


Laser Systems

for Industry & Scientific Applications

- 
- DPSS Lasers
 - Fiber Lasers
 - Ultra Fast Pulsed Lasers
 - Titanium-Sapphire Lasers
 - Pulsed high-energy lasers
 - Gas Lasers
 - Diode Lasers
 - Laser Accessories
 - Service and Maintenance
 - Cooling Solutions



OPTICAL
TECHNOLOGIES



- Diode Pumped Solid state (DPSS) Lasers
- Fiber Lasers
- Ultra Fast Pulsed Lasers
- Titanium-Sapphire Lasers
- Pulsed high-energy lasers
- Gas Lasers
- Diode Lasers
- Laser Accessories & Laser Safety



Laser material processing close-up – image © by Mikalai Bachkou



■ Laser Systems for Scientific Applications

AMS Technologies has a long history of supplying lasers for Scientific Research. These types of lasers are being used for numerous of different applications in Physics, Chemistry, Biology, Medicine etc. We can offer lasers operating in cw and all the way down to fsec pulsed operation.

Our broad knowledge and strong comprehension of the scientific and research community, together with our long-standing presence in the field, allows us to provide our customers with high quality products for specialised applications, for example in the fields of laser atom cooling and trapping, laser-induced breakdown spectroscopy (LIBS), Raman spectrometry, quantum cascade lasers (QCL), matrix-assisted laser desorption/ionization (MALDI), light detection and ranging (LIDAR), optical coherence tomography (OCT), life sciences, nuclear physics and many other innovative applications.

By staying in touch with many different research groups across Europe and by leveraging our involvement in perhaps both similar and diverse experiments at the different institutes, we are able to continually extend and enrich our scientific capability. Should we be confronted with a highly specific problem, for which our standard product lines prove to be inadequate, our sales engineers will be able to access modified standard components or even provide a complete custom solution.

■ Laser Systems for Industrial Applications

Industrial lasers for material processing are vital in many production environments. AMS Technologies offers a selection of lasers and laser systems for material processing.

We are specialized in advanced micro machining applications, including cutting, welding, drilling and marking. Combined with our long experience this insures that we can help you find the right solution to build your laser processing system. Our breadth of experience in industrial and academic applications for these lasers is unrivalled.

AMS Technologies provides diverse solutions for industrial applications, ranging from gas control systems, to disk storage manufacture and onto control systems for lasers or for glass manufacture, to name but a few. Therefore our specialists possess a wide range of interdisciplinary skills that they can deploy to provide the most appropriate solution to your problems. The market requires robust cost-effective solutions, and we consult closely with our customers to ensure that we meet their specific needs.

By adopting a consultative engineering approach, free of charge, AMS Technologies is able to understand what is really important for a specific application – size, thermal performance, power level, precise control, reliability, robustness, quality, lifetime, price, or a combination thereof, and then propose the best solution. There are also problems for which there might not be an ideal off-the-shelf solution, as these push the performance boundaries of available products and systems. In such cases, AMS Technologies will work with the customer and our partners to develop an appropriate tailored solution.



Laser Systems for Industry & Scientific Applications

■ Solid State Laser Systems

AMS Technologies' Laser Systems are developed for industrial applications primarily for use in the materials processing and microelectronics markets for flat panel displays, microelectronics, automotive and aerospace sectors.

With a range of the Highest Average Power (kilowatt) DPSS lasers at 1064nm / 532nm and our new 355nm lasers, AMS Technologies addresses a wide range of industrial laser systems for materials processing applications.

Our applications support, as in customer sample runs, collaborations and development work remains the focus for all improvements on our diode pumped solid state Nd:YAG lasers.

We also offer a broad range of low power CW Solid State (DPSS) lasers, suited for R&D and OEM applications in metrology, instrumentation, etc.

- 1064 nm DPSS Infra-Red Laser System
- 532 nm DPSS Green Laser Systems
- 355 nm DPSS Ultra Violet Laser Systems
- Broad range of CW Solid State Lasers



■ Gas Laser Systems

AMS Technologies' high power CO₂ and Excimer lasers offer an unbeatable combination of laser performance, reliability, customer support and value. Our breadth of experience in industrial and academic applications for these lasers is unrivalled. In addition, we provide comprehensive support including installation, service, spare parts and training to new and existing customers.

Our range of gas lasers also includes Ion laser systems, used in both scientific and industrial applications, for instance Fiber Gragg Grating exposure.

- Visible Gas Ion Lasers (Ar and Kr)
- Deep UV Gas Ion Lasers
- High Power Industrial Pulsed CO₂ Lasers
- High Power or High Energy Excimer Lasers
- High Duty Cycle Excimer Lasers
- High Energy Ultra Short Pulse TEA CO₂ Lasers



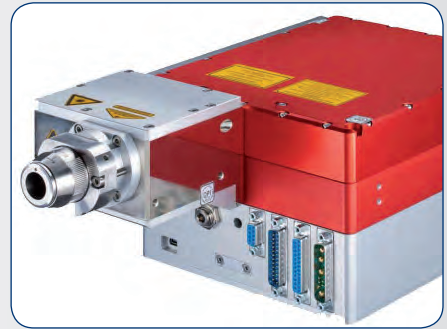
■ Diode Laser Systems

AMS Technologies specializes in high performance semiconductor laser components as well as subsystems. The laser diodes we provide, offer highest performance and reliability.

We supply single emitter diodes, as well as Bars & Stacks, so power can range up to hundreds of Watts. Most of the available laser diodes can also be supplied as fiber coupled for ease of use and easier integration.

We have a range of suppliers of laser diodes that can cover a broad range of wavelength's, including 808, 915, 980, 1064, 1470 etc. This means we have diode lasers that are suited for a wide range of applications, such as Medical, Laser & Fiber Pumping, Measurement & Instrumentation, High intensity Illumination, Material processing etc.

We also offers advanced Laser Diode Management Systems and Power Supplies to operate Diode Lasers in an efficient and safe way.



- CW and Modulated Diode Laser System
- Multi wavelength Diode Laser Systems
- Fiber delivered Diode Laser Systems
- Compact Laser Diode Modules
- Laser Diode Management System

■ Fiber Laser Systems

Ultrafast Fiber lasers, including picosecond lasers, femtosecond lasers and Supercontinuum sources are the focus of AMS Technologies.

These ultrafast fiber lasers provide very high peak power and ultrashort pulse duration, which combine to provide access to new realms of laser micromachining unachievable with other type of lasers.

Biophotonics applications such as fluorescence microscopy, imaging and spectroscopy are the primary applications for Supercontinuum sources.

The Supercontinuum sources can be optimized for different power levels, as well as different wavelength ranges. Optionally they can be equipped with a turnable filter for wavelength selection.

Medical therapy and ultrafast material processing are some typical applications of the high power and high energy picosecond and femtosecond fiber lasers.



- ps/fs High Power Ultrafast Fiber Laser
- ps/fs High Energy Ultrafast Fiber Laser
- Broadband Supercontinuum Sources
- High Power uv/green Hybrid Fiber Lasers
- CW, 10W Fiber laser

For further informations visit our website

www.amstechnologies.com/lasersystems

Laser Systems for Industry & Scientific Applications 05



■ Service and Maintenance

Factory trained and certified field service

AMS Technologies has a service group with skilled and experienced personnel dedicated to providing the highest quality customer service. We provide service for all type of lasers and electro-optic products that we sell. Our factory trained and certified field service engineers have many years of experience working on laser systems and electro-optic products..



AMS Technologies offers several different Service Agreements to keep your product at peak performance without undue disruption. We offer these Service Packages to simplify your selection:

■ AdvancedCare

This is a service package, suitable for users that are looking for fast service response. We guarantee a service response time within 96 hours.

■ PremiumCare

A service package suitable for customers who are looking for high productivity. We have focused on education and preventive maintenance in this package.

■ ValueCare

For customers that are looking for low operating cost, this is the ideal service package. The package includes a 15 per cent discount on all spare parts, expendable parts and accessories.

■ IndustrialCare

This service package is tailor-made for industrial customers who are looking for fast service response, high accessibility and low operating cost!

■ Accessories

- Laser Safety
- Drivers
- Controllers
- Fiber Accessories

AMS Technologies' portfolio comprises accessories for a broad range of products and applications. In line with our range of light sources, we supply ultra-stable, high precision drivers and controllers for laser diodes, diode laser modules, LEDs, SLEDs and flash-lamps. The controllers for laser diodes and diode laser modules are microprocessor-based and available as PCB versions, modules for OEM integration or complete stand-alone devices.

AMS Technologies provides a large variety of laser safety products for all kinds of laser applications, e.g. industrial, medical, as well as for R&D. The most appropriate laser safety product for the customer's individual application will be determined by calculation of the necessary protection ratings based on the laser data and according to the current laser safety legislation.

Motion controllers for motorised control of stages and positioners and drivers for piezo actuators complete the product range.

- Fiber Optic Cleaning Tools
- Power Meters



An assortment of different cleaning tools is available for the end-faces and ferrules of fiber optic connectors, as well as for the end-faces of plugged connectors through an adapter. These cleaning tools feature a special microfiber tissue that removes and secures all contaminations.



■ Cooling Solutions for Industry & Scientific Laser Applications

■ Air Cooling

■ Liquid Cooling

■ Thermal Design Consultancy

AMS Technologies offers the entire range of laser cooling solutions including a variety of heat sinks for actively and passively cooled light sources, the full range of recirculating chillers from 150 W to 90 kW as well as cabinet cooling for laser equipment.

Effective heat sinking at the light source allows for higher light output, improves the ecological footprint as it reduces the chiller cooling demand and/or increases the lasers operational range without condensation to occur. For the most challenging actively cooled laser diodes AMS Technologies offers micro channel heat sinks for single or two phase flow heat transfer for up to 300 W per diode. For passively cooled light sources standard and customized peltier cooling solutions for single light sources as well as highly efficient fluid channel designs for whole arrays of laser diodes are available.

The range of recirculating chillers includes thermoelectric and compressor based chillers.

Thermoelectric chillers are the ideal solution when excellent temperature stability is needed and/or cooling capacity needs vary from very few up to a few hundreds of Watts. Peltier technology is known to lend itself for most accurate temperature control, but also for its poor efficiency when driven hard. AMS Technologies thermoelectric chillers utilize a voltage source control such that its peltier modules do not consume any energy when in idle mode and are still fairly efficient when driven moderately. Very quiet and/or vibration free operation are optional features to be highlighted for laser applications.

Compressor based chillers are available from 300 W to 20 kW of cooling capacity. They are designed to guarantee trouble-free operation of laser equipment. A variety of monitoring and safety options, pump options, rackmount and standalone chassis models, typical temperature stability of $\pm 0.1^{\circ}\text{C}$, low noise and low vibration options and design for de-ionised water are some of the important features. Apart from the wide range of configurable chillers AMS Technologies also offers the design of customized OEM chillers to fit special space constraints or other requirements.

Laser equipment inside hermetically sealed enclosures for outdoor use typically requires temperature control. AMS Technologies offers standard and customized heat pipe, thermoelectric and compressor based cabinet coolers.

For bulk heat removal stainless steel heat exchangers or HX pump systems are available.

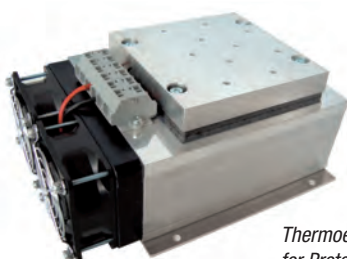
AMS Technologies offers thermal design services. The expertise of our mechanical engineers in laser cooling solutions and our thermal management tools such as computational fluid dynamics and special dimensioning software for thermoelectric assemblies, heat sinks and heat exchangers are put to work for our customers applications.



Compact Air-Cooled Liquid Recirculating Chiller OASIS



The E Series Air-Water Chiller 300 W has been designed to meet the new requirements of passively cooled laser systems



Thermoelectric Cooling Assemblies for Prototyping and Testing

Kodiak® Recirculating Chillers with Cooling Capacities of 825 W - 95 kW





amsTECHNOLOGIES

where technologies meet solutions

enabling your ideas.

Optical, Power and Thermal Management Technologies

■ GERMANY

AMS Technologies AG
Fraunhoferstr. 22
82152 Martinsried, Germany
Phone +49 (0)89 895 77 0

■ FRANCE

AMS Technologies S.A.R.L.
1, ave. de l'Atlantique Courtaboeuf
91976 Les Ulis, France
Phone +33 (0)1 64 86 46 00

■ ITALY

AMS Technologies S.r.l.
Corso Sempione, 215/B
20025 Legnano (MI), Italy
Phone +39 0331 596 693

■ POLAND

AMS Technologies Sp. z o.o.
Mogilska 69 St, Floor 2
31-545 Krakow, Poland
Phone +48 (0)12 346 24 16

■ SPAIN

AMS Technologies S.L.
C/Muntaner, 200 Atico, 4a
08036 Barcelona, Spain
Phone +34 (0) 93 380 84 20

■ SWEDEN

AMS Technologies Nordic
Aspect Photonics AB
Aminogatan 34
43153 Mölndal, Sweden
Phone +46 (0)8 55 44 24 80

■ UNITED KINGDOM

AMS Technologies Ltd.
Unit 11, St Johns Business Park
Lutterworth
Leicestershire LE17 4HB, UK
Phone +44 (0)1455 556360



info@amstechnologies.com

www.amstechnologies.com