

Focuslight Corporate Overview

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2025-11

Focuslight Overview

- Founded in 2007 by Dr. Victor X. Liu, headquartered in Xi'an, China.
- A fast-growing company that develops and manufactures:
 - **High-power diode laser components and materials** (Photon Generation)
 - **Laser optics components** (Photon Control)
 - **Photonics module and system solutions** (Application Solutions) focusing on optical communication, consumer electronics, pan-semiconductor, automotive, and medical and health applications.
- A **global photonics foundry** offering process development and manufacturing services to the global photonics community.
- Publicly listed in the Shanghai Stock Exchange (Ticker Symbol: 688167).



Milestones



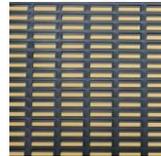
2007

Founding of Focuslight



2013

World's first monograph on packaging of HPDL published



2017

Technology breakthrough of gold-tin film deposition



2017

Acquisition of LIMO;
Started providing photon control and photonics application solutions



2018

Dongguan delivery and high-volume manufacturing center officially in operation



2018

UV-L750 Ultraviolet Line Laser System won Prism Award



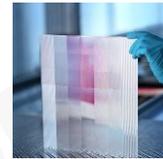
2019

Automotive LiDAR transmitter project awarded from international Tier 1



2019

Global branding identity upgrade



2019

Production of micro-optics on world's largest glass wafer (300 x 300 mm²)

IPO

2021

Successful IPO at Shanghai Stock Market



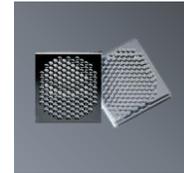
2023

Line Beam LiDAR Transmitter Module awarded nomination from European Tier 1



2024

Acquisition of SUSS MicroOptics



2025

MLA for automotive projection awarded nomination from European Tier 1



2024

Shaoguan Base officially in operation

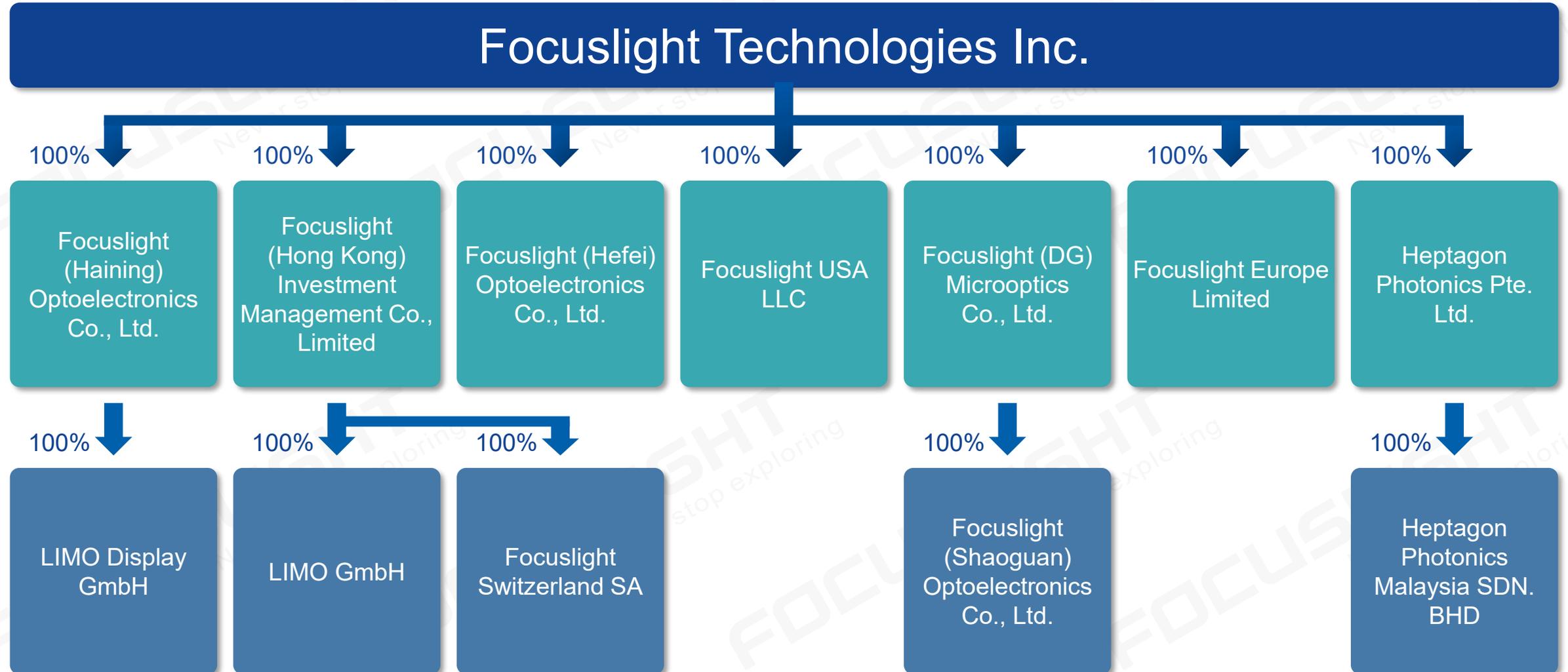


2024

Acquisition of ams OSRAM's optical component assets;

Relaunch of Heptagon brand

Focuslight Corporate and Subsidiaries



Focuslight Global Operations System

Leverage the strengths and capabilities of each location to cater to specific customer demands and optimize operational efficiency.

Through centralized decision-making, integrated operations, and lean management, a high-efficiency, low-cost global operations system is established.



Further Expanding Flexibility

- **Strong International Presence:** Focuslight has strong presences in China, Germany, Switzerland, Singapore, and other global regions. We can leverage our existing manufacturing capabilities in these locations to meet customer demand efficiently.
- **Flexibility in Manufacturing:** As demand grows, we are exploring additional manufacturing capacity in Malaysia to complement our global operations. This flexibility allows us to adapt to the evolving needs of customers worldwide.



In a world of evolving market dynamics, we provide the solutions you need to stay ahead – flexible, efficient, and forward-thinking.

Key Facts & Figures



Employees

>900



Revenue Proportion
Invested into R&D (2025H1)

~24%



Yearly Revenue
(2024)

620M RMB



Patents Valid
Worldwide

>560



Facility Worldwide

>49,000m²

Clean Room Worldwide

>17,000m²



ISO 9001
ISO 14001
ISO 45001
IATF 16949
Certified

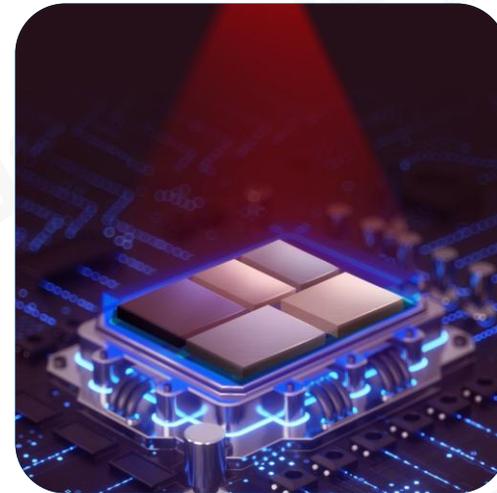
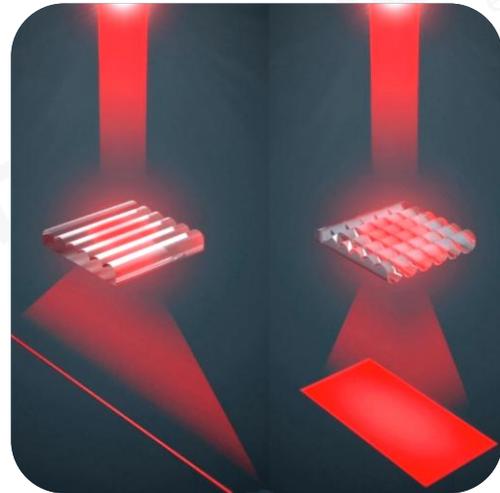
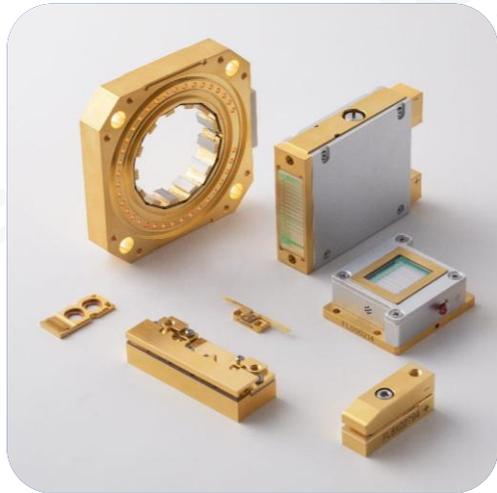
Corporate Management Team

| | | | |
|--|---|---|--|
|  | <p>Dr. Xingsheng Liu (Victor) Chairman, CEO</p> <p>Research and management experience in the US, with 100+ publications, 300+ patents, 30+ invited papers internationally</p> <p>Committee Member of SPIE and IEEE</p> <p>  </p> |  | <p>Dr. Chung-En Zah CTO</p> <p>30+ years of research experience in the US, with 300+ publications, 50+ patents in optoelectronics and telecommunication</p> <p>IEEE Fellow, OSA Fellow, 2x R&D 100 award winner</p> <p>  </p> |
|  | <p>Mr. Sinclair Vass Corporate SVP of International Sales & Business Development</p> <p>35+ years experience in international photonics markets, having held technical, commercial and general management leadership roles at major multinational companies</p> <p>   </p> |  | <p>Mr. Guowei Zhu (Gavin) Corporate VP of Quality, President of Automotive BU</p> <p>20+ years in international automotive companies, rich experience in IATF QMS and plant operations management by World Class Manufacturing (WCM) & Lean manufacturing</p> <p>  </p> |
|  | <p>Mr. Tan Chee Huo (Michael) Corporate SVP of Business Process and IT</p> <p>25+ years in IT leadership, specializes in digital business transformation, global project management, multicultural team leadership in fast-paced international industries, and strategic decision-making</p> <p>   </p> |  | <p>Mr. Ye Dai (Robert) Corporate VP of Global Sales</p> <p>Excellent track record in worldwide sales, product line and business unit management leadership roles</p> <p>20+ patents granted</p> <p> </p> |
|  | <p>Ms. Yiping Ye (Alison) Board Director, CFO</p> <p>Over 15 years management experience and multi-field business practices</p> <p>In-depth understanding in LTC, IPD, intercultural cooperation and rich operational experience in market development, project operation and business management</p> <p> </p> |  | <p>Mr. Qichuan Yu Chief Product/Process Officer</p> <p>Over 25 years of experience in wafer-level optics, optical sensor and camera packaging, SAW/BAW filter R&D, and NPD execution, with a strong focus on mastering, tooling, and wafer-level processes</p> <p>   </p> |

Corporate Management Team

| | | |
|--|---|--|
|  <p>Ms. Xuefeng Zhang (Jennifer) Board Director, Board Secretary, Marketing Director</p> <p>14 years photonics industry international business experience, in-depth understanding and rich experience in sales, marketing and business development</p>   |  <p>Mr. Hong Wang Corporate R&D Director</p> <p>PhD in physics and Master in computer science. 20+ years in quantitative analytics, capital market risk modeling and architecting. Expert in building analytic infrastructure and system. Rich experience in multinational team management.</p>    |  <p>Mr. Lucas Zhang Global Operations Vice President</p> <p>20 years of global supply chain management experience at multiple Fortune 500 companies, with strong expertise in supply chain planning and management within the consumer electronics industry</p>    |
|  <p>Mr. Jinchao Qu President of Laser Source BU, President of Medical & Health BU</p> <p>Extensive years of product marketing and sales management experience</p> <p>Outstanding track record in previous roles as Asia Sales Director and Head of the Application Systems Special Task Force</p>   |  <p>Mr. Dirk Walter Bogs President of Laser Optics BU</p> <p>Over 25 years' experience in ultra-precision tooling, optic manufacturing, engineering & project management, and operational management</p> <p>Very deep knowledge of technology development and optimization</p>  <p>A Focuslight Company</p> |  <p>Mr. Yong Tian (York) VP of Laser Optics BU</p> <p>20+ years of operation & R&D management, very deep knowledge with organic optical materials and optical coating technology, published SCI articles and owns patented technologies. Experienced in Lean Manufacturing & Industry 4.0</p>   |
|  <p>Mr. Weiyi Gu President of Pan-Semiconductor Solutions BU</p> <p>12 years experience in photonics R&D and product management, with rich track records of leaderships in developing and delivering system solutions for pan-semiconductor and industrial applications</p>  <p>Never stop exploring</p> |  <p>Dr. Tobias Senn President of Strategic Growth Division</p> <p>15+ years of experience in micro-optical component development for the consumer market. Expert in design for manufacturing and process development, with a strong focus on high-volume production and yield improvement</p>     <p>Helmholtz Zentrum Berlin</p> |  <p>Mr. Hongyuan Liu (Tom) President of Global Photonics Foundry BU</p> <p>20+ years in R&D and operations management, specializing in optical imaging and non-imaging system design, WLO process & integration, and optical component manufacturing. Proven track record in new product development and scaling high-volume production</p>     |

Products and Businesses



Photon
Generation



Photon
Control



Photonics
Application
Solutions

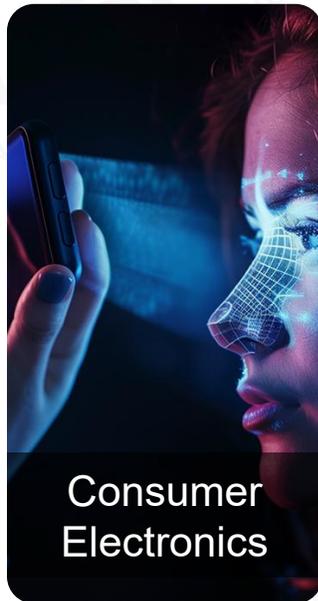


Global
Photonics
Foundry

Markets



7%
revenue



9%
revenue



21%
revenue



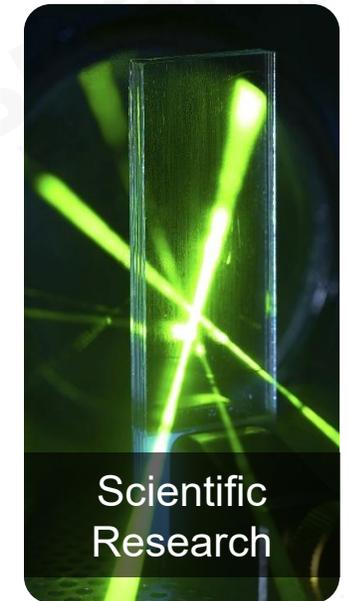
19%
revenue



12%
revenue



30%
revenue

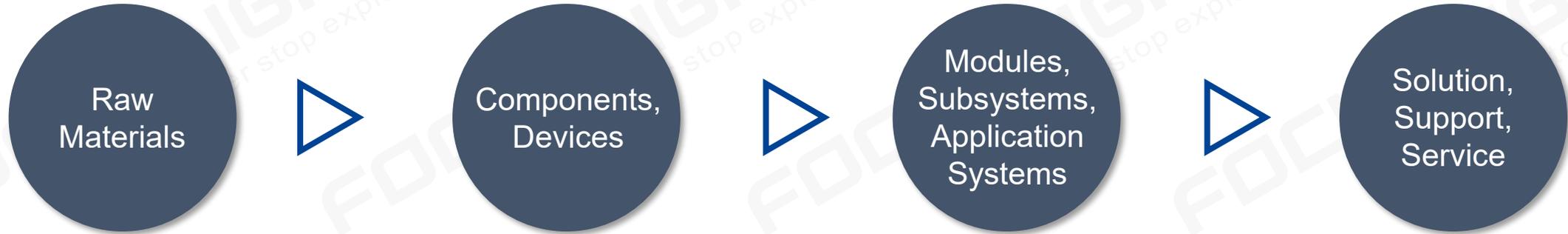


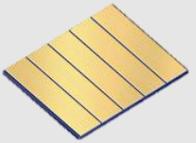
2%
revenue

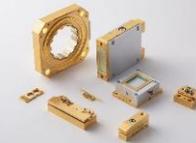
** Based on accumulated revenue data from 2025 Q1-Q3 (figures unaudited)*

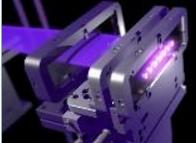
Value Proposition

Total Solution and Service in Full Value Chain



| | |
|---|---|
|  | Chips (Strategic collaboration with Suppliers) |
|  | Packaging Materials |
|  | Optics Substrate |

| | |
|---|------------------------------|
|  | Light Sources |
|  | Optical Components |
|  | Fiber Coupled Modules |

| | |
|---|---------------------------|
|  | Laser Subsystems |
|  | Optical Subsystems |
|  | Integrated Modules |

| | |
|---|------------------------------|
|  | Application Centers |
|  | Technical Support |
|  | Field Service Centers |

Industry Leader + Strong Financial Backing + Healthy Stable Company + Invest in the Future



Do what we do best

Offer the best value

Optimize to the extreme

Achieve the best performance / quality-to-price ratio

Commitment to Customers

- Lowest cost manufacturing for high volume products
- Willing to take technical risk, but request customer commit market share in return
- Willing to take investment risk in R&D and capital including M&A for customer but request customer commit market share in return
- Collaboration transparency, fast response, IP protection and long-term partnership



What we don't do

Take high market risk

Be greedy

Be too aggressive

Compete against our customers

Vision

FOCUSLIGHT
Never stop exploring

**To unlock the potential
of photonics to
enhance and enrich
people's life**



Mission

FOCUSLIGHT
Never stop exploring



Be the global trusted
photonics solution provider
through innovation,
operational excellence
and fast response

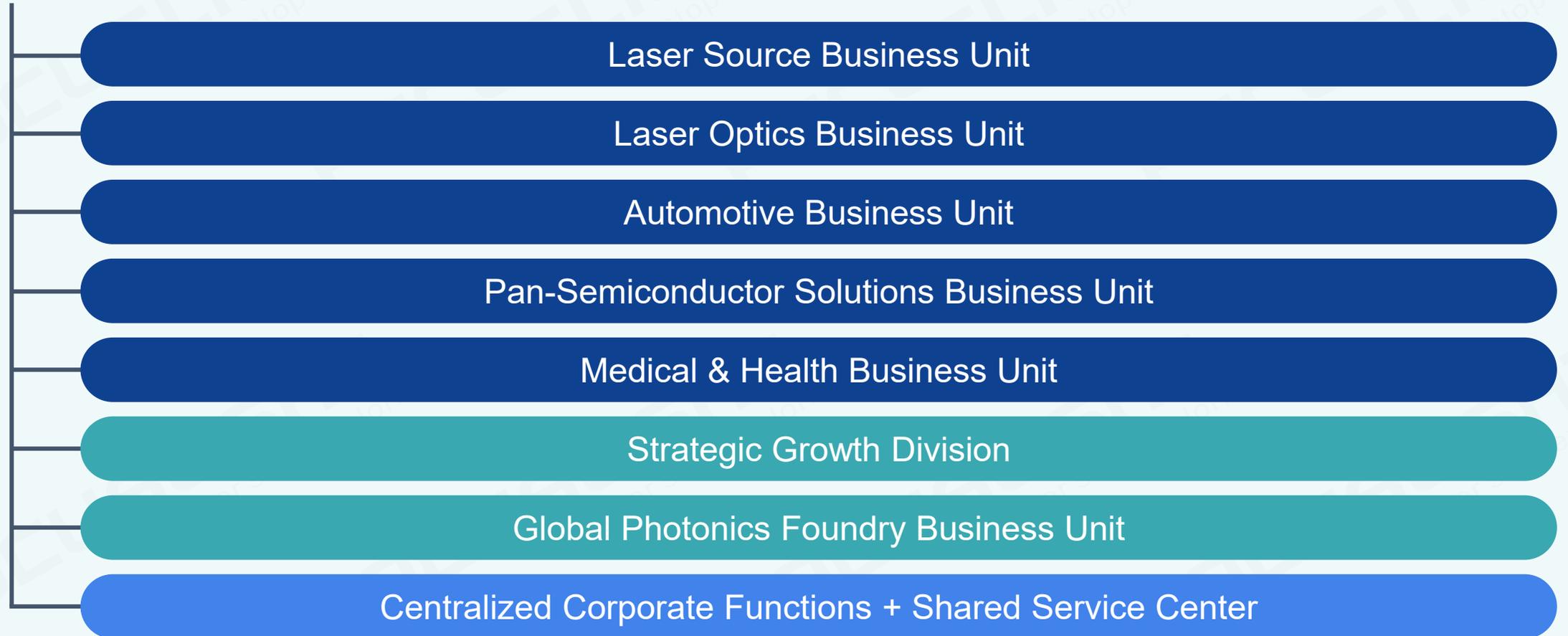
FOCUSLIGHT
Never stop exploring

The corporate/parent brand that offers innovation-driving photonics solutions, covering all available businesses except WLO, WLS, WLI, and related fields.

 **HEPTAGON**

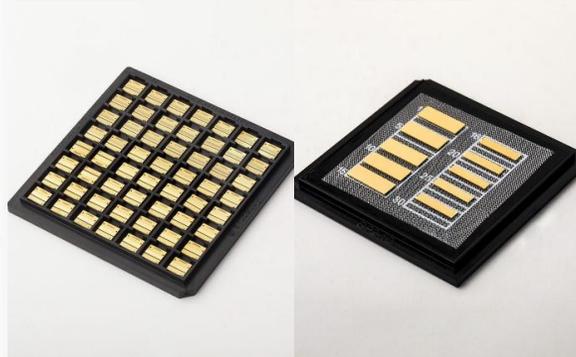
A brand focused on business around the technologies of WLO, WLS, WLI, and related fields, ultimately aiming for volume production.

Focuslight Technologies



Products – Diode Laser Components

Under Focuslight Brand



Advanced Materials

- AuSn Pre-Deposited AlN Ceramic Submounts
- AuSn Pre-Deposited CuW Submounts
- Thin Film Metallization Service



Active Devices

- Single Emitter Components
- Single Bar Components
- Micro-Channel Cooled Stacks
- Conduction Cooled Stacks
- Pumped Modules



Fiber Coupled Modules

- Emitter-Based FCM
- Bar-Based FCM



Professional Medical Application Components

- Laser Hair Removal Engines

Products – Laser Optics Components

Under Focuslight Brand

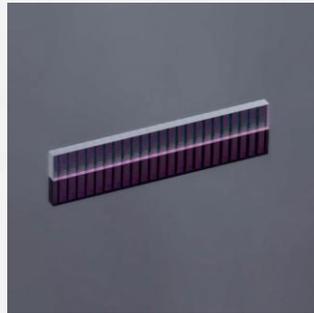
Single Lenses and Linear Lens Arrays



FAC



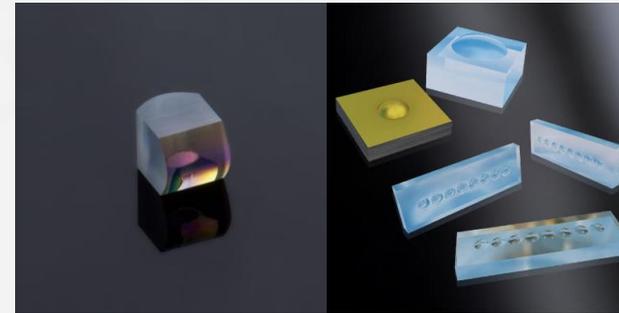
SAC



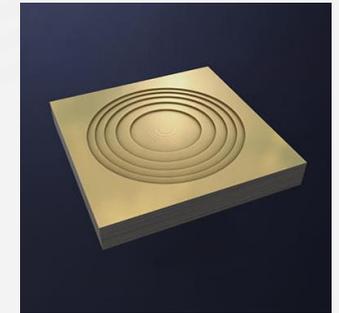
SAC array



BTS

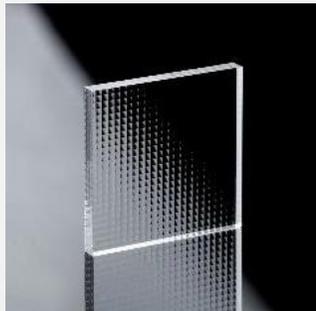


Fiber coupler and collimator

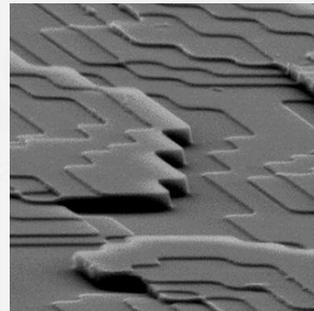


Collimating DOE

Area Lens Arrays



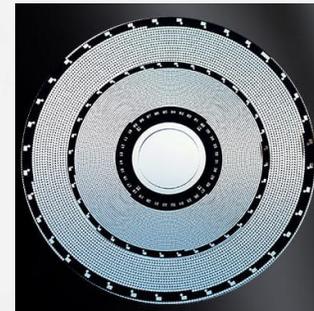
Homogenizer and
diffuser



DOE beam splitter,
dot or line generator

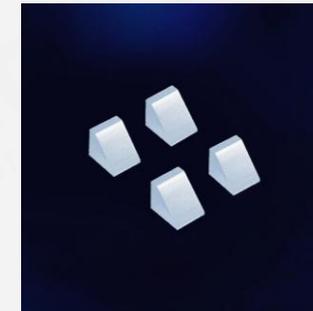


Shack-Hartmann
array

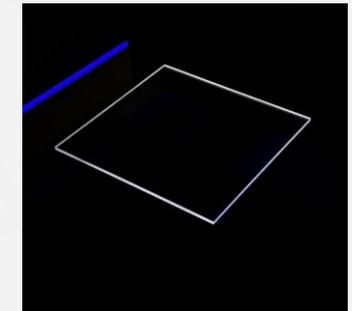


Pinhole array

Plano Optics and Coatings



Micro prism

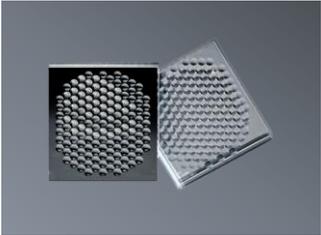


Window

Products – Automotive Application Solutions

Under Focuslight Brand

Projected Lighting

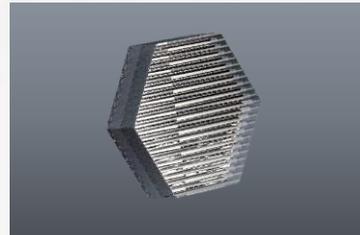


Microlens Arrays for Projection



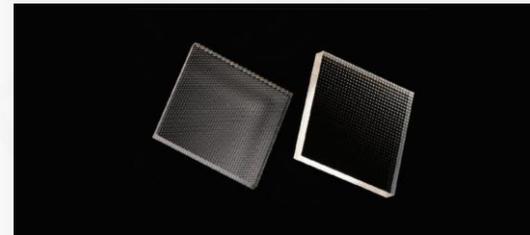
MLA-Based Dot Projectors

Smart Headlights



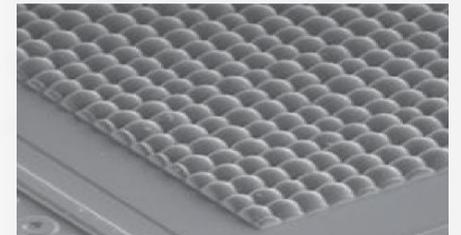
Microlens Arrays

Driver Monitoring System



Homogenizers / Diffusers for Illuminators

AR HUD



Homogenizers / Diffusers

LiDAR

EEL / VCSEL Based LiDAR Transmitter Modules



VCSEL Flash Transmitter 700W

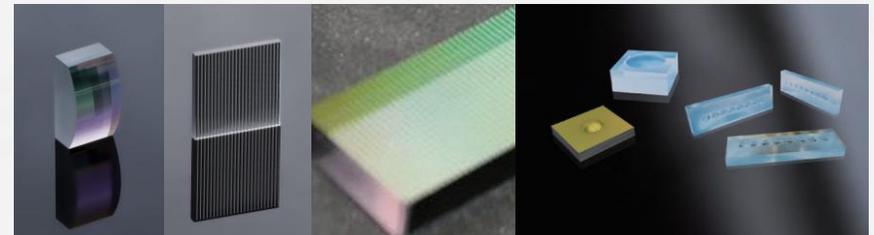


905nm 700W EEL Line Beam Transmitter



VCSEL Line Transmitter 1000W

Beam Shaping Optics



Fast Axis Collimators, Diffusers, Homogenizers, Collimators and Arrays in Glass, Polymer and Silicon

Products – Pan-Semiconductor Application Solutions

Under Focuslight Brand

Advanced Display Manufacturing



Solid-State Laser Lift-Off (LLO) System



Solid-State Laser Annealing (SLA) System



Variable Beam Laser System
(Mini and Micro LED Processing)

IC Manufacturing



IC Wafer Annealing System



Variable Beam Laser System
(Advanced Chip Packaging)

Industrial Solutions



IR Line System



Industrial Laser Module

Products – Medical and Health Application Solutions

Under Focuslight Brand

**Laser Hair Removal
Modules**



**Laser Skin Rejuvenation
Modules**



**Laser Body Sculpting
Modules**



Diode Laser Drivers



Products and Services – Based on WLO and WLS

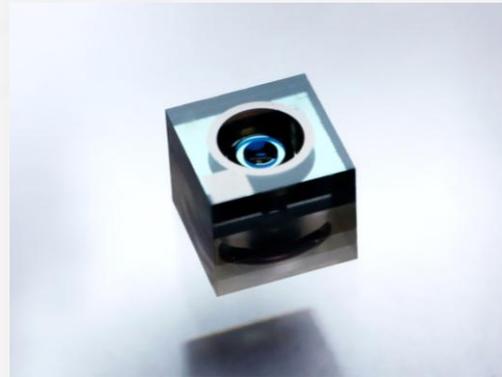
Under Heptagon Brand

Wafer-Level Optics



Micro lens arrays, diffusers, DOEs,
Fresnel lenses

Wafer-Level Lens Modules



Stacked imaging lens modules
compatible with CMOS

Sensor Module Packaging Service



Packaging service for sensor
modules

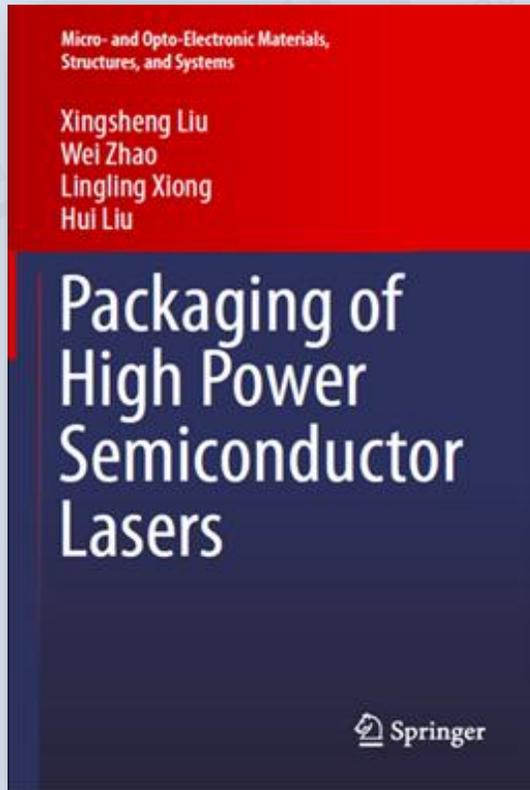
Semiconductor Foundry Service



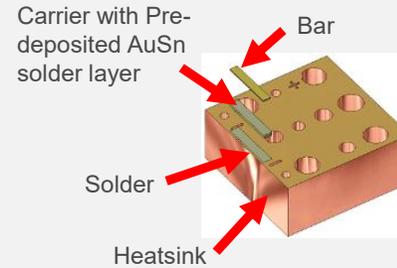
Imprinting of optical components or
lens modules on silicon wafers (e.g.,
for sensors, VCSELs, MicroLEDs)

Core Competence

Diode Laser



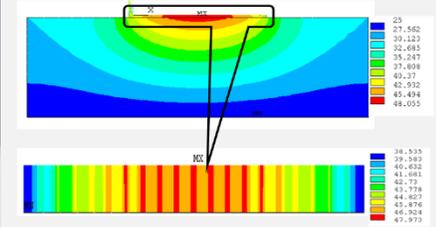
Eutectic Bonding



Significantly enhances thermal conductivity, reducing thermal stress, and thus improving the products' performance and lifetime

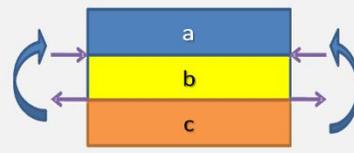
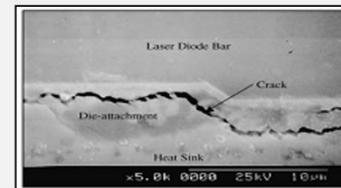
Thermal Management

Finite Element Thermal Analysis and Design



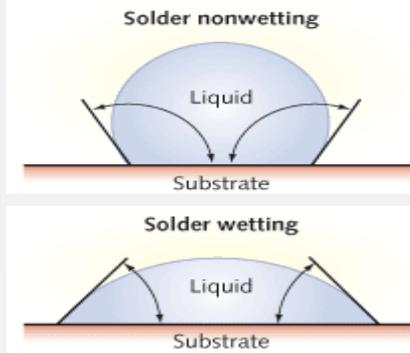
Effectively improves the ability of heat dissipation to ensure a higher output power

Thermal Stress Control



Lowers and homogenizes the thermal stress, and improve the device performance

Interface Materials and Surface Engineering

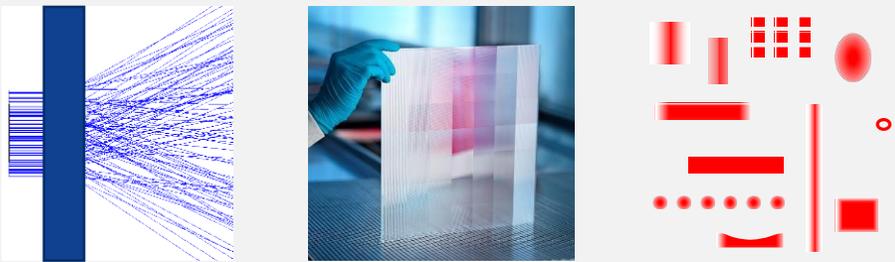


Greatly improves wettability and bonding strength of packaging materials, enhancing long-term reliability

Core Competence

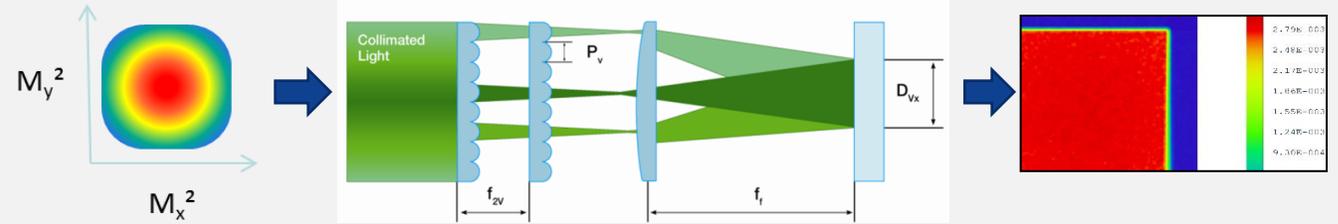
Beam Shaping – *The Right Photon at the Right Place and Time!*

Micro Optics Design and Simulation



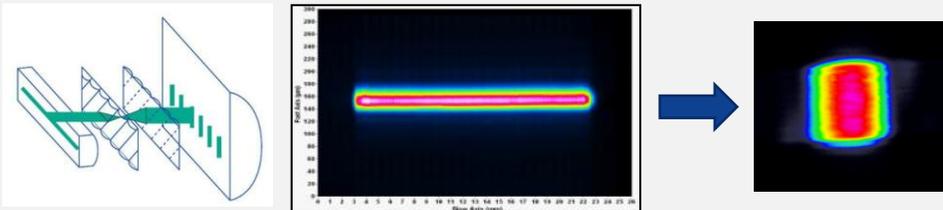
Acyindrical free-form micro-optics / arrays / diffusers / DOE splitters / beam shaping systems

Homogenization

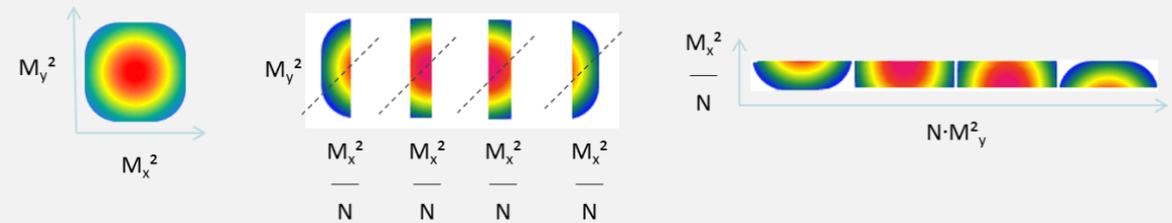


Uniform and homogeneous illumination in any desired shape

Beam Transformation



Asymmetrical → Symmetrical beam



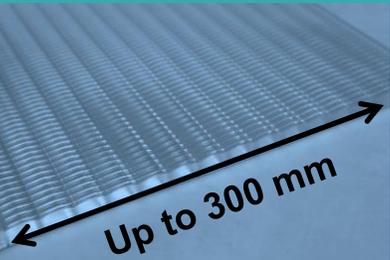
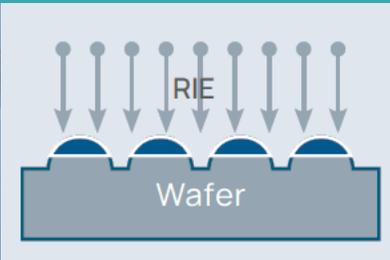
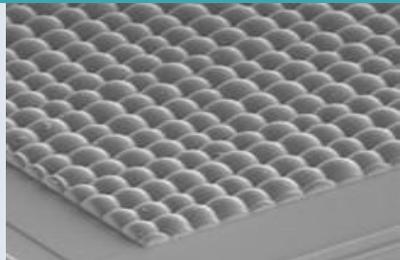
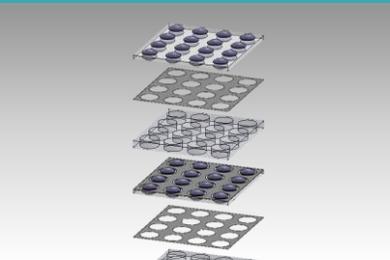
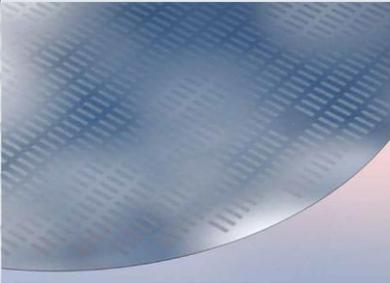
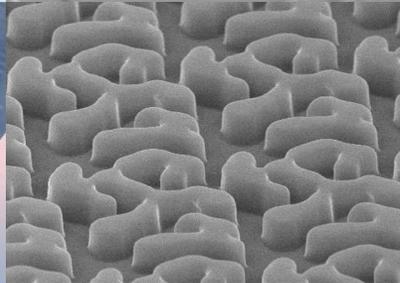
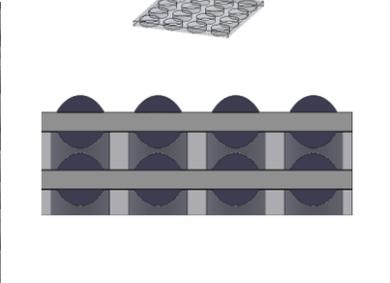
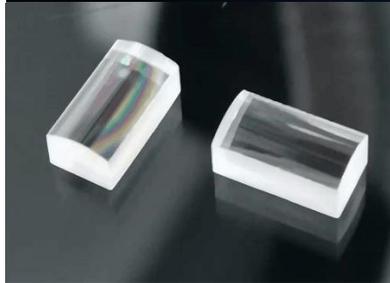
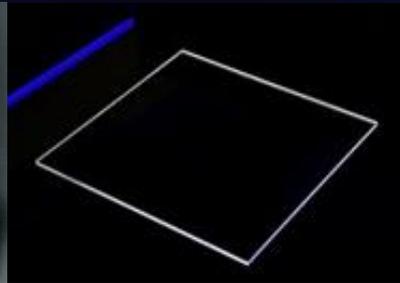
Symmetrical beam → High density line beam

Our UV-L750 System for Laser Lift-Off (LLO) was Prism Awards winner in 2018



Core Competence

Optics Manufacturing

| Wafer Level Simultaneous Structuring | Wafer Level Photolithography-RIE (reactive ion etching) | Wafer-Level Optics (WLO) Precision Imprinting | Wafer-Level Stacking (WLS) | Precision Glass Molding | Cold Processing |
|--|--|---|--|--|--|
| FE: Dortmund, Germany BE: Asia | FE: Neuchâtel, Switzerland BE: Asia | Shaoguan, China Singapore | Singapore | Dongguan, China | Dongguan, China |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| <p>With inorganic materials: Glass, Fused Silica, Silicon, CaF₂</p> | | <p>With polymer on glass</p> | | <p>With inorganic materials: Glass, Fused Silica, Silicon, CaF₂</p> | |
| <p>High LIDT Optical Coating: Anti-reflection, high-reflection, beam splitter, band filter, and various customization (UV, VIS, IR)</p> | | | | | |

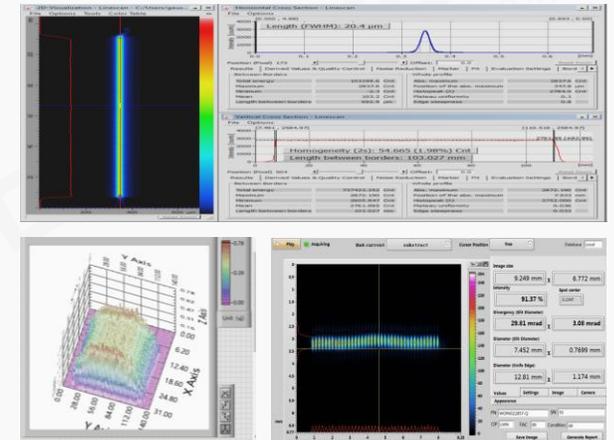
Core Competence

Test, Analysis and Diagnosis

Test and Characterization of High-Power Diode Laser

A comprehensive physical diagnostic model allows full characterization of a set of key parameters, such as:

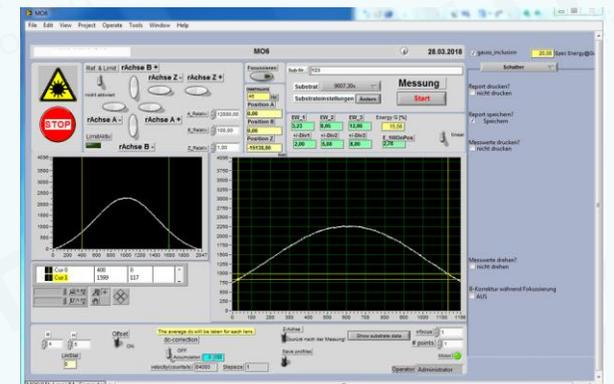
- LIV
- Spectrum
- Polarization
- Far-field / Near-field
- Spatial spectrum
- Spatial polarization
- Spatial beam profile
- Smile effect
- Lifetime



Metrology and Analysis of Optical Components

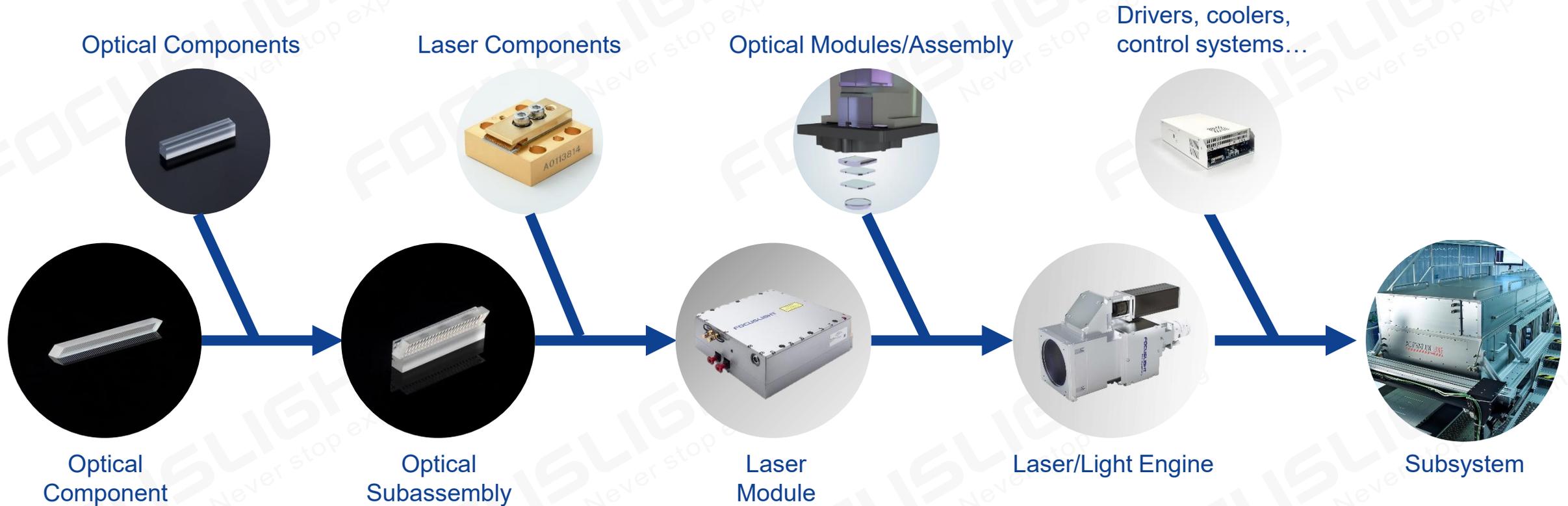
Wave optics models are used in conjunction with tactile surface measurements for precise analysis of optical functions such as:

- Focusing
- Collimation quality
- Beam uniformity



Core Competence

High Precision Optical Assembling Process and In-house Equipment: From Components to Subsystems



A Unified QM System in the Corporate Ensures Reliable and Premium Products

ISO9001 Certified Quality Management System (QMS)

ISO14001 Certified Environmental Management System (EMS)

IATF16949 Certified Automotive Quality Management System

ISO45001 Certified Occupational Health and Safety Management System

Failure Mode and Effect Analysis (FMEA)

Statistical Process Control (SPC)

Production Traceability Database

Control Plan (CP)



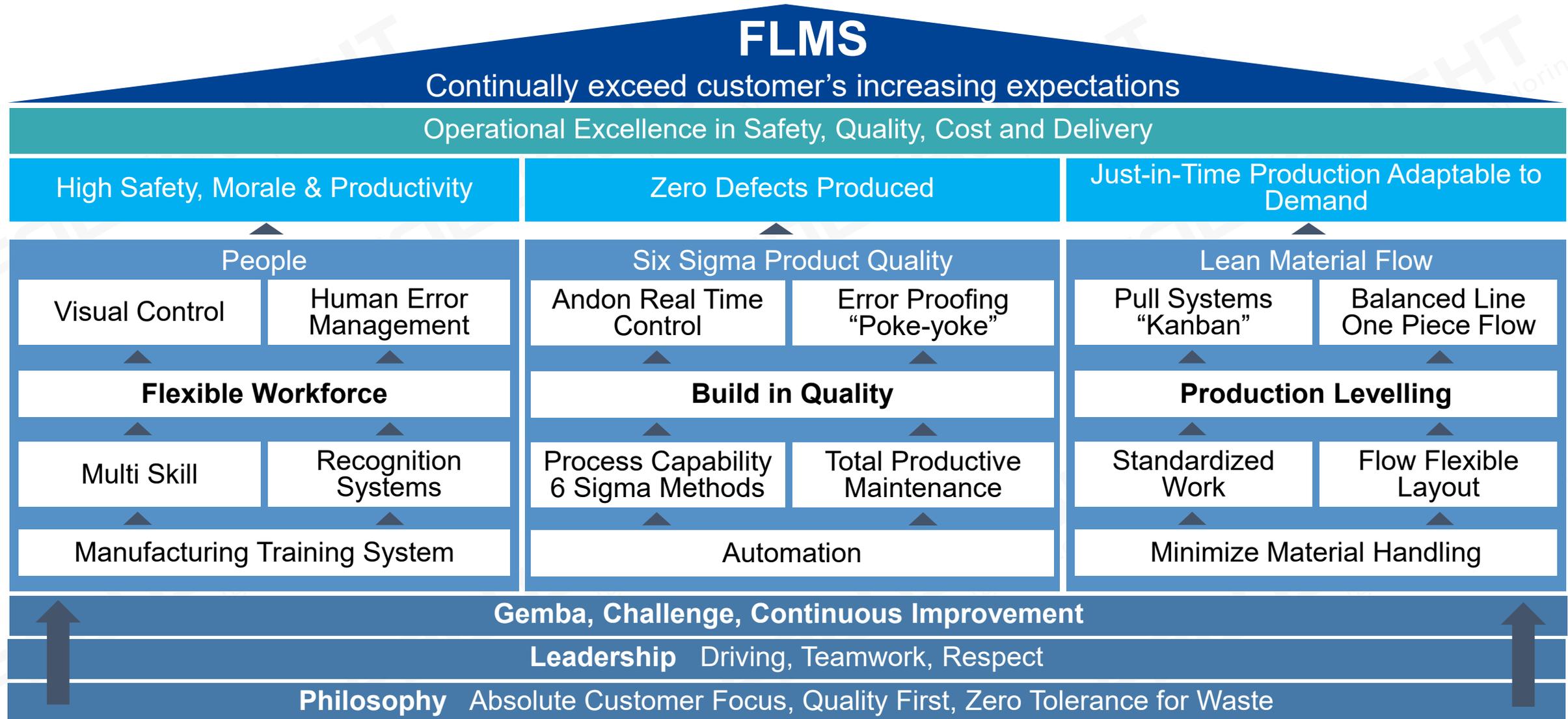
Quality Assurance System



Promotion of Consistent Quality Assurance Activities

| Quality Control System of Design | Quality Control System of Manufacture | | Quality Control Evaluation System |
|--|---|--|---|
| <ul style="list-style-type: none"> • QFD • Critical Characteristic, Special Characteristics • Tolerance Chain Design • FMEA, FTA • Design Validation • Design Review | <ul style="list-style-type: none"> • Parameter design • Process FMEA • Process Capability Study • Automatic Inspection, • Poka Yoke / Error Proof • Measurement System Analysis | <ul style="list-style-type: none"> • QA Network • Supplier Quality Management • Production Validation • Control Plan • QC Circles • Production Part Approval Process | <ul style="list-style-type: none"> • QC diagnosis • Quality assurance Meeting • Quality Auditing Improvement Meeting |

Focuslight Manufacturing System (FLMS)



Operational Excellence

- Apply the **lean manufacturing practices** to all production lines, including automotive, diode laser and laser optics business
- **Absolute customer focus, zero tolerance of waste, and continuous improvement** philosophy
- **Significantly reduced** cycle time, improved manufacturing efficiency, and lowered RMA yield and manufacturing cost.
- Adopting **automation and advanced production management system**
- **SOP** of the first LiDAR transmitter project with an international automotive tier 1 customer
- IATF 16949 certified and VDA 6.3 audited



Manufacturing Capacity

Advanced Materials

10+ years high-volume manufacturing experiences + self-owned core technologies

DPC production



Etching production



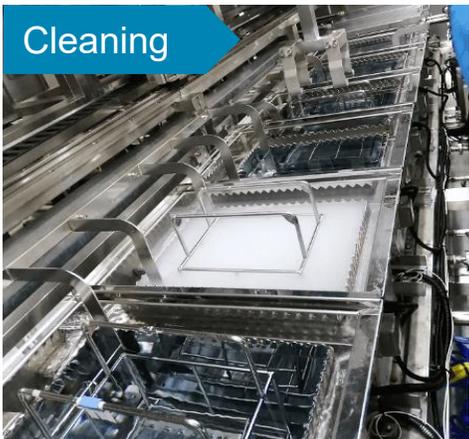
Au plating



Pattern production



Cleaning



AuSn deposition



Laser marking



Dicing



AOI inspection



Advanced Materials Manufacturing Capacity > 2M pcs / month

Manufacturing Capacity

Diode Laser Components

Packaging & Assembling



Optical Assembling



Testing & Measurement



Quality Inspection



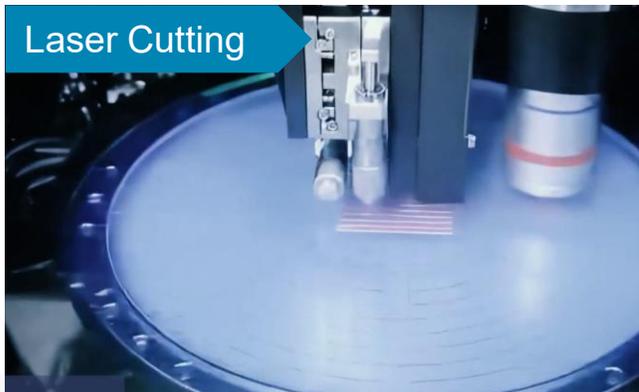
Burn-in & Lifetime Test



Diode Laser Manufacturing Capacity > 500K pcs / year
Burn-in Capacity 600K pcs / year

Manufacturing Capacity

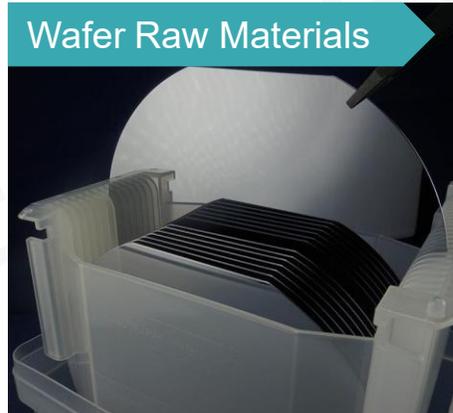
Laser Optics Components: Wafer-Level Simultaneous Structuring Processing



Wafer-Level Simultaneous Structuring Processing:
Manufacturing Capacity > 2K wafers / month or > 5M pcs lenses / month

Manufacturing Capacity

Laser Optics Components: Photolithography-Reactive-Ion-Etching Processing

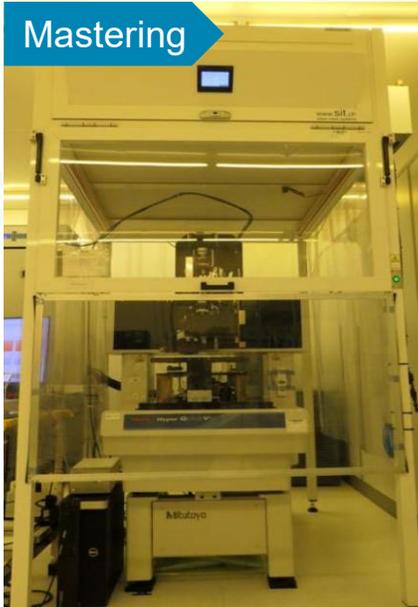


Photolithography-Reactive-Ion-Etching Processing:
Manufacturing Capacity > 300 wafers / month

Manufacturing Capacity

Laser Optics Components: Imprinting Processing

Mastering



Replication



Stacking



Testing



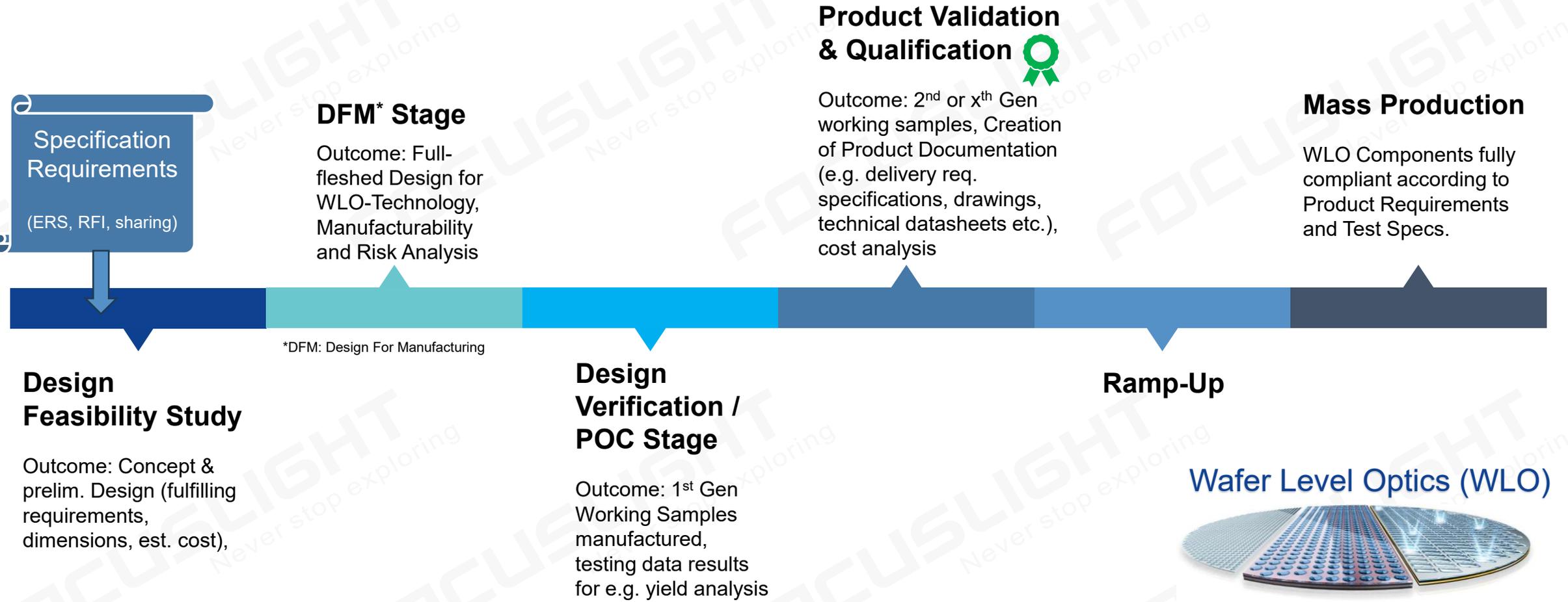
Singulation



Imprinting Processing:
Manufacturing Capacity > 15K wafers / year or > 30M pcs lenses / year

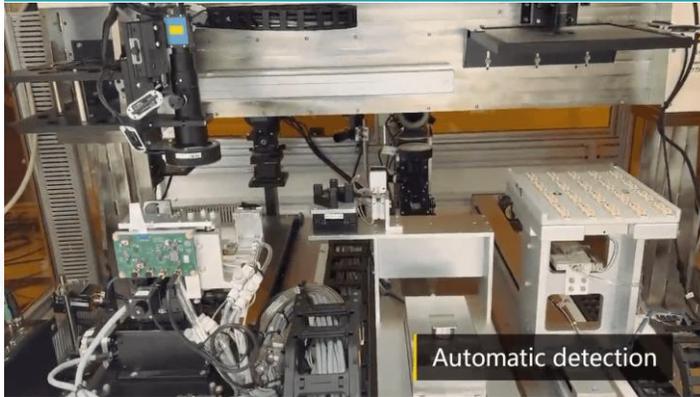
Global Photonics Foundry Services

From Concept to Mass Production

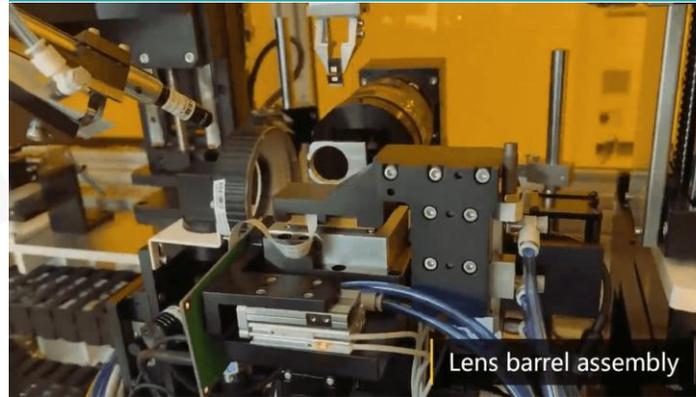


Automation Powered Operational Excellence

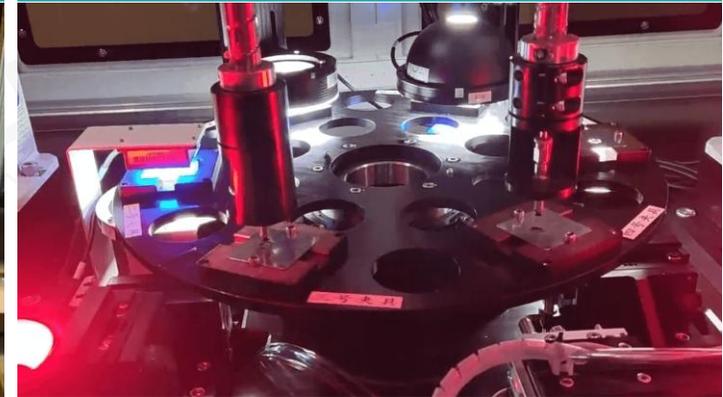
Automatic Optical Alignment



Automatic Assembly



Automated Optical Inspection



Laser Optics Production Line



LiDAR Transmitter Production Line

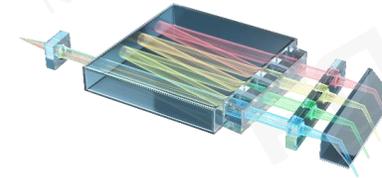
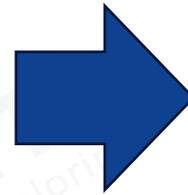
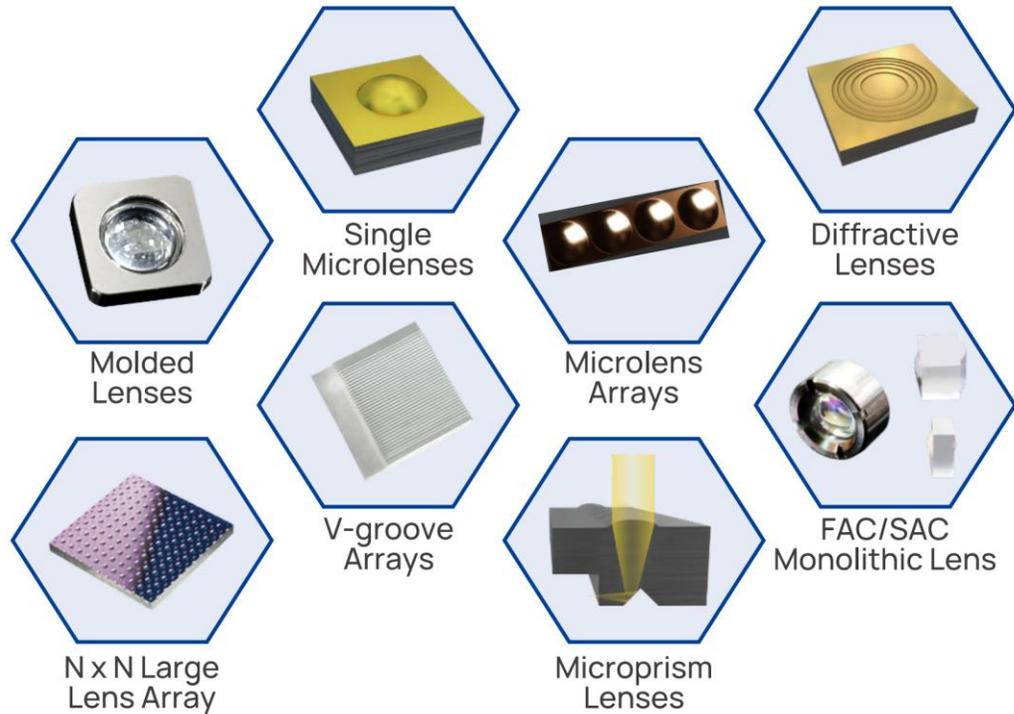


Video Link: <https://www.focuslight.com/news-events/newslst/focuslight-autonomation-powered-manufacturing-excellence/>

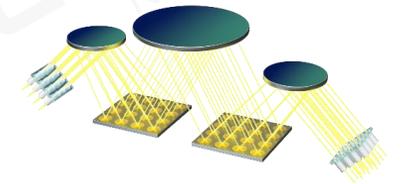
Typical Applications

Optical Communication

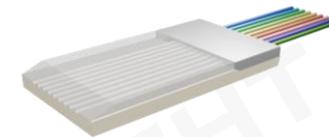
- High precision micro-optics are at the heart of optical communication systems.
- They support efficient data transfer between key optical components.



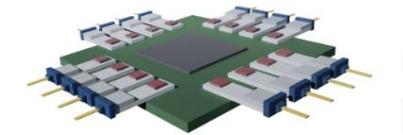
Optical Transceivers



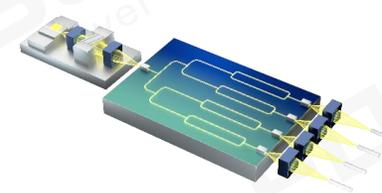
WSS / OCS



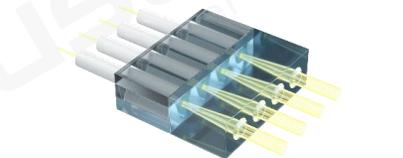
FAU



CPO



PIC



Fiber Connectors

Typical Application

Consumer Electronics



Optical Sensing, Empowering AR/VR and AI to See

Multi-aperture wafer-level optical lens for AR-Light Engine

Micro-optics Modules for Vis & NiR solutions with multiple FoV options

Wafer level stacking that is fully reflowable and thus mass manufacturable

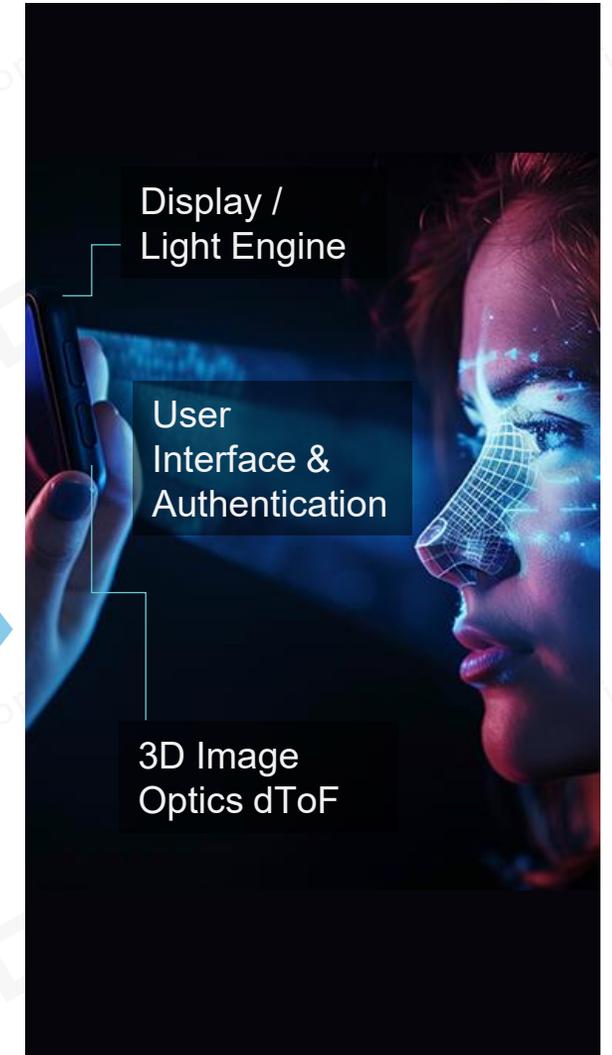
Leading thermal performance, ensuring simple thermal design

Face recognition, under-display face recognition

Complex micro dot projectors optics

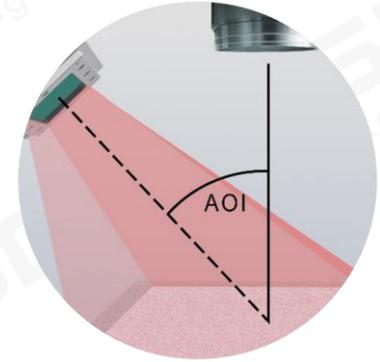
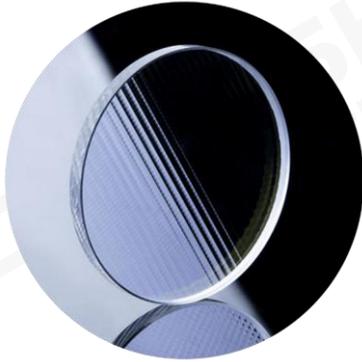
Multi-Zone 3D sensor solutions, including dToF, Proximity sensor optics

Leading thermal performance, ensuring simple thermal design



Typical Applications

Semiconductor



- Beam homogenization technology powers the illumination system – key optical component in **pan-semiconductor systems**
- > 15 years supply to the major manufacturer of semiconductor lithography tools

- Laser system solutions with high power density and different beam profiles, designed for various **laser-based wafer annealing processes** including IGBT backside annealing and SiC annealing

- Based on 976nm diode laser with adjustable beam output and >95% homogenization in energy distribution
- Ideal for **advanced chip packaging processes**, e.g. laser-assisted bonding

- Off-axis beam shaping technology powers laser surface treatment as well as surface inspection
- Typically used in **solar cell industry**

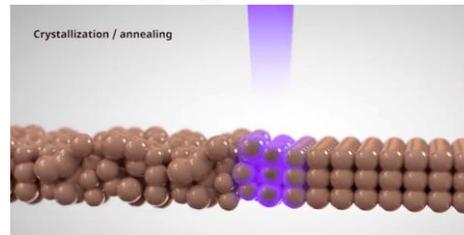
Typical Applications

Display

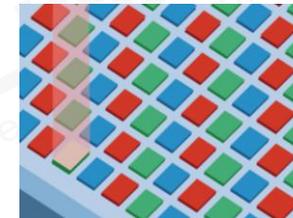
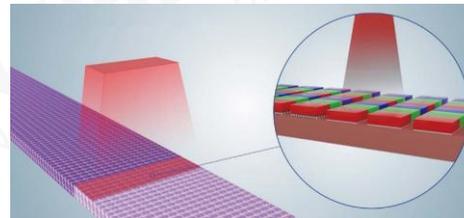


Solid-State Laser Lift-Off (LLO) for Flexible Displays

- Several tens of beam shapers (plasma display pixel structuring)
- Several green 100 mm line beam systems (laser lift-off)
- > 600 mm UV line beam production system (laser lift-off)



Next-gen LTPS Solid-state Laser Annealing Process



Mini and Micro LED Processing

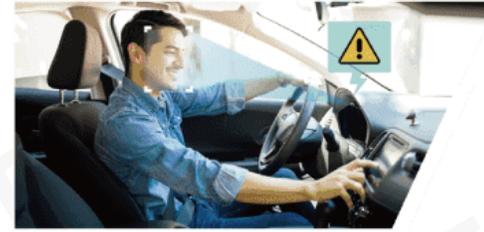
- Laser Mass Transfer and Laser Mass Soldering
- Laser Chip Repair

Typical Applications

Automotive



LiDAR



Driver Monitoring System



Smart Headlight



Projected Lighting



AR HUD



Optical Components



Laser Transmitter /
Illumination Modules



*Focuslight does not
produce LiDAR /
Lighting full system*

Typical Applications

Medical and Health



Hair Removal



Body Sculpting



Skin Rejuvenation



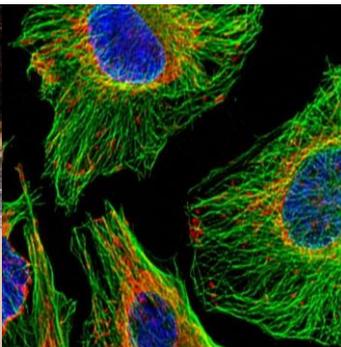
Ophthalmology



3D Interoral Scanning



Dermatology



Confocal Microscopy



Endoscopy



Sensing



Laser Surgery



Optical Components;
Laser Components



Optical Solutions;
Laser+Optics Assembly;
Application Handpiece



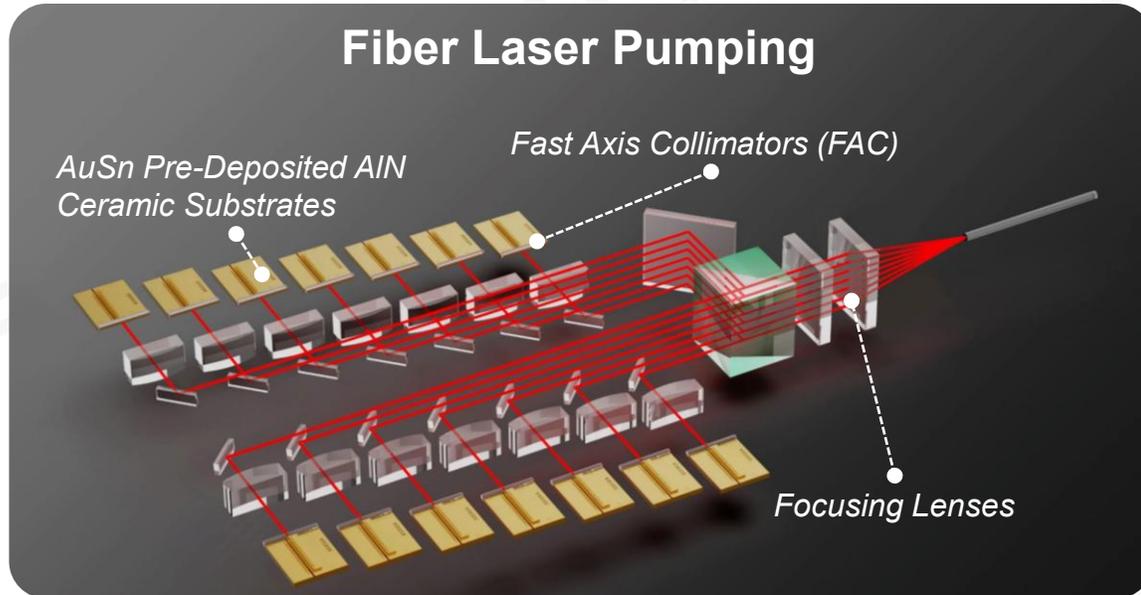
Contract Manufacturing
Services



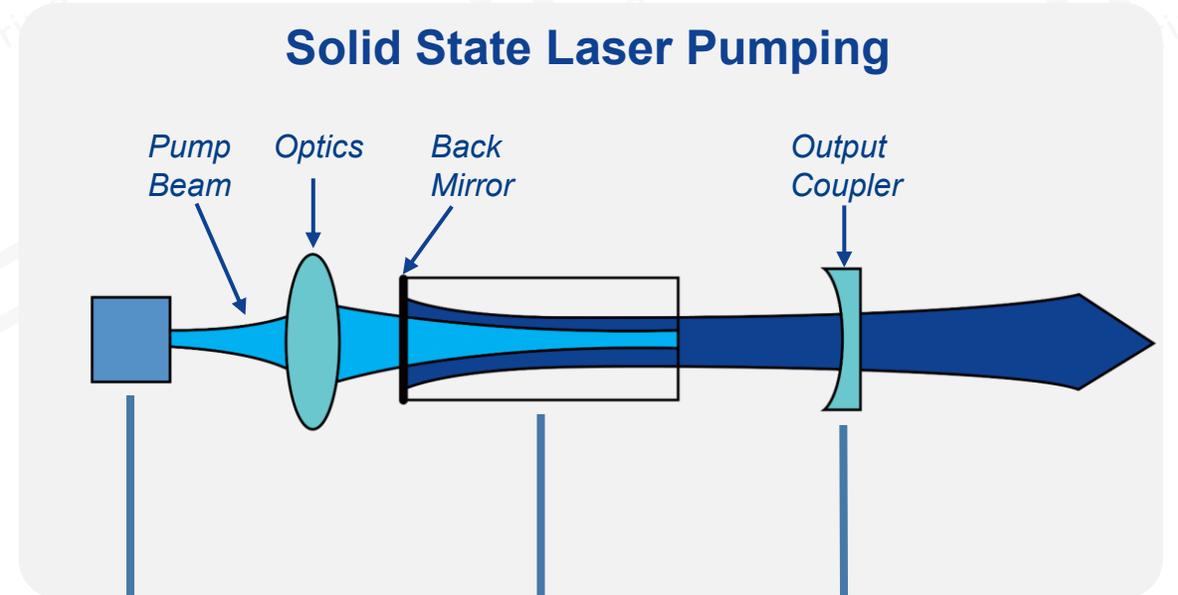
*Focuslight does not
produce medical or
health equipment*

Typical Applications

Industrial



- **AuSn pre-deposited ceramic substrates** – stable and reliable thanks to the high thermal conductivity and suitable thermal expansion coefficient;
- **Fast axis collimators (FAC)** – fundamental and efficient solutions for shaping the beam emitted by the pumping sources;
- **Focusing lenses** – coupling the collimated laser beam precisely into the output fiber;



Diode Laser as Pumping Source

+

Gain Medium

+

Optical System

Footprint ↓

Reliability ↑

Efficiency ↑

Cost ↓

Sales Network



- Worldwide established distributors
- Direct sales offices in China, Switzerland and US
- Manufacturing site in Xi'an, Dortmund, Dongguan, Haining, Shaoguan, Neuchâtel, and Singapore

Your committed and reliable long-term partner in photonics components and solutions



Diode laser light source leader and beam shaping expert with strong IP position



One-stop-shop provider of micro-optics choosing from five process technologies best matching customer needs



Global photonics foundry that convert customers' ideas and designs into their own products and solutions



Total solution, versatile customization service and field service provider



Strong RDE capability, high volume production capacity and low-cost manufacturing



Financially healthy and strong financial backing from investors for long term growth

THANK YOU



www.focuslight.com

www.hptg.com

