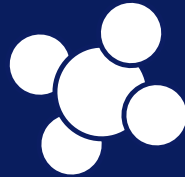


**Korvis Automation Inc.** provides an array of services ranging from turnkey manufacturing systems to prototype and R&D tooling. Utilizing a novel, modular approach consisting of mechanical and software building blocks, Korvis delivers custom systems in a timely, cost efficient manner.

Headquartered in Corvallis, Oregon, Korvis consists of a 40,000 square foot manufacturing and engineering facility. Sales and support offices are located in Seattle, San Diego, and Silicon Valley. Korvis serves a global market, with customers from Puerto Rico to Thailand.

As an integrator, Korvis stands to team with the customer, providing an automation and manufacturing partnership. Our management team has over 200 years of combined experience in the automation business.



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**Korvis**  
400 LASER WORK-CELL



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## Korvis 400 Laser Work-Cell

The Korvis 400 Laser Work-Cell is a unique machine designed as a flexible laser process system. The adaptable work envelope can accommodate a variety of substrates. Typical examples include flat panel glass, wafers, disk drive components, product marking applications, ablation processes, and laser welding.

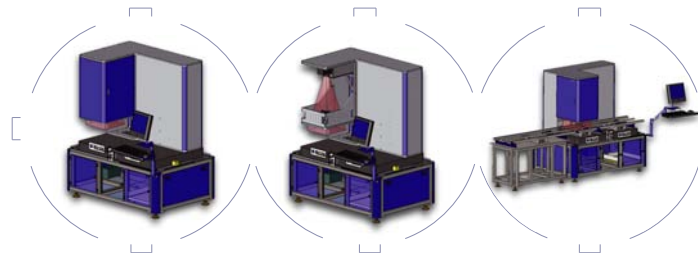
The 400 consists of five major subsystems: the laser, the laser support structure, the scanner and related optics, the machine vision system, and provisions for a variety of material handling systems such as servo stages, conveyors, etc. Korvis machine control code will command and/or monitor all of the subsystems. KHMI (Korvis Human-Machine Interface) provides an easy to use GUI.

### Laser

Lasers are chosen specific to process and substrate. A typical system laser for the 400 is a solid state diode pumped laser. Optics can be optimized for various wavelengths ranging from UV to IR, 3-10W. The 400 can accommodate a laser of dimensions 980mm long by 260mm wide without modification. Configuration accommodates power meters, attenuators, etc.

### Scanner

The 400 incorporates a three axis galvanometer scan head with integrated field correction algorithms. Optional self calibration features allow the 400 to process the most demanding precision applications while minimizing drift associated with temperature.



### Features and Specifications

- System work envelope accommodates substrates sizes up to 400mm X 400mm
- Scanner working distance range 100mm to 900mm
- Scan speeds as high as 5000mm/s
- Compact footprint, 1.77m by 1.13m
- Debris removal system utilizing a high powered vacuum suction opposing a process air knife
- Dynamic performance of scan head exceeds  $22\mu\text{rad}$
- Automated calibration
- Enclosure and safety interlock system complies with the appropriate class of laser as per ANSI Z136.1
- Integrated machine vision system for product registration
- Advanced, open architecture controls package for material handling integration
- True turnkey system integration

### Machine Vision

The 400 incorporates a machine vision system consisting of multiple down-looking cameras used to locate substrate features for automatic system alignment and part registration. The camera assembly is flexible, allowing for a variety of substrate sizes and shapes. All machine vision lighting is included.

### Ergonomics

Every aspect of the system is designed to be operator friendly. All edges are rounded and smooth to prevent injury or product damage. All required machine access, including access needed for maintenance, is through the front or the rear of the machine. Controls such as pneumatics and I/O are mounted on pull-out ball bearing drawer slides for easy access. The user interface is adjustable in height, viewing angle, and has an ergonomic wrist support.