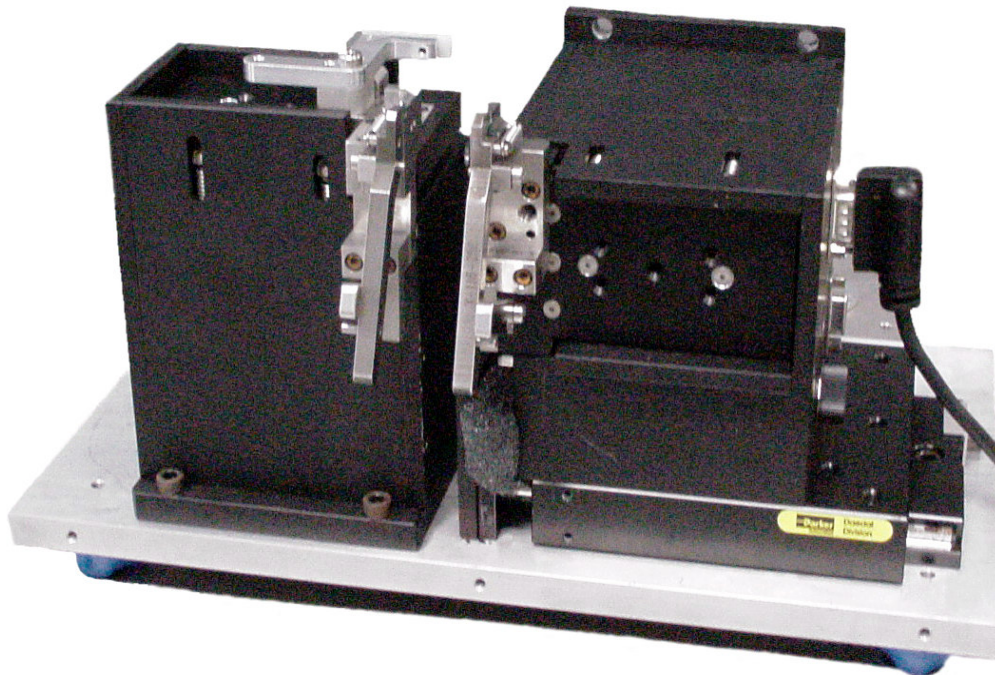


Description

By leveraging core competencies in motion control and flexure-based kinematic mechanisms, DSM developed a PC-based, low cost, 5 axis aligner/positioner system for the automated assembly and/or positioning of mating components in laboratory and industrial manufacturing environments. The solid-state flexure mechanisms provide stiction-free motion in a stiff and compact package.



Design Features

The initial alignment and positioning system was designed to meet the need for alignment processes used in optical component manufacturing. The system consists of two independent stages mounted on a common base with integrated kinematic software for virtual pivot point rotation and linear motion. The left stationary stage is a two-axis, Y/θ_y motion, while the right stage consists of a two-axis X/θ_x stage mounted to a Z-axis stage.

This type of system is available with customized end tooling as well as customized search and peaking algorithms with user-configurable algorithm parameters. Other stage configurations, including placement of all 5 axes on a single side of the assembly environment, can be readily designed for custom solutions.

Specifications

DSM 5-Axis Aligner/Positioner System TECHNICAL DATA SPECIFICATIONS			
Footprint:	Length	430	mm
	Depth	204	mm
	Height	168	mm
Travel ¹	X, Y	± 4	mm
	Z	25	mm
	Resolution ² :	X, Y, Z	≤ 0.2
Repeatability ³ :	X, Y, Z	≤ 0.2	μm
Max Velocity:	X, Y, Z	3	mm/sec
Travel ¹ :	θ_x, θ_y	± 3	deg
Resolution:	θ_x, θ_y	≤ 0.05	arc min
Repeatability:	θ_x, θ_y	≤ 0.1	arc min
Max Velocity:	θ_x, θ_y	2.5	deg/sec
Load capacity		4	kg
¹ The aligner system was designed to provide the full range of angular motion (θ_x, θ_y) at all linear positions (X, Y, Z). ² Minimum incremental move ³ Unidirectional			