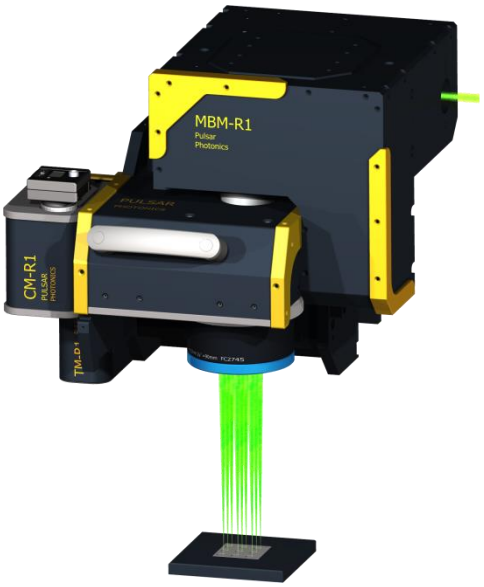
Multi Beam Scanner MBS

Reduce your laser processing costs



Reduce your laser processing costs by using the full power of your laser system

Today industrial ultra-short pulsed lasers provide high average power from 50-150 W at medium to high pulse energies. However, in most laser processes for micromaching just low powers in the range of 1-10 W can reasonably be applied for high quality results. This leads to a poor utilization of the power of the laser system and thus to high processing costs. With the Multi Beam Scanner Pulsar Photonics offers a new way to dramatically reduce the processing costs by fully using the laser power of your laser system without reducing the quality of the laser processing (see chart). By splitting the laser beam into multiple partial beams the process speed can easily be multiplied by a factor of 10-100. With this product Pulsar Photonics offers you a solution which economically replaces your conventional drilling, structuring and cutting processes by an ultra-short pulsed laser process with superior quality.

Contact us for more information.

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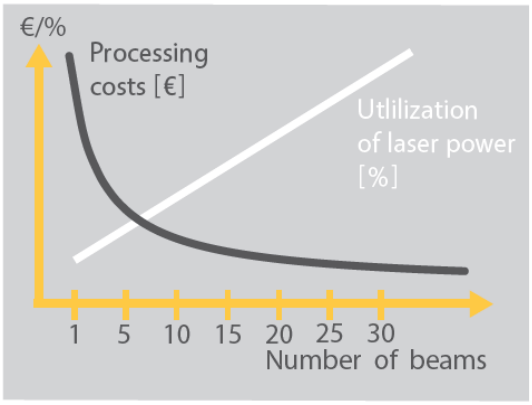
多光束扫描器 MBS

提升效率 降低成本



多光束扫描器 Multi Beam Scanner

充分利用您的激光系统的全部功率，从而降低激光加工成本

尽管现如今工业用超短脉冲激光在中高脉冲能量前提下输出50～50W的高平均功率，然而在绝大多数激光微加工中，仅仅使用1～10W的低功率即可得到高质量的加工结果，激光能量并未被充分地利用，这导致加工成本增加。Pulsar Photonics多光束扫描器可提供一种全新解决方案，无需降低激光加工质量。通过提高激光功率利用率从而显著降低成本（如图所示）。将激光束分成多光束，加工速度即可轻易地提高10～100倍，此外Pulsar Photonicsp多光束扫描器还提供一套经济型解决方案，用品质优越的超短脉冲激光加工来取代常规钻孔，切割及结构化。

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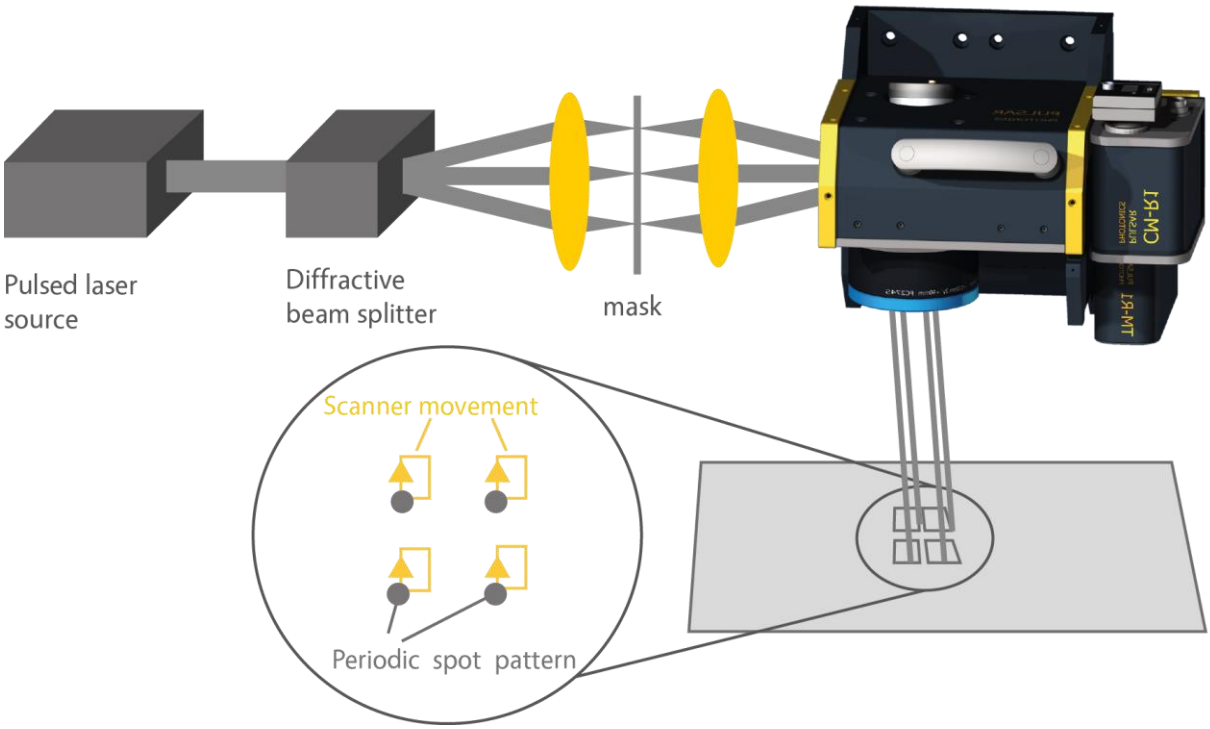

Multi Beam Scanner principle

The Pulsar Photonics Multi Beam Scanner is a new type of laser scanning system for the parallel processing with multiple laser spots in the work plane. The basic principle of the system is the splitting of a single laser beam into multiple sub-beams and guiding these sub-beams into a galvanometric scanner to create a defined spot pattern in the work plane. By moving the spot pattern with the scanner arbitrary shapes can be created with every laser spot. Thereby every sub-beam creates the same pattern which leads to a number of identical patterns on the work piece. This new scanning concept boosts your processing speed especially with ultra-short pulsed lasers by allowing you to use a higher percentage of your laser systems total power. Depending on your laser process and your laser system Pulsar Photonics provides you a Multi Beam Scanner with customized specifications.

多光束扫描器工作原理

Pulsar Photonics多光束扫描器是一种用于在工作平面运用多光束进行并行加工的新型激光扫描系统。其基本原理是将单束激光分成多束子光束，进而将其导入扫描振镜，在加工平面生成轮廓清晰的光斑图案。通过扫描器运动，每个光斑在工作平面可生成完全相同的任意形状的光斑图案。这种新的扫描理念能发挥激光系统全功率的相当一部分，从而提高加工速度。如用超短脉冲激光，优势更为明显。

Pulsar Photonics可根据不同的激光加工系统及光源，提供用户所需参数的多光束扫描器。

Specifications

- Periodic pattern with n x m spots (i.e. 4 x 4)
- Movement of spot pattern with the scanner system
- Typical period of spot pattern: 0.3-2 mm
- Optical efficiency >70%
- Spot uniformity: < 7%
- Wavelength: 353-1064nm
- System availabe as module for the Pulsar Photonics base module or as extension to your scanning system.

技术参数

- nxm矩阵周期图案
- 光斑图案随扫描系统运动
- 光斑图案典型周期：0.3～2 mm
- 光学效率：>70%
- 光斑均匀性误差：<7%
- 使用波长：353～1064 nm
- 系统可作为Pulsar Photonics基本模块的组件，也可作为扫描系统的扩展

Multi Beam Scanner

Speed up your laser processes by a factor of 10-100x by massive parallelization

多光束扫描器 Multi Beam Scanner

通过大规模并行化将您的激光加工效率提高10～100倍

Applications

应用实例

High speed laser drilling of thin foils with multiple kHz frequency

The multibeam laser processing is the ideal solution for the drilling and trepanning of large numbers of precise holes into thin metal foils by multipling the process speed of your laser system. With drilling rates in the multi kHz-range the system is ideal for the production of filters for water or fuel filtration. Pulsar Photonics provides you solutions for precise and temperature stable clamping of metal foils for large area laser processing of your samples.

加工频率达几kHz的金属薄片高速激光钻孔

多光束加工是通过提高激光系统的速度在金属箔上进行大规模精密钻孔或套料钻孔的理想方案。钻孔速率在几kHz范围内。此加工系统也适用于水过滤器或燃料滤芯的生产制造。
Pulsar Photonics也为您提供用于金属薄片的温度稳定性好的精密夹具，用于样品大面积的激光加工。

Multiple generation of complex structures with high precision

The unique combination of a precise galvanometric scanning system and beam splitting in one system allows to easily multiply your cutting or ablation process without loosing the freedom of geometry of your scanner. This way complex cut patterns can be realized while multiplying your production rate.

并行生成高精密复杂结构

精密扫描振镜系统与分束器组合在一个独特的系统中，使切割或去除的速度翻倍，但不损失扫描器的几何自由度，在提升生产速率的同时实现复杂图案的加工。

Functional surfaces

Functional surfaces for tribology, change of wetting, direction of liquids or light guidance in most cases require periodical micro structures. The Pulsar Photonics Multi Beam Scanner allows to reduce the processing costs and to process mass products economically. We help you to develop the right solution for your task.

Custom solutions

Pulsar Photonics customizes the Multi Beam Scanner to your needs:

- alteration of the DOE pattern within the process
- arbitrary processing spot geometry or arrangement
- process monitioring of each beam by backreflection analysis
- sensors for characterization of the spot pattern

Contact us!

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功能性表面

在绝大多数情况下，用于改变摩擦和亲水性能以及液流或光导方向的功能性表面都需要周期性微结构。Pulsar Photonics多光束扫描器可减少加工成本，经济高效地进行大规模生产。我们也协助您为您的需求开发正确的解决方案。

客户解决方案

Pulsar Photonics根据您的需求来定制多光束扫描器：

- 在加工过程中替换DOE图案
- 任意的加工光斑几何排列
- 背反射分析装置来监测加工中的每一束激光
- 探测表征光斑图案的传感器

联系我们！

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