

# FL300

3 to 12 Axes for Fiber Optics Production



***ficonteC***  
micro assembly machines

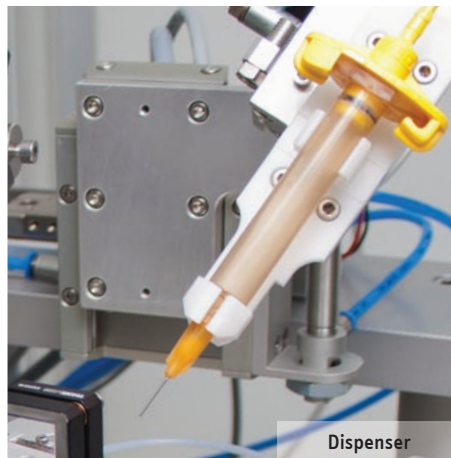
# FL300 3 to 12 Axes for Fiber Optics Production

Machines of the FiberLine FL family offer everything you need for fiber alignment applications. They can be configured for assembly tasks as well as for testing or qualification purposes. Their modular and expandable concept provides fitness for future products.

The active alignment philosophies make them the ideal tool for Silicon Photonics packaging and fiber attach tasks. The easy to use yet powerful machine software „Process Control Master“ helps to further automate your production.

## Dispensing Module / UV Curing

For highest degree of automation the FL300 machines can be equipped with an epoxy delivery module. The module is controlled from within the assembly process. It is available with or without a UV curing functionality.



## Alignment Laser

When attaching fibers to passive optical component such as PDs, PLCs, or AWGs alignment lasers are needed for active alignment. The wavelengths needed can be chosen from the typical bands 1310 nm or 1550 nm. For fiber arrays multiple lasers can be controlled simultaneously. All common fiber connector types are available.

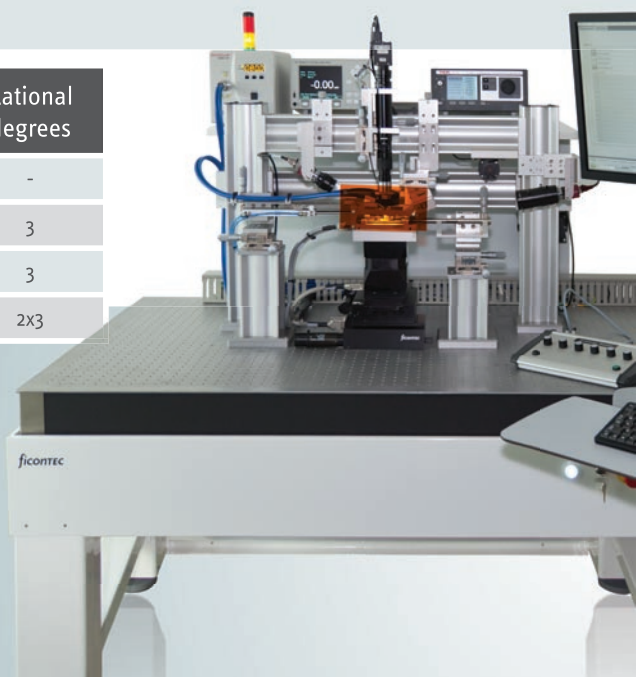
## Fields of Use

- Fiber optical module assembly
- Planar waveguide coupling
- Silicon Photonics
- Pigtailling

## Software

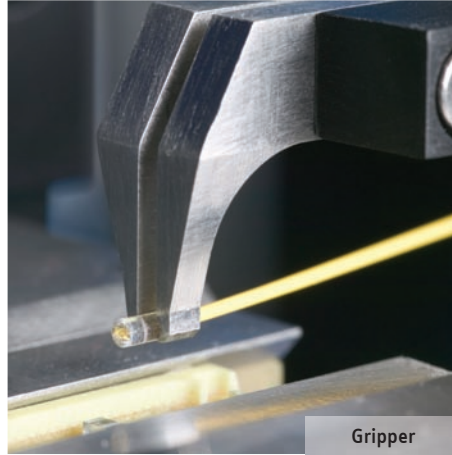
ficonTEC's „Process Control Master“ machine software controls the entire assembly or testing process. The user can choose from a wide variety of active scanning algorithms for the individual best solution for various and differing alignment and testing demands. For the attachment of fiber arrays the software offers a unique and extremely powerful signal locking function. A data base keeps track of all important component and process parameters as well as testing results.

Available configurations	Degree of Freedom	Lateral degrees	Rational degrees
• FL300-3	3	3	-
• FL300-6	6	3	3
• FL300-9	9	2x3	3
• FL300-12	12	2x3	2x3



## Power Meter

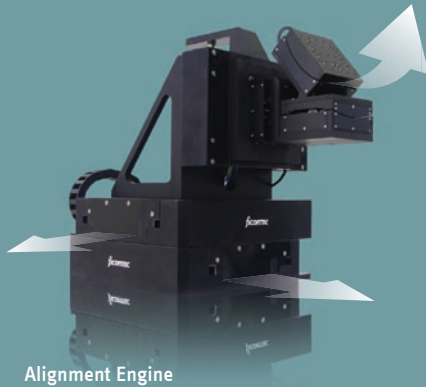
An analogue power meter reads the optical signal and feeds it to the motion system in real time. The active alignment routines make use of closed loop communication for highest speed and precision. All common fiber connector types are available.



Gripper

## Fiber Gripper

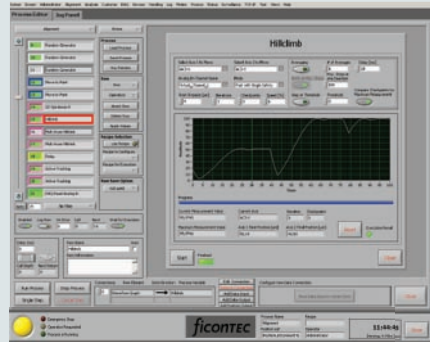
An essential module to fiber attach machines is the gripper which actually transfers the alignment movements to the tip of the fiber. Evidently a proper designed fiber gripper is vital for a stable alignment and testing process. Consult ficonTEC for existing gripper designs or have us design your own.



Alignment Engine

## Alignment Engine 5 nm resolution, 100 mm travel range

The alignment engine builds the heart of any fiber alignment system. The ficonTEC FL300 family offers extraordinary 50 nanometer bidirectional repeatability (BDR) and up to 12 degrees of freedom for single fiber applications or even fiber ribbon to fiber ribbon assemblies. A linear stroke of 100 mm offers the ability to also process large chips and even introduces pick & place capability. Due to its motion concept in combination with the optimized software functions the active alignment algorithms are the fastest of its kind.

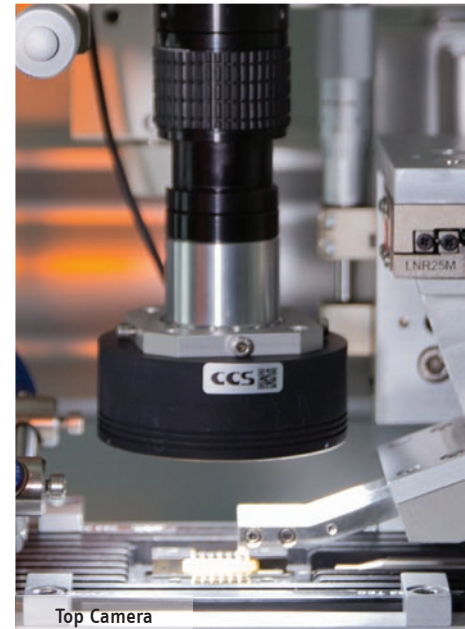


## Top View Camera

A camera with a view from the top observes the component and the fiber for coarse pre-alignment. It can make use of the component edges itself as well as of fiducial marks. A collision between fiber and component is prevented. For dual fiber assemblies the top view camera is motorized for shuttling between positions.

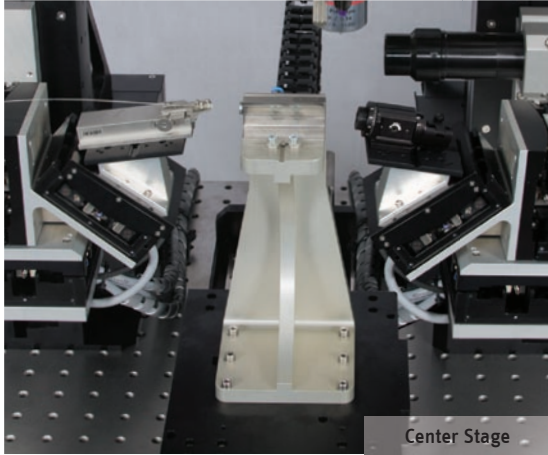
## Back Side Camera Module

The back side camera is a standard module of the machine. It is used by the alignment process for the coarse alignment of the fiber in respect to the chip. A collision with the component's facets is prevented.



Top Camera





Center Stage

## Center Stage

A center stage carries the assembly or test chuck. The stage can be static for easy application or motorized for easy loading access or for large die test and assembly tasks, as well as for basic pick & place.

## Assembly/Test Chuck

The chuck represents the interface of the machine to the component. Besides the fiber gripper it is the module of an FL300 system with highest degree of customization. Be it TEC control, component operation, obtaining feedback signals a highly sophisticated chuck design is a key to optimum assembly and test results. Consult ficonTEC for existing fixtures and holders.



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