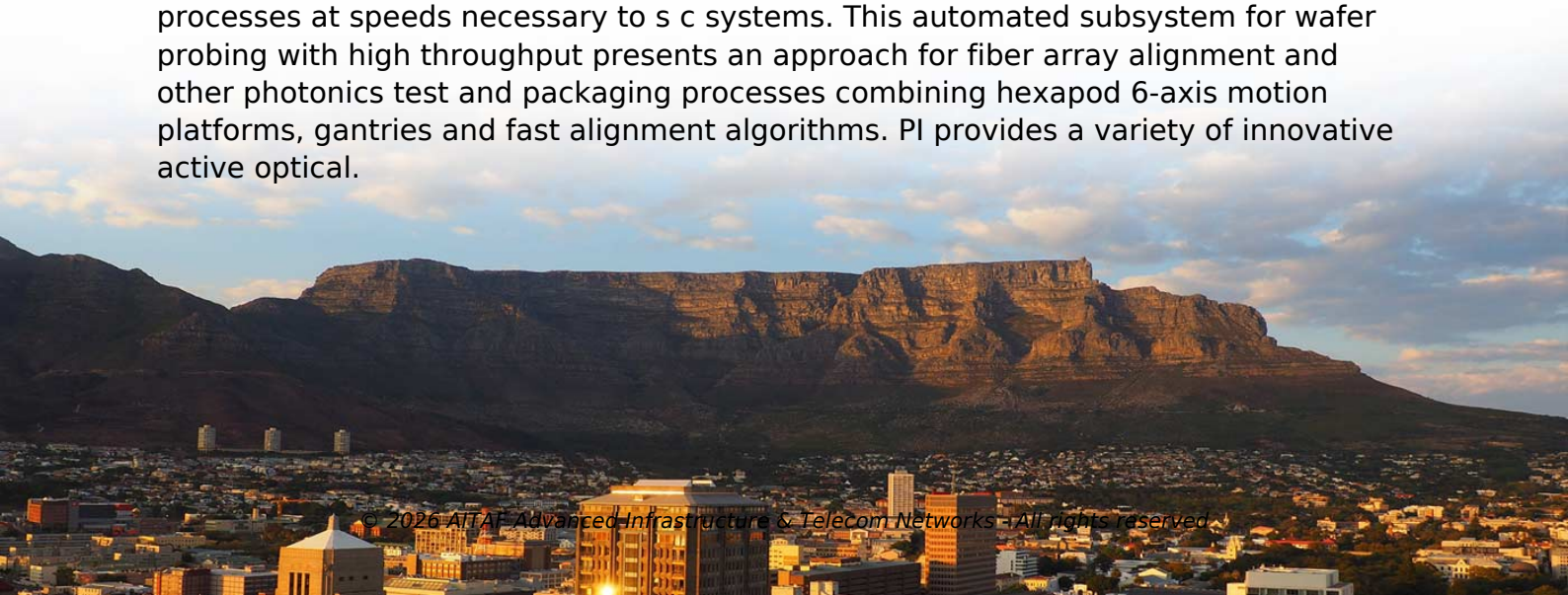
High-precision optical module coupling equipment

Overview

They uniquely combine high-precision optical alignment capability with epoxy-based attachment, eutectic die bonding and/or laser soldering for all optical elements, waveguides, fiber types and die, chip or PIC hybridization tasks – all in an industry-proven design. Since its original founding in 2001, ficonTEC has become the market leader for individually customized solutions for semi or fully automated micro-assembly and testing of opto-electronic components, micro-optic assemblies and photonics-enabled devices. Our machines employ industry-proven production. We offer a full line of fiber optic couplers and splitters supporting SM, MM, PM, large core, and double-clad fibers across 300–2000 nm, with power handling up to 100 W and operating temperatures up to 300°C. Three fabrication methods are employed: fusion, micro-optics, and planar lightwave circuit. SmarAct optical assembly solutions deliver cutting-edge technology for the alignment, positioning, and integration of optical components with nanometer accuracy. With nanometer-level accuracy and incremental step size capabilities, these modular, direct-drive nanopositioning solutions enable high-precision alignment for your optical device test and assembly processes at speeds necessary to s c systems. This automated subsystem for wafer probing with high throughput presents an approach for fiber array alignment and other photonics test and packaging processes combining hexapod 6-axis motion platforms, gantries and fast alignment algorithms. PI provides a variety of innovative active optical.



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Article Content

Optical Coupling Modules

The coupling module is manufactured by using our ultra-high-precision micro-injection-moulding process. The mechanical design of the coupling module

Automated Laser-Fiber Coupling Module for Optical

Achieving high-quality images depends significantly on optical fluence, which is directly proportional to the signal-to-noise ratio. Hence, optimizing the laser-fiber coupling is critical.

High-Precision Optical Assembly

AIXEMTEC specializes in developing high-precision optical assembly solutions, ensuring exceptional performance and repeatability across applications like Active Alignment, Micromanipulation, and

PWS-HE Series Full-Auto Coupling System | Motorized 6-Axis Vision ...

Designed for optical-electrical packaging of semiconductor chips, silicon photonic devices, and other passive components, this system provides a highly stable platform for coupling optical fibers (single

Precision Alignment for Optical Device Assembly

Direct-drive serial kinematic stages that are robustly designed for high-volume manufacturing environments & meet the process''s positioning flexibility & precision requirements

Automated Laser-Fiber Coupling Module for Optical

Conventional coupling systems require manual adjustment of the optical path to direct the laser beam into the fiber, which is a repetitive and time

Fiber Couplers/Splitters/Combiners

We offer a full line of fiber optic couplers and splitters supporting SM, MM, PM, large core, and double-clad fibers across 300–2000 nm, with power handling up to 100

Cisco Optics | Transform Your Network

Get the highest quality, performance-leading optical transceivers for any network architecture. Find the transceiver model to fit your network.

Repeatable Passive Fiber Optic Coupling of Single

This research demonstrates a method for the repeatable passive fiber optic coupling of single-mode waveguides with a micron-scale accuracy for high

Fast Multi-Channel Photonics Alignment Systems

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FMPA is implemented in the E-713 controller''s modular firmware to enable fast, simultaneous alignment and tracking of multichannel couplings in multiple degrees of freedom.

Precision Optical Technologies | Optical Networking

Precision Optical Technologies is a system engineering and integration company focused on optical networking products, systems integration

Machine Platforms and Product Lines – ficonTEC Service

More than any other ficonTEC product, these systems combine high-precision optical alignment capability with a multiplicity of assembly technologies – including epoxy

Fused Couplers | OEM Optical Communication Solutions | Corning

Our ultra-low polarization dependent loss couplers offer low levels of sensitivity to polarization, enable more effective monitoring and management of optical networks. These couplers are available in a

Active Alignment, Assembly and Testing of Camera

ProCam® Active alignment, assembly and testing of camera modules and LiDAR systems With the measurement and production instruments of the ProCam®

Design of a Multi-Point Kinematic Coupling for a High

This paper covers the design of a new multi-point kinematic coupling specially developed for a high precision multi-telescopic arm measurement

Testing Strategies for Next-Generation Optical Interconnects: Co ...

-density, high-channel-count optical modules in significant volumes and make it commercially atractive. More information about what the dense integration of photonics means for testing c

Technologies for photonics assembly and testing

These motion systems form an integral core element of our automated assembly machines, providing high-precision positioning (nm-resolution coupled with 50 nm

High power and small spot fiber coupling system for pump ...

With the development of solid-state lasers and fiber lasers, the output power and spot size of the pump source of semiconductor lasers have higher requirements. A compact output high

High-Precision Assembly of Micro-Optical

Extensive automation allows the cost-efficient and fast assembly of even complex optical paths with filters, prisms, and mirrors in standardized

A high precision passive coupling scheme between optical fiber and ...

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With the development of optical communication technology, more and more waveguide devices are applied to commercial optical communication systems. The coupling of optical fiber and

Optical Fiber Waveguide Alignment System for Fiber to Chip Coupling ...

Optical Alignment Machine High quality components are used to assemble the system to guarantee high precision and repetitive motion applications.OEM customized manual, semi-auto and fully automatic

High-Throughput PIC Production Needs Precision

This approach employs high-precision motion systems and intelligent algorithms to optimize coupling efficiency across multiple channels and degrees

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METHOD FOR HIGH PRECISION COUPLING OF AN OPTICAL FIBER WITH A PHOTONIC DEVICE AND IMPLEMENTATION MICROSTRUCTURE The method comprises the steps of A) equipping the

The design and application of an automatic optical ...

In this paper an automatic optical inspection system for the advanced fiber coupler assembly manufacturing process is presented. Coupling efficiency variations were compared with

Automatic Fiber-optic-coupling Alignment System

The high accuracy of the piezoelectric-ceramic drive circuit and the reliability of the piezoelectric-ceramic fixation method designed in this spatial optical coupling auto-alignment system are of great

OPTICAL ASSEMBLY SOLUTIONS

The platform is designed for process development, prototyping and production scaling and enable high-precision positioning, alignment and metrology in photonics, semiconductor and life sciences.

Optical and optomechanical Assemblies

Our special bonding process and the ultrafast laser micro-welding process are best suited for high-precision assemblies with demanding alignment tolerances. Both

Fiber Coupling to Polarization-Maintaining Fibers and Collimation

This high stability is fundamental for the successful use of fiber optic equipment. Accurate measurements of the effective fiber numerical NAe2 provide the basis for choosing the most

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