About us

[aμs] advanced microoptic systems gmbh was founded early 1996 in Saarbruecken, Germany.

The company has at its nucleous a highly respected and experienced technical staff.

Joining today's world-class leaders in microoptics are the scientists and technicians in the [aμs] advanced microoptic systems gmbh, a team of nearly 20 experienced specialists with extensive experience in microstructuring fused silica, optical glass and plastics. Their sophisticated design and manufacturing equipment is housed in the 800m² facility including 250m² of clean rooms. Through their unique state-of-the-art microoptical components, refractive microlenses and microlens arrays, the [aμs] specialists can manipulate a beam of light to create a specific beam cross-section or a specific intensity distribution. These components are utilized for collimation, focusing, homogenizing, beam splitting, imaging, etc.

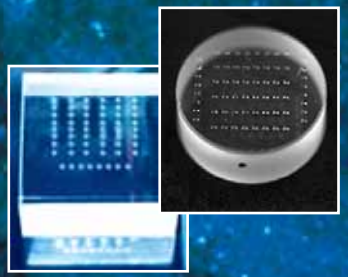
Refractive microlenses and lenslet arrays appeal to the OEM customers for a wide range of applications which include diode laser collimation, laser-fibre coupling, optical switching, multiplexing and beam bundling for medical instruments, optosensorics, telecommunications, laser optics, measurement systems, machine vision, optical computing, 3D imaging, astronomy – all benefit from the cutting edge solutions that have made [aμs] advanced microoptic systems among the industrial leaders worldwide.

[aμs] is networking throughout Europe, North America and the Pacific Rim to provide its advanced products and services to a worldwide market. The product list of [aμs] is an ever expanding work in progress.

We can get you to your goal on time, on target and within budget. All with the finest and most advanced microoptics you've ever seen.

We supply our microoptics to more than 400 companies worldwide, among them

Agere Systems, Inc.
Asklepion Meditech AG
Carl Zeiss AG
Carl Zeiss GmbH
Eastman Kodak Company
GN Nettest (Photonetics)
Jenoptik L.O.S.
Jenoptik Laserdiode
Leica Microsystems GmbH
Lucent Technologies, Inc.
Philips
Royal Greenwich Observatory
Schwind GmbH & Co.KG
Sharp Laboratories
Spectra Physics



Our microoptics from Fused Silica

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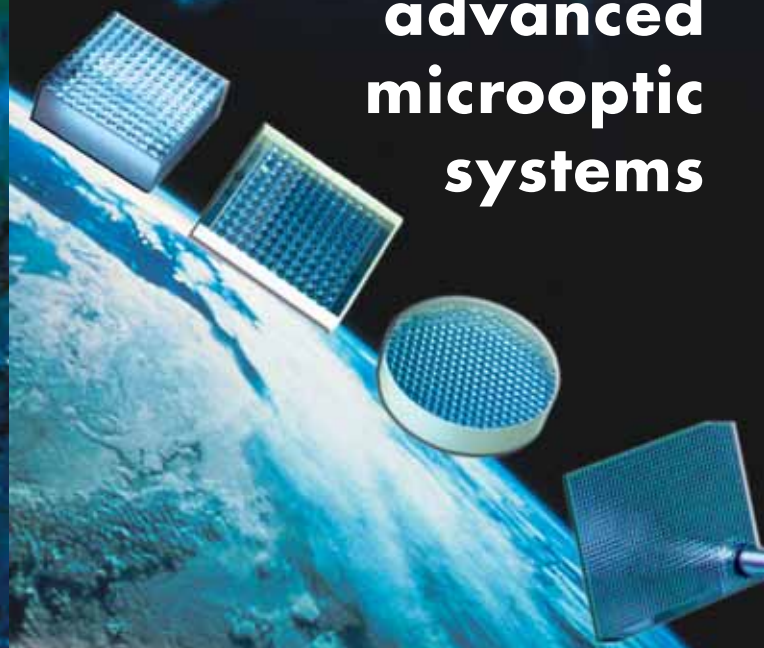
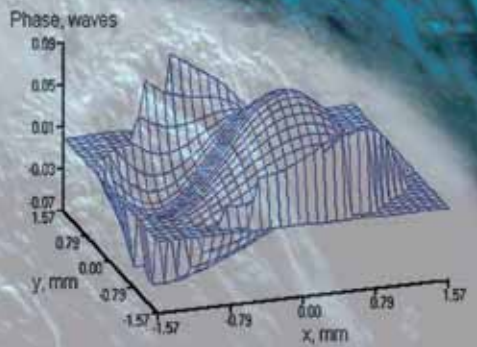
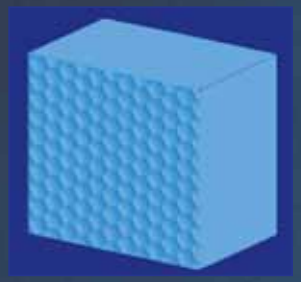
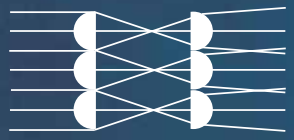
advanced microoptic systems



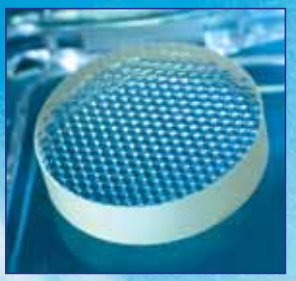


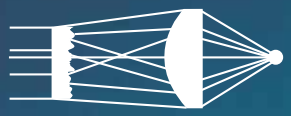




Flat-Top Generators

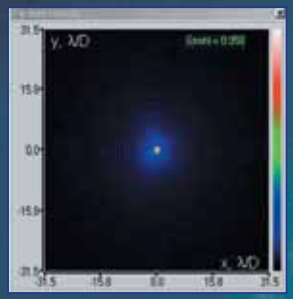
FT-Generator is a refractive single- or double-array laser beam transformer and homogenizer into the Flat Top.
Principle functioning of the FT is based on the laser beam transforming by an array of densely packed microlenses. Two arrays combined into one optical unit improve the uniformity of the intensity distribution (not worse than 5 %) in the generated spot. Single FT ensures 10 - 15 % of the intensity uniformity. The FT's basic optical data - divergency angle and spot form - are determined by the microlenses geometry.





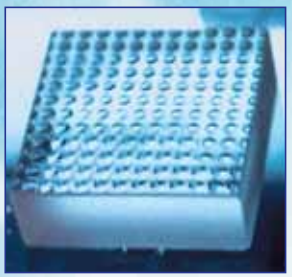
Gaussian generators

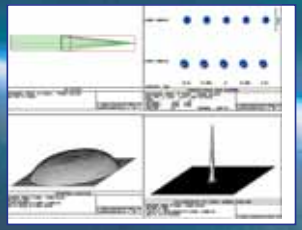
The LBH-G (Laser Beam Homogenizer - Gaussian) is a refractive microoptical element homogenizing the beam and transforming its intensity distribution into the Gaussian one, enabling the uniformity precision of more than 90 %.
Its principal effect is based on the occasional emittion mixture by numerous refractive microoptical elements. Contrary to the traditional diffusers it provides over 90 % effectiveness and divergency angles between 0.2° and 30°. The divergency angles are given for the collimated beam and pre-set wave length. The angle can be manufactured with the precision of a few %. The element can be applied for both laser and other lamp supported emitters. Being used within an optical system the LBH-G needs no carefull adjustment. Its transmission and beam stability correspond to those of the fused silica.

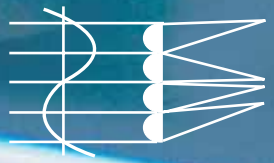


Transformers line & cross

TL(C) is a refractive single- or double-array laser beam transformer into the line/cross. Principle functioning of the TL(C) is based on the laser beam transforming by an array or arrays of cylindrical microlenses. The TL(C)'s basic parameter - divergency angle - is determined by the geometry of microlenses for given wavelength.
Available are generators for the spectral range of 193 nm - 3 µm. The optical transmission (without AR-coating): ~92 % for single-array transformers and over 85 % for double-array ones. The divergency angle of the standard single-array TL(C) makes 3 - 50°, the uniformity of the energy distribution along the line - not worse than 15%. The quality of the generated line can be improved (up to 5 %) by means of double-array units, available with the divergency angles from 1° to 60°.

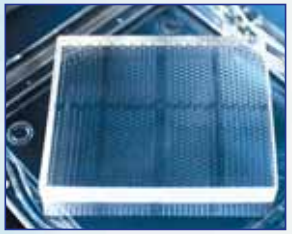


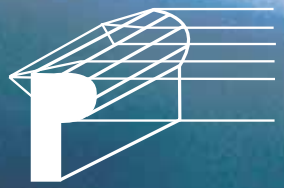




Shack-Hartmann & multibeam generators

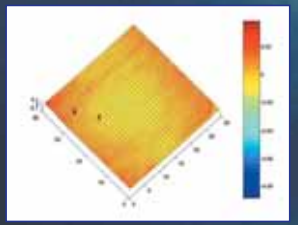
SH-MB is a refractive single- or double-array unit, splitting or focusing a laser beam into a number of beams.
Principle functioning of the SH-MB is based on splitting of the laser beam by an array of the densely packed microlenses with simultaneous focusing of each beam. The number of the beams resulted and their positioning are determined by the quantity of microlenses in each array and their packing type. Optical data - focus distance and focus spot size - are determined by the geometry of microlenses. SH-MBs are available with f/# between 1/10 and 1/100 for the spectral range of 193 nm - 3.0 µm. Optical transmission (without AR-coating): ~ 92 % for single-array SH-MBs and over 85 % for double-array ones.

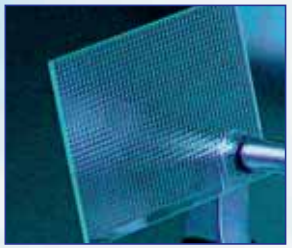




Cylindrical collimators

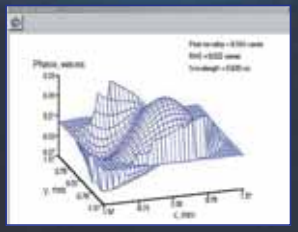
The microlens collimators CF(S) are the refractive microlens elements and/or arrays for the beam collimation of the single standing high-power diode lasers or diode laser stacs.
Available are collimators for the focusing of highly diverging (FWFM >30° -fast axis) and low diverging (slow axis) laser beams. The principle functioning of CF(S)s is based on the emittion focusing by means of a cylindrical lens with the aspherical surface. The optical data of the CF(S)s are being determined by the geometry and material of the microlens; achievable M2-value less 2; the optical transmission - up to 99%.

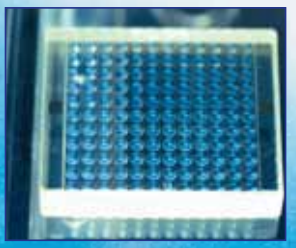




Single lenses and lense arrays

MPs are optically active structures or microstructures including step microstructures, fields, chains of single microlenses, binary diffractional two- or three-order gratings, diffusion masks for laser marking, etc., all to be used for various purposes.
Fabricated in optical glass, fused silica or other materials, the MPs are designed for the spectral range of 193 nm - 11,0 µm and supply the following data: positioning accuracy of elements : +/- 0.5 µm; geometrical form precision: about l / 4,depth precision: 0.5 % (when depth up to 2 µm); 1 % (when depth up to 10 µm); 2 % (when depth up to 100 µm).





Screens and 3D-imaging

Microlens arrays for the projection imaging can be applied as optical elements of the projection screens. Sizing up to 7", they can provide the hexagonal, orthogonal or cylindrical arrangement, packing density – up to 100% and pitch between 15µm and 1000µm.
The positive array elements have been fabricated by polymerizing in a thin monomer layer onto the glass substrate providing the quality not worse than l/2l and can be used as the focusing elements for 3D-imaging systems.
Typical data: positioning accuracy: ±0.5µm; lens quality: l/2; dimensions: up to 7"; size of the microlens elements: 15µm - 1000µm; efficiency: 100%