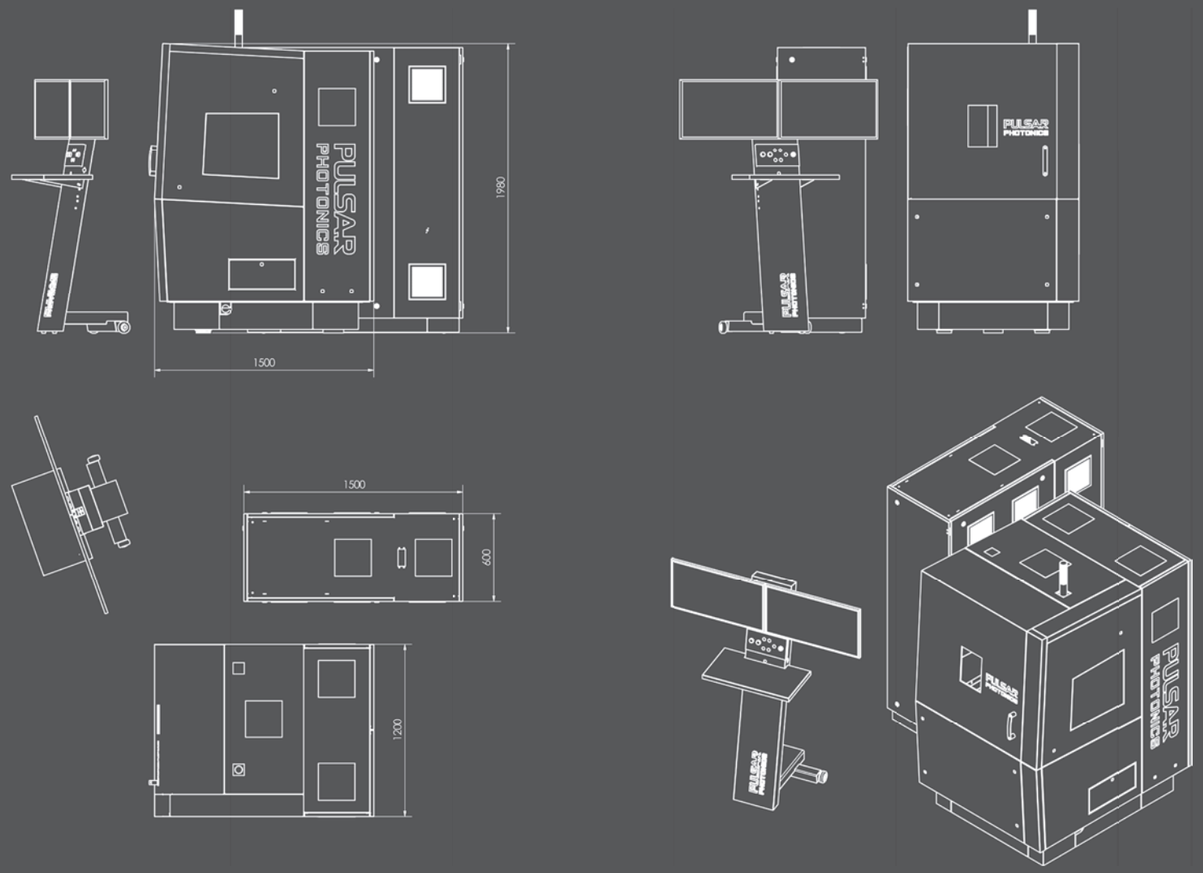
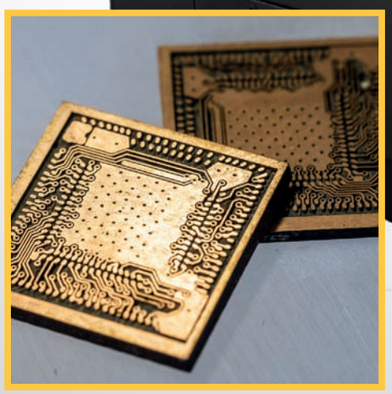
DIMENSIONS
(OF BASIC CONFIGURATION)





LASER SYSTEM FOR PCB PROTOTYPING

RDX 500 PCB

WIRING, DRILLING AND PCB CUTTING IN ONE PROCESS

PROCESSING OF ALL KIND OF CIRCUIT BOARDS WITHOUT THERMAL STRESS

POWERFUL CAD-CAM AND SOFTWARE PACKAGE

HIGH RESOLUTION PCB PROTOTYPING USING DIRECT LASER ABLATION

PULSAR PHOTONICS

CONTACT

Pulsar Photonics GmbH
Kaiserstraße 100
52134 Herzogenrath
GERMANY

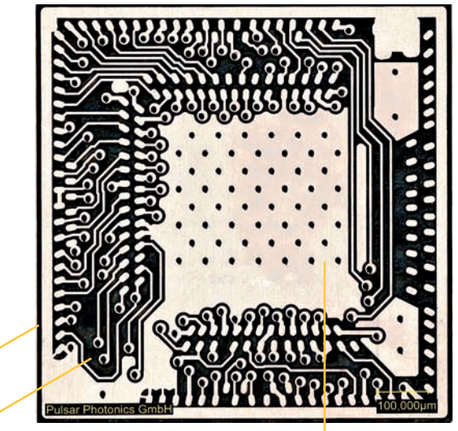
+49 2407 - 55555-0

info@pulsar-photonics.de
www.pulsar-photonics.de

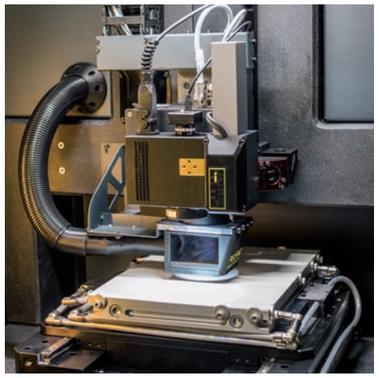
PULSAR PHOTONICS

LASER SYSTEM FOR HIGH QUALITY PCB PROTOYPING

The RDX500 PCB is an all-in-one system for laser microprocessing of circuit boards. By using a femtosecond laser, any type of printed circuit board can be processed with the highest precision, low thermal input and virtually without post-processing. Thus, in addition to conventional laminated circuit boards made of polymers, ceramic circuit boards, e.g. for high-frequency technology, can also be processed. The laser processing machine allows the printed circuit board to be structured, drilled and cut out on both sides in one process. Thus, complex intermediate steps can be saved and the use of the technology is made easier. The user is supported by powerful software that guides him step-by-step from production planning to the finished PCB.

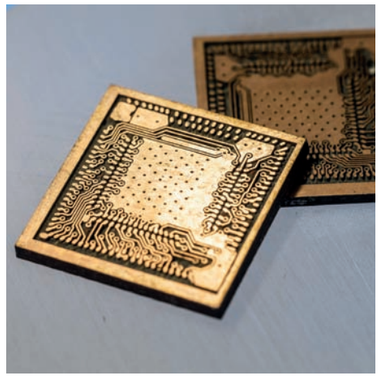


KEY ELEMENTS OF RDX500



PROCESS CHAMBER

The process chamber has a vacuum clamping system for stable fixing of printed circuit boards. By using a high-precision axis system and a range of measuring and processing tools, printed circuit boards can be precisely measured and processed over large areas. An integrated suction system ensures clean ablation and removal of the ablation products.



ABLATION, DRILLING, CUTTING

The conductor tracks are produced by a precise femostecond laser ablation process. The high-precision and layer-wise processing enables ablation of the metallic layers with no or just minimal damage to underlying layers.
A high lateral resolution can be achieved due to a melt and burr free ablation process. Via-holes with adjustable diameters can be produced by laser drilling. Finally, the complete PCB is cut by a laser cutting process.

POWERFUL SOFTWARE PACKAGE

Work preparation is carried out with the CAD-CAM program PhotonicVectors which allows GerberX data for wiring, the drilling process and the cutting contours to be be loaded and a machining job to be generated. The job data is transferred to the PhotonicElements machine software. A software assistant guides the user from the automated measuring of the unprocessed PCB (fiducual recognition), through the configuration of the laser processing to the finished PCB.

TECHNICAL DATA

Specifications	
Machine system	The RDX500 PCB is a fully integrated and turnkey ready laser machine for laser based curcuit board prototyping and small series production. The machine consists of a laser safety class 1 machine housing with controlpanel, laser, vibration damped machine base with axis system, vacuum chuck and exhaust system for particle removal. The compact size of the laser machine allows an installation even in small rooms.
Work field area	Motorized machine axes: XY cross table, Z stage Working area: typ. 210 mm x 290 mm Repeatability of positioning: < ± 1 micron
Optical Scanning System Accuracy	Galvanometer-Scanner with Focusing objective Spot size: typ. 20 µm (IR), 10 µm (VIS), smaller spot sizes possible Minimum line width: 50 µm* (IR, standard), 25 µm (VIS) Minimum gap width: 25 µm* (IR, standard), smaller sizes possible *on laminated substrate (18 µm Cu)
Laser source	Femtosecond laser system (industrial-ready) for high precision and melt-free laser ablation Wavelength: 1030nm, 515nm or 343nm
Software / CAD-CAM	Machine control: PhotonicElements CAD-CAM tool: PhotonicVectors Software assistant for PCB-Prototyping Remote software support and update
Electric cabinet	400 VAC, 16A, 50 Hz
Measurement technology	Camera System CM-R2 (LED-illumination, fidcual recognition) Tactical probe sensor for distance control
Accessories	Vacuum chuck, Exhaust unit, Process gas system
Services	Application development, CAD/CAM training, USP laser training, Remote maintenance, Remote process support, Software development

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