



The Gateway

Keeping Purchasing Decision Makers Informed.

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PHOTO OF PARTS

Spotlight Feature Article Reprint from December 2008 issue of The Gateway for:

VALLEY DESIGN CORPORATION
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Santa Cruz, CA

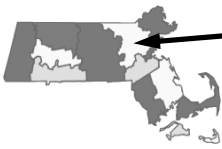
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Shirley, MA

VALLEY DESIGN CORPORATION

If your company needs a polished surface on any type of material, then you need Valley Design!

Incorporated in 1975, Valley Design Corp. specializes in precision lapping, polishing, dicing, grinding and other precision machining of a wide variety of materials. The company has two manufacturing locations with the home office located in Shirley, Massachusetts and a branch in Santa Cruz, California. The company's total business system and fracturing processes are ISO 9001:2000 certified.



Erik Indars, Co-Chairman, Mandi Indars, Marketing & Sales Director and Gunars Indars, Founder & Co-Chairman of Valley Design Corporation.

Valley Design also has representative offices in Germany, France and Israel, and will soon have additional representation in the UK, the Netherlands and China. The company does business on a daily basis with a number of foreign countries including Australia, Singapore, Egypt, Transylvania, Albania and throughout Europe. They are heavily involved with the semiconductor industry, the medical industry, aerospace, and optics as well as a wide variety of OEM manufacturing companies.

Gunars Indars founded the company and is partnered with his first employee, his son Erik, as Co-Chairmen. Today, Gunars and Erik work closely together to manage the Massachusetts and California operations, while Erik also does all the quoting for the company. Erik's wife, Mandi, is the Marketing and Sales Director for Valley Design Corp. She is heavily involved with keeping the more than 300 Internet pages and sites up to date and filled full of technical information to help customers find what they're looking for. With the assistance of Theresa McGrath, QA Manager, Mandi also manages the company's ISO quality program.

The employees (most of which are long term) at Valley Design are extremely well-trained in producing high-quality micro-electronic, electro-optical and optical products such as windows, wafers, substrates and other flat components and in providing precision lapping and polishing services. They specialize in ultra-thin (<25 μm), ultra-flat (1/10 wave), super polishing (<5 angstroms), and tight tolerances ($\pm 0.5 \mu\text{m}$) of all types of materials.

Precision Lapping

Valley Design can flat lap parts up to 8 feet long or 4' x 4' square, to parts that are a few ten thousands of an inch in size. They offer a size control and parallelism of $\pm .000020''$ depending on size, and flatness to 1/10 wave, or $.0000023''$. They lap any metal, various alloys, glass of all types, ceramics, sapphire, graphite compositions, titanium, semiconductor wafers, quartz, crystals, etc. The company also offers vacuum and wafer chuck refurbishing services.



Rows of polishing machines fill the shop.



Production lapping machines.

on some optical materials. Valley can polish large sized parts up to 450mm diameter and larger and hold thickness tolerances as tight as +/- .5um. They routinely polish metals including stainless steel, copper and aluminum, fused silica, glass of all types, quartz, aluminum nitride, Pyrex, alumina, sapphire, ceramics, molybdenum, germanium, silicon and other crystals to name a few. They also stock many of these substrates and wafers in a wide variety of sizes for immediate shipping which can be viewed on their website www.valleydesign.com.

Dice & Slice

Gunars' first job when he started Valley Design was slicing materials for a major computer manufacturer. Today the com-



Polishing a very thin, rectangular substrate.



Polishing

Valley Design specializes in all types of polishing including optical polishing, angle-facet polishing and end face polishing. They routinely offer polished surface finishes of 5-10 Angstroms on many materials, and have been able to achieve as good as 3 Angstroms

pany is still slicing or dicing parts as small as .005" square from 6" x 18" rectangular, or 6" diameter substrates on state-of-the-art computerized dicing saws that are equipped with microprocessors and closed-circuit TV microscopes and operated by skilled technicians. They perform this service on many materials including difficult materials such as sapphire, fragile crystals, thick and thin glass, quartz, and various metals.

Hole Drilling

To drill precision holes in hard, brittle materials,



Another area of lapping machines.

Valley Design uses ultrasonic rotary drilling: a precision hole drilling service that produces stress free holes devoid of microscopic cracks or fissures usually caused by heat from conventional rotary drilling or laser cutting. Ultrasonic hole diameters from .020" to .500" are available and conventional diamond drill hole diameters as small as .008" up to a depth of 1 inch. After drilling, the holes may be lapped, polished or shaped as needed.

Valley Design customers include some of the top technology companies in the world. Customers have responded with testimonials such as:

"I would like to say I am very, very happy with the work Valley Design performed."

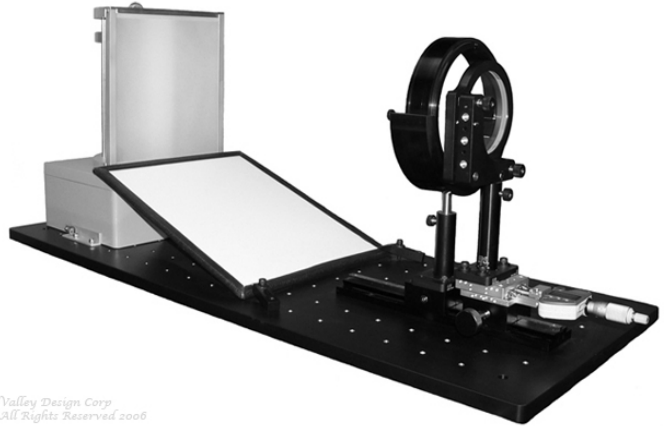
"The results are more accurate than we requested."

"The customer service rep that we spoke to was very helpful and very professional."



One of the Quality Control Inspectors at her station.

One of the problems faced by Valley Design was how to accurately measure the flatness of thin (.5mm and thinner) polished transparent wafers, substrates, plates and windows. There was nothing on the market that would give a true flatness measurement. The design had to resolve some complex problems, including fixturing the parts regardless of shape or size. It had to



Valley Design Corp
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The patented Indars Interferometer for transparent wafer flatness measurement is now available.

eliminate gravitational forces and the use of distorting opaque films required by other systems. It also had to preserve a scratch free surface by using a non contact holding method. So Gunars developed such an instrument and it has now been patented.

Another astonishing project that Valley Design recently accomplished is producing a perfect mirror of Aluminum. Because of its nature, it has always alluded man to be able to put a perfect optical, polished surface on its soft surface. Leveraging over 30 years of R&D polishing on almost every type of material, Valley Design engineers developed the process and it can now be routinely accomplished.

Valley Design's mission is clear as Gunars, Erik and the team tackle new materials and ever more challenging specifications with each passing day. Valley Design will continue on its path to push the boundaries of possibility as the company grows with and enables exciting future technologies.

VALLEY DESIGN CORPORATION

Two Shaker Road, Bldg, E-001

Shirley, MA 01464

Tel: 978-425-3030

Fax: 978-425-3031

www.valleydesign.com

info@valleydesign.com